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METALS AND CERAMICS DIVISION

THORIUM-URANIUM-233 OXIDE (KILOROD) FACILITY - ROD FABRICATION PROCESS AND EQUIPMENT

J. D. Sease, A. L. Lotts, and F. C. Davis

APRIL 1964

OAK RIDGE NATIONAL LABORATORY Oak Ridge, Tennessee operated by UNION CARBIDE CORPORATION for the U. S. ATOMIC ENERGY COMMISSION

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# CONTENTS

| ABSTI | CT                                                 | 1 |
|-------|----------------------------------------------------|---|
| INTRO | UCTION                                             | 1 |
| FUEL  | OD DESIGN                                          | 3 |
| ROD   | BRICATION PROCESS                                  | 3 |
| ROD 1 | BRICATION FACILITY                                 | 5 |
|       | ell Layout                                         | 8 |
|       | ontainment                                         | l |
|       | entilation                                         | 1 |
|       | rainage                                            | 3 |
|       | enetrations                                        | 3 |
| PROCI | S EQUIPMENT                                        | 6 |
|       | owder-Preparation Equipment                        | 7 |
|       | ibratory Compaction Apparatus                      | 9 |
|       | nd-Cap Welding Machine                             |   |
|       | econtamination Equipment                           |   |
|       | elium Leak Detection System                        |   |
|       |                                                    |   |
|       |                                                    |   |
|       | hipping Cask · · · · · · · · · · · · · · · · · · · | 4 |
| CONCH | <b>I</b> OF OPERATION                              | б |
|       | owder-Preparation Shaft 3                          | б |
|       | ibratory Compaction                                | 6 |
|       | econtamination                                     | 7 |
|       | nspection and Loading                              | 7 |
| OPER  | ING EXPERIENCE                                     | 7 |
|       | ockup                                              | 7 |
|       | reliminary Check-Out                               | 9 |
|       | perating Experience with Stand-in Oxide 4          | С |

ŝ

7

74 N 8

:

È.

÷

Ę.

| CONCLUSI | ons | •   | •  | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | ٠ | ٠ | ٠ | • | ٠ | ٠ | ٠ | ٠ | ٠ | 42 |
|----------|-----|-----|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| ACKNOWLE | DGM | EN. | rs | • | • | • | ٠ | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | 42 |
| APPENDIX | А   | •   | •  | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | 43 |
| APPENDIX | В   | •   | •  | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | 47 |
| APPENDIX | С   | •   | •  | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | ٠ | ٠ | • | • | • | • | • | • | ٠ | 57 |
| APPENDIX | D   | •   | •  | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | ٠ | • | • | ٠ | • | • | • | 85 |
| APPENDIX | Ε   | •   | •  |   | • | • | • | • | • | • | • | • | • | • | • | • | • |   | • | • | • |   | • |   | • |   | • | • | 95 |

iv

# THORIUM-URANIUM-233 OXIDE (KILOROD) FACILITY - ROD FABRICATION PROCESS AND EQUIPMENT

J. D. Sease, A. L. Lotts, and F. C. Davis<sup>1</sup>

#### ABSTRACT

A fabrication facility with related process equipment has been constructed to fabricate fuel rods containing  $U^{233}$  and thorium oxide by the bulk oxide-vibratory compaction route and is now in operation at the Oak Ridge National Laboratory. While the initial motivation for the facility was to fabricate U<sup>233</sup>bearing 1/2-in.-diam × 46-in.-long Zircaloy-2 clad fuel rods for criticality experiments at the Brookhaven National Laboratory, sufficient flexibility has been incorporated into the facility to accommodate a variety of development work on a pilot-plant scale. The facility consists of a number of permanent alphatight cubicles which are shielded with 4 1/4-in. steel. The fabrication process is carried out remotely in these cubicles with the exception of several gloved-hand operations which occur where the dexterity required for manipulation exceeds that of the remote castle-type tongs. The fabrication equipment that has been installed in the facility performs the operations associated with oxide powder comminution and classification, vibratory compaction of oxide in fuel tubes, tube closure, fuel rod decontamination, and fuel rod inspection. Both the facility and the process equipment are described in detail, and detailed assembly drawings of the process equipment are included.

# INTRODUCTION

The potential of the Th-U<sup>233</sup> fuel cycle for achieving low nuclear fuel cost exists because of the excellent nuclear characteristics of  $U^{233}$  which has a higher eta value in the thermal and epithermal energy regions than either  $U^{235}$  or  $Pu^{239}$ . Obviously, the  $U^{233}$  formed in the cycle must be returned to the reactor to capitalize on this potential. Unfortunately, associated with the  $U^{233}$  are significant levels of  $U^{232}$ , the decay products of which emit penetrating radiation, thus making the

<sup>1</sup>Plant and Equipment Division.

consideration of shielding and fast processing time mandatory in thorium fuel cycle technology.<sup>2</sup> The development of techniques for reprocessing and fabricating fuels containing thorium and  $U^{233}$  is, therefore, an important step toward fulfilling the economic potential of the system. The demonstration of technical feasibility and the establishment of economics for both reprocessing and refabrication are unquestionably essential for accurate determination of the worth of the thorium fuel cycle to nuclear power systems.

As a first step toward developing economical processes and systems for remote refabrication of  $\text{Th-U}^{233}$ -bearing fuels, a facility (known as the Kilorod Facility) has been constructed and is now in operation at ORNL. In this lightly shielded facility, space is provided to accomplish all the phases of fabrication of radioactive material by the vibratory compaction route.

The facility and its equipment were specifically designed for making fuel rods that are to be used in zero-power criticality experiments at Brookhaven National Laboratory (BNL). These rods are scheduled to be made at a production rate of approximately 10 to 15 rods per day. Other fabrication tasks not accommodated by the BNL fuel fabrication equipment can be accomplished by substituting process equipment in the permanent cubicles.

The processing of the fuel in the Kilorod Facility encompasses two distinct phases - bulk oxide preparation by the sol-gel process<sup>3</sup> and fuel rod fabrication. This report is concerned with the equipment and facilities for the rod fabrication operations which include those steps from the conitioning of the oxide for loading into fuel tubes through inspection of the completed fuel rods. A discussion of the development of the equipment and process up to the commencement of operation with  $U^{233}$  is presented. Detailed assembly drawings and purchase specifications of the process equipment are included in the appendices. Also included in the appendices is a complete list of the engineering drawings for the entire facility.

<sup>2</sup>E. D. Arnold, "Radiation Hazards of Recycled U<sup>233</sup>-Thorium Fuels," pp 253-84 in <u>Proceedings of the Thorium Fuel Cycle Symposium, Gatlinburg</u>, Tennessee, <u>December 5-7</u>, 1962, TID-7650, Book 1 (1963).

<sup>3</sup>D. E. Ferguson <u>et al.</u>, <u>Preparation and Fabrication of ThO<sub>2</sub> Fuels</u>, ORNL-3225 (June 1962).

#### FUEL ROD DESIGN

The configuration of the reference fuel rod to be fabricated in the facility for the BNL critical experiments is shown in Fig. 1. The BNL experiments require 900 of these rods and 200 rods identical in design except that they are 18 in. in length instead of 46 1/16 in. The detailed design of these two rods may be reviewed in Appendix A.

The nominal compaction density was not specified by BNL but will be determined from the average density of the fuel rods fabricated. It was specified that the rods will have a fuel density of  $\pm 2\%$  of this determined average density, and the density within a fuel rod will be to  $\pm 2\%$  of the average for that fuel rod. Based on experience with depleted (U,Tn)O<sub>2</sub> in the "cold" operation of the facility, an average density of 90% of theoretical is expected.

The cone-shaped Zircaloy-2 bottom fitting which will be used to direct the rod in the critical lattice at ENL is welded onto the tube in a tungsten-inert gas-welding operation which is done outside the facility. The annular groove in the bottom plug is used as a handling aid during fabrication. In the facility, the top plug, ceramic spacer, and spring are inserted into the fuel tube after compaction as a unit. The ceramic spacer and spring are used in the void area at the top of the fuel rod to prevent redistribution of the fuel during handling. The Zircaloy-2 top-end plug, joined onto the fuel tube by a fusion edge weld in the facility, is threaded to accommodate the stainless steel hanger fixture. This hanger fitting will be used to facilitate handling of the fuel rod in the critical lattice. The hardware procurement for these rods is described in another document.<sup>4</sup>

#### ROD FABRICATION PROCESS

The procedures employed to fabricate the BNL fuel rods include: (1) sizing the bulk UO<sub>2</sub>-ThO<sub>2</sub> into an optimum particle-size distribution

<sup>4</sup>S. A. Rabin, <u>Procurement and Evaluation of Hardware for the</u> Brookhaven National Laboratory Fuel Rods, ORNL-TM-739 (in press).

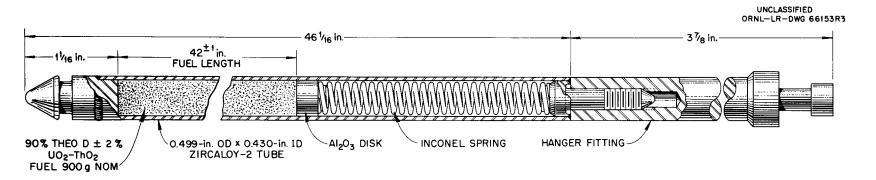


Fig. 1. Design Features of the BNL Fuel Rod.

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for vibratory compaction, (2) vibratory compaction, (3) welding of the final end closure, (4) fuel rod decontamination, and (5) fuel rod inspection.

The size distribution required to achieve maximum density by vibratory compaction consists of a mixture of either two or three fractions. For design purposes, the reference size distribution consisted of a mixture of three size fractions. As seen in the flow diagram (Fig. 2), these fractions are produced from the as-received calcined oxide by a system of crushing, classifying, and ball milling. Following comminution and classification of the bulk fuel into the two or three working fractions, quantities of each fraction appropriate to one fuel rod loading are apportioned and blended together. The weight of the fuel charge is then checked prior to transfer to the vibratory compaction filling mechanism.

In the vibratory compaction operation, the blended aliquot of fuel is loaded into a fuel tube which contains one end plug and is vibrated to the specified density. This loaded fuel tube is transferred to a welding fixture, the weld area cleaned by wire brushing, and the final end-closure weld made and visually inspected.

At this juncture, the loaded and sealed fuel rod is decontaminated by ultrasonic cleaning in water and smeared to check the level of surface contamination. The integrity of the end-closure weld is evaluated by helium leak checking, and the density of the fuel is determined with a gamma-absorption scanning device. The weight of the completed fuel rod is then checked for determination of the final fuel rod density. Finally, the hanger fitting is attached prior to loading the fuel rod into a shipping cask.

#### ROD FABRICATION FACILITY

The rod fabrication steps are accomplished in shielded alpha-tight cubicles (Fig. 3) situated on the bottom two floors of a 20-ft-long  $\times$  19-ft-wide  $\times$  27-ft-high chemical processing cell (cell No. 4, Bldg. 3019) which provides secondary containment of airborne contamination in the event of an accident.

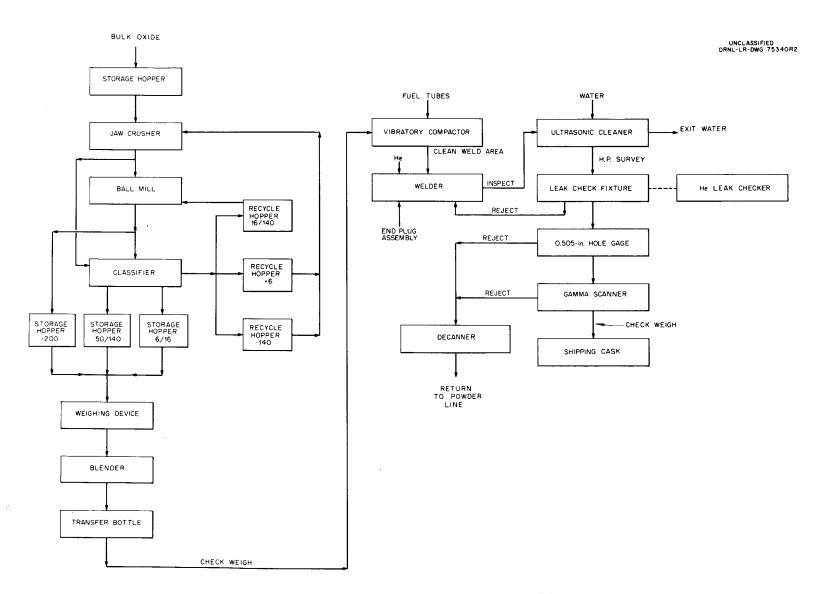


Fig. 2. Rod Fabrication Process Flow Diagram.

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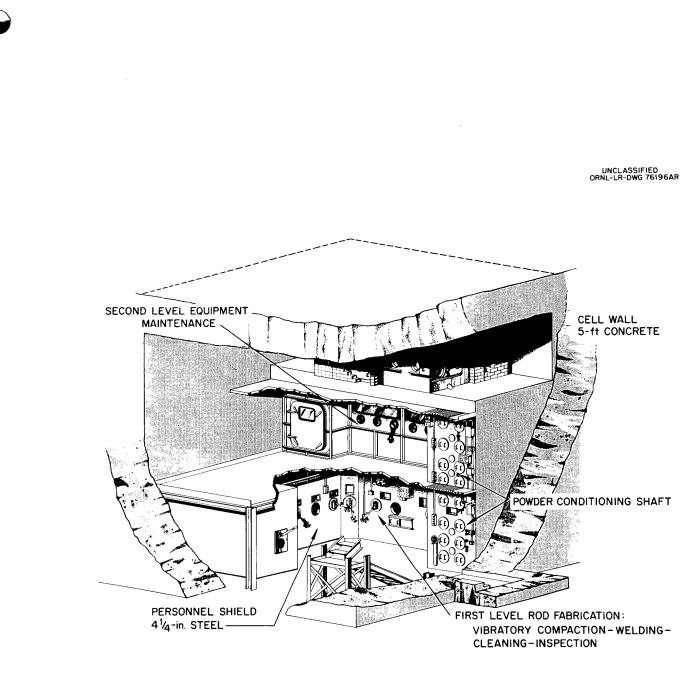


Fig. 3. Overall View of Rod Fabrication Facility.

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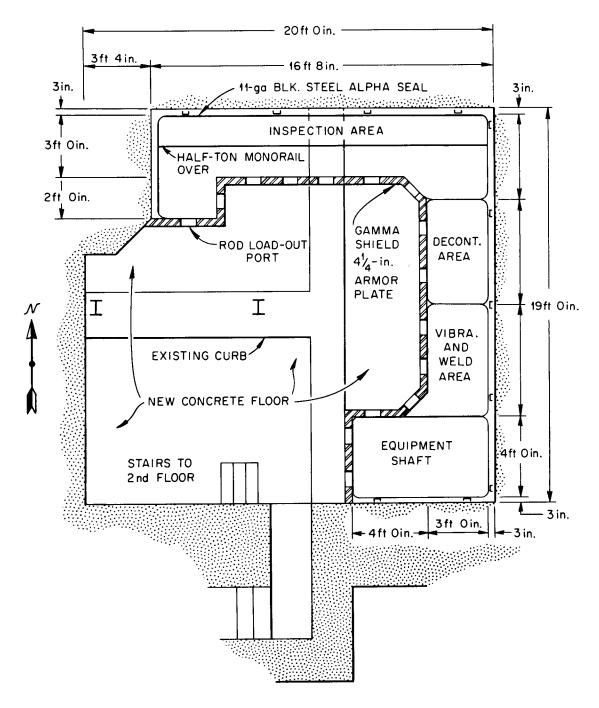
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The fabrication process line was located within a previously used chemical processing cell to utilize existing space. The heavy shielding afforded by the process cell walls has little function in this process. The use of the cell posed a number of problems in design and construction. The limited amount of space available within the cell necessitated the design of cubicles that could be serviced from only the top and one side and also dictated the design of some of the process equipment. The danger of spreading residual contamination retained within the cell wall from previous processes made it necessary to construct the cubicle structure independently of the cell structure.

# Cell Layout

The general cell layout may be reviewed in Figs. 4 and 5. Located on one corner of the first level and extending to the top of the second level is the  $4- \times 7$ -ft powder-preparation shaft. Directly adjacent to this shaft on the first level are three fabrication cubicles that extend along two walls. The first of these cubicles is used for vibratory compaction and welding, the second for decontamination, and the third for inspection. The cubicles are connected by 1-in.-diam transfer ports. In addition, a  $6- \times 6$ -in. port is provided between the vibratory compaction welding cubicle and the decontamination cubicle. A wire screen is located approximately 36 in. from the floor and is used in the cleaning and inspection cubicles to facilitate the recovery of a dropped fuel rod. An unshielded gloved-maintenance area, equipped with a plate glass front and gloves, is located on the second level adjacent to the powderpreparation shaft and directly above the vibratory compaction-welding cubicle and the decontamination cubicle. The maintenance area is equipped with a large bag-out port, an airlock, and a monorail crane which traverses the length of the repair area and the powder-conditioning shaft and is used to lift and convey equipment. A movable worktable and the reject rod decladder are also located in this area. Access to the powder-preparation shaft is through a door in the rear of the shaft which is located on the second floor within the gloved-maintenance area. Access to the fabrication cubicles is through access ports, normally sealed by shield plugs, in the floor of the repair area.

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Fig. 4. First Floor Plan - Rod Fabrication Facility.

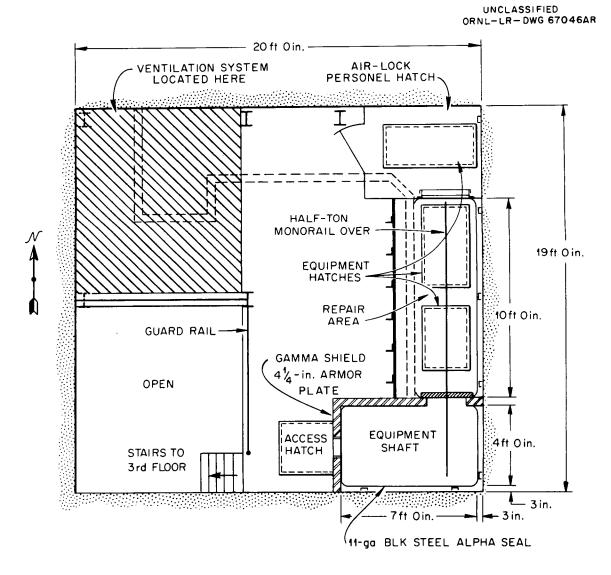


Fig. 5. Second Floor Plan - Rod Fabrication Facility.

Routine entrance and exit of the Kilorod Facility are accomplished through a hatch door and labyrinth located on the first floor. A hatch in the roof of the cell is provided for the entry of the shipping cask or large pieces of equipment. An overhead building crane, located above the cell, is used to transfer the parts through this roof hatch. An emergency personnel hatch is also located on the roof.

#### Containment

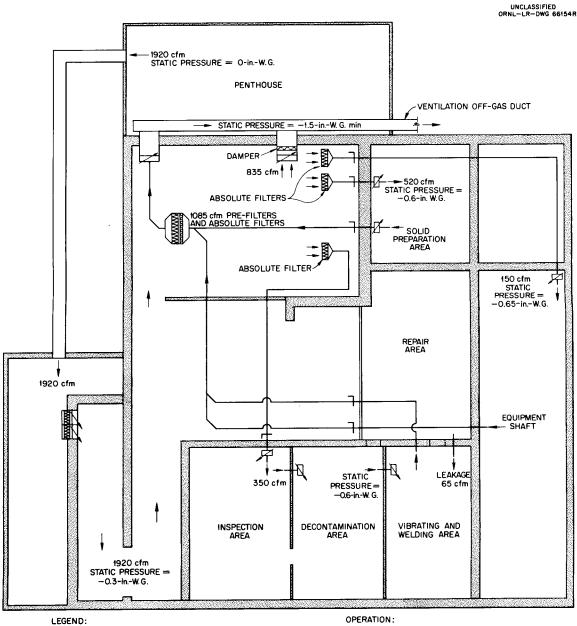
Primary alpha containment for the cubicles is provided by an ll-gage mild steel liner that is painted with an epoxy base (Amercoat No. 74) paint. Gamma shielding is provided by 4 l/4-in. armor plate placed on the top and operating faces of the cubicles. The gamma shielding was designed to allow safe handling of the (Th-3 wt % U<sup>233</sup>)O<sub>2</sub> fuel (the U<sup>233</sup> contains 40 ppm U<sup>232</sup>) for a period of 30 days after the purification of the U<sup>233</sup>. The code used for the shielding calculations may be reviewed in another paper.<sup>5</sup>

A number of difficulties were experienced in using the salvaged surplus armor plate that was employed for the gamma shield. The armor plate had to be surfaced before using because of many irregularities in the surface. The plate was laminated, thus making the burning of holes extremely difficult. After erecting the shield in the cell, it was necessary to place some additional small holes in the armor plate. These holes, less than 1 in. in diameter, were made with some difficulty using standard drilling procedures.

## Ventilation

The facility ventilation system (Fig. 6) was designed so that the operating cubicles will be maintained at a pressure below atmospheric through the use of existing ventilation systems in the vicinity of the cell. The cell is maintained at -0.3-in. water gage pressure with respect to ambient, and the cubicles are maintained at -0.3- to -0.35-in.

<sup>5</sup>E. D. Arnold and B. F. Maskewitz, <u>SDC - A Shielding Design</u> <u>Calculation Code for Fuel Handling Facilities</u>, ORNL-TM-124 (Jan. 1962).



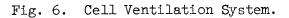
THE FILTERS BACK FLOW PREVENTER

CONTRACT PRE-FILTERS

- BUTTERFLY VALVES

AIR FLOW FROM PENTHOUSE THROUGH THE CELL AND CUBICLES IS GENERATED BY NEGATIVE PRESSURE IN THE "VENTILATION OFF-GAS DUCT." CELL AND CUBICLE STATIC AIR PRESSURES ARE ADJUSTED AS INDICATED WITH BUTTERFLY VALVES AND DAMPERS. AIR-FLOW DESIGN IS BASED ON A 30°F TEMPERATURE RISE THROUGH THE CUBICLES.

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water gage with respect to the cell. All air entering and leaving the cell and cubicles is filtered with high efficiency filters. Cubicle and cell pressures are controlled by manually operated dampers and safeguarded with backflow preventers and differential pressure alarms and indicators. Also, the backflow of air from the cubicles into the cell is filtered through absolute filters. After construction, the exhaust filter housing was modified to include a slide-through filter chamber which enables the changing of one filter by displacing it with its replacement, thus maintaining a filter in the air stream at all times.

#### Drainage

Drainage is accomplished on the second floor by simple gravity. The first-floor level, below the level of the gravity drain, is drained by means of a steam-jet system. Water lines are available for water trapping the drains to prevent backflow of air from the hot-drain line. In the powder-preparation shaft and welding-vibratory compaction cubicle, where open water in the drains cannot be tolerated, a hand-operated cutoff valve is employed. A disadvantage of the installed steam-jet system is that the piping and steam jets are located within the operating area, thus presenting a severe contamination problem in the event of a rupture of these lines. To improve the originally installed steam-jet system, all screw-type connections were replaced with welded joints in order to reduce the possibility of a leak.

#### Penetrations

The location of all cell penetrations and detailed assembly drawings of the penetrations may be reviewed in Appendix B.

## Glove and Manipulator Ports

A special multipurpose port is employed in the facility that may be fitted with either a glove or a castle-type manipulator, and these units may be interchanged while maintaining an alpha-tight seal. With this port design, the permanent cubicles are given the flexibility of being equipped for different processes that may have different manipulation requirements.

The flexibility of the ports is gained through the use of an adapter ring that can be fitted with either a glove or a manipulator boot. The replacement or the interchanging of a glove or boot is accomplished by displacing the adapter ring by another ring, the replaced unit being pushed completely through the port and into the cubicle. The alphasealing ring in the port opening is sufficiently wide to engage the replacement adapter unit before the replaced unit is discharged into the cubicle; thus, an alpha-tight seal is maintained during this replacement operation.

The use of these ports, however, caused some difficulties in installation and operation. The tight tolerances required to effect the alpha seal with the ring made the displacement process extremely difficult, mainly as a result of slight warping of the port insert during installation. This warping of the inserts also made the fitting of the mating parts of the castle joint and the glove-shield plug into the port extremely difficult.

#### Castle Manipulators

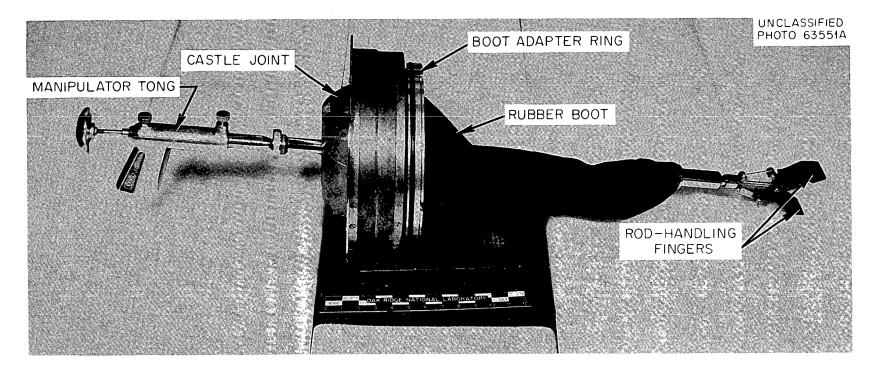
The castle joints and tongs (Fig. 7) are standard Allied Engineering models that were modified to obtain better alpha sealing of the tongs. With the castle manipulator, it is possible to perform only the simplest manipulation as no wrist or elbow action is present. Special rod-handling fingers were developed for the tongs. These fingers, which consist of 1 1/2-in. "V" groove plates and 1 1/2-in. pressure plates, were made by increasing the width of the standard fingers from 1/2 to 1 1/2 in. and by attaching 1/2-in. plates to each side of the manipulator fingers.

#### Glove Port Shields

Each glove port, when not in use, is fitted with a 4-in.-thick lead plug. This plug has the same contour as the castle joint and fits in the adapter ring in a manner similar to the joint.

#### Bag-Out Ports

The two permanent bag-out ports, located in the cleaning and the inspection area, are of a right-angle design. The right-angle



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Fig. 7. Castle Manipulator.

configuration of the ports was necessary to lower the exit penetration level below the glove-manipulator port level due to linear space limitations while maintaining the in-cell entry level at a suitable gloveworking height. The ports are equipped with a track-mounted gamma shield.

A special bag-out port that can be used in any of the glovemanipulator ports was developed. This port, which uses the principle of the glove-boot adapter ring, is employed mainly on the powderpreparation shaft where no bag-out ports are available.

#### Valve Connectors

The operation of all the values in the powder-preparation shaft is performed either with flexible shaft connectors or with shaft universaljoint connectors. The original design called for the exclusive use of the flexible-type connector; however, the large amount of backlash present in the flexible linkage precluded their use in several instances. The universal-joint-type connectors are used on the 2-in. bypass value, the ball-mill rotation mechanism, and the --16 +50 bypass value.

## Windows

For viewing purposes, the cubicles are fitted with eight 6-in.-diam round and twelve 6-  $\times$  12-in. rectangular, 6.2 g/cm<sup>3</sup> density, lead-glass windows that are 4 in. thick.

#### Electrical

Electrical entries into the cell are made using standard rubbercoated cables through rubber-compression grommets.

# PROCESS EQUIPMENT

In the design of the fabrication equipment, standard commercially available units were utilized wherever practicable; however, the majority of the equipment was specifically designed for the process. Where a commercial unit was used, extensive modification of the unit was usually necessary before it could be incorporated into the process scheme.

As would be expected from experimental equipment of this nature, a large number of difficulties were encountered in the as-designed stage.

To evaluate this equipment, it was therefore necessary to test each piece of equipment under simulated conditions before installing it in the facility. After the installation of the equipment in the facility, the process line was again thoroughly evaluated with stand-in oxide before the  $U^{233}$ -bearing fuel was introduced.

The following is a discussion of the equipment that is currently being used in the facility. Detailed assembly drawings of the process equipment may be reviewed in Appendix C. Purchase specifications for major components not included in Appendix C may be reviewed in Appendix D.

# Powder-Preparation Equipment

The powder-preparation equipment was designed to afford maximum dust confinement and to use gravity for transporting the fuel through pipes from one equipment unit to the next. All the equipment in the powder-preparation shaft (Fig. 8) is remotely controlled either electrically or by flexible shafts. Minor repairs to the equipment are made in place through glove-access ports. To facilitate major repairs, the equipment is mounted on movable racks in the front half of the shaft. The defective piece of equipment can be removed by pushing the equipment rack to the rear and lifting the piece with the hoist and transporting it onto the hoist monorail to the repair area.

The jaw crusher and ball mill are located on the top rack of the shaft. Directly above the jaw crusher is a valve that is used to control the rate of feed to the jaw crusher. The classifier, located directly below the jaw crusher and ball mill, continuously classifies the feed material into dispensing hoppers. The rate of feed to the classifier is controlled either by the feeder valve controlling the feed to the jaw crusher or by a feeder valve controlling the feed rate from the ball mill. Six transparent-glass storage hoppers - three for the working fractions and three for the recycle fractions - are located around the base of the classifier. The three recycle storage hoppers are connected directly to a recycle manifold. The recycle manifold empties into a recycle hopper that conveys material to the jaw crusher or the ball mill for recycling.

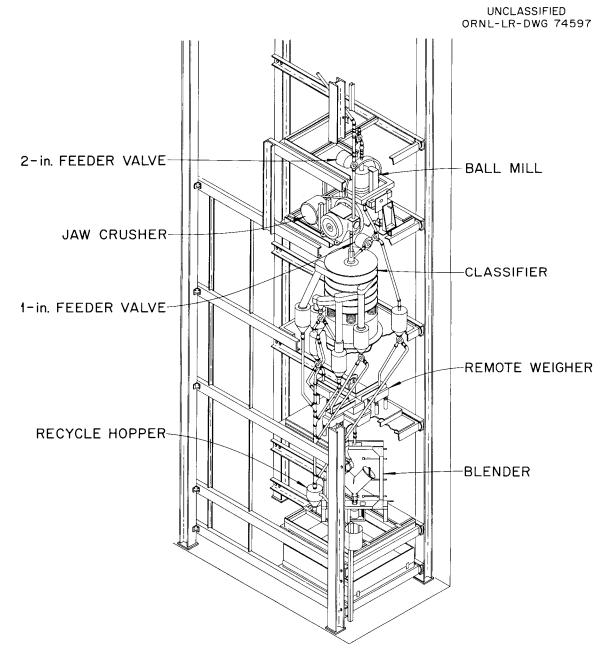


Fig. 8. Overall View, Powder-Preparation Shaft.

Directly below the classifier is a remote weigher where exact quantities of each of the working fractions are obtained. As each fraction is weighed, it is dumped directly into the blender located below the weigher. The blended fuel charge, which is emptied into a bell-valve transfer flask from the blender, is transferred by a manipulator to a top-loading, direct-reading scale located directly behind the blender. After check weighing the fuel charge, the charge is then transferred by two manipulators to the vibratory compaction filling mechanism. A radiation monitoring station is provided in the area of this transfer which allows radiation monitoring of the fuel charge at this juncture. Each major component of the powder-preparation shaft is discussed in the paragraphs that follow.

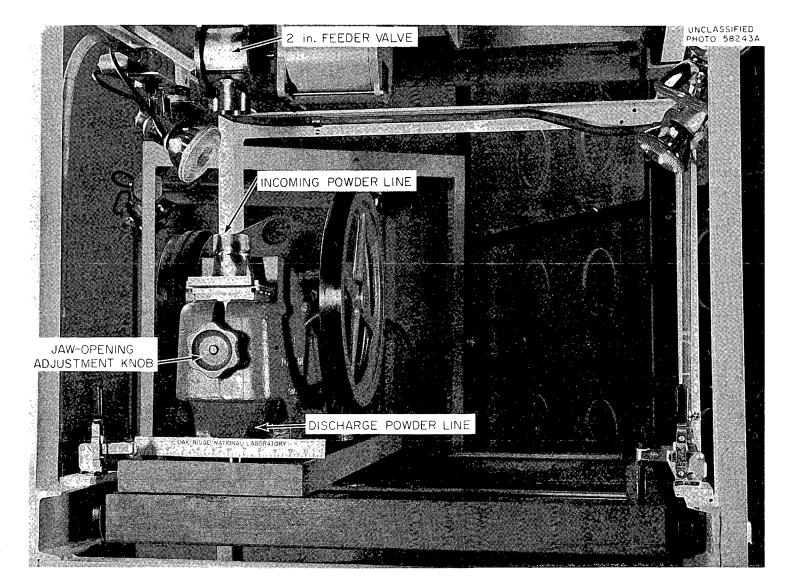
# Jaw Crusher

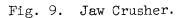
Sufficient crushing capacity and yields are obtained by employing a standard laboratory-size jaw crusher (Fig. 9). The crusher was modified to allow continuous feeding and discharging and to effect maximum dust confinement.

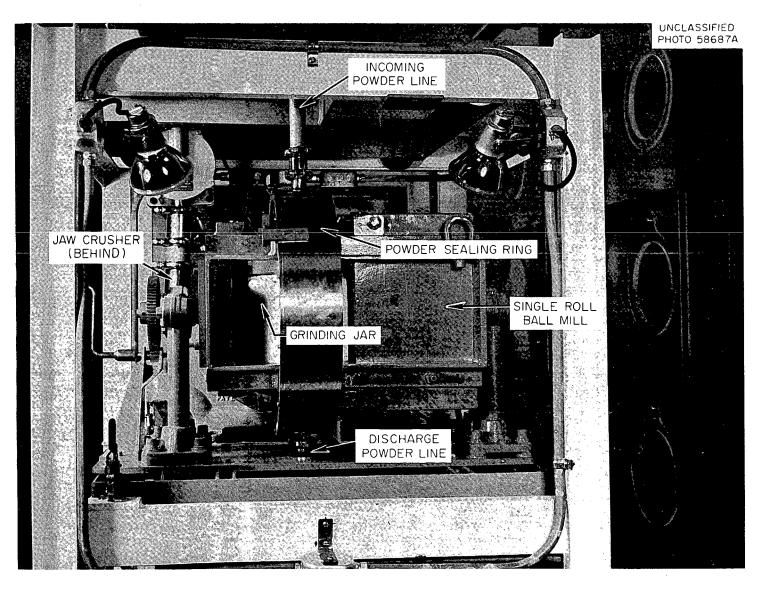
The major limitations of using a jaw crusher of this nature in a remote facility are (1) the tendency of the crusher to jam under excess feed rates and (2) the difficulty of changing the jaw crusher opening. The jamming tendency can be solved readily by closely controlling the rate of feed to the crusher. Changing of the jaw crushing opening, however, requires disconnections of the powder lines leading to the crushing and the insertion of shim metal behind the stationary jaw.

# Ball Mill

A ball mill (Fig. 10) is used for sizing the fine and intermediate fractions for vibratory compaction. As designed, the mill is capable of being filled, ball milling the oxide, and discharging while remaining sealed from the cubicle atmosphere. Because of the small volume of fuel to be processed, a standard 1-gal alumina grinding jar and a single roll mill were incorporated in a device that would allow the grinding jar to be rotated on two separate axes simultaneously. For milling, the grinding jar is charged with approximately 2800 g of 5/8-in.-diam high-alumina porcelain grinding balls.







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Fig. 10. Ball Mill.

The original ball mill was totally unsatisfactory because of a basic design error that required the alignment of three floating axes of rotation simultaneously. Although the present mill incorporates good design features, there is doubt as to whether a mill of this nature can be made sufficiently reliable. The requirement that the bearings must operate in the very abrasive environment associated with the ball mill is reason for this doubt. A possible answer to the ball-mill problem may be found by using a continuous throughput ball mill. However, commercial units of this type that are available are quite large. Also, for a large production facility where a side-loading batch mill can be employed, the number of problems that are present in this small mill should be greatly decreased.

#### Classifier

An 18-in., five-deck, vibratory separator is employed for classifying the crushed and ground material into its different size fractions. The classifier (Fig. 11) used in the facility is a commercial unit that was modified to minimize dust and material holdup.

One major limitation of a screen classifier in a remote facility is the tendency of screens to blind. Blinding in the present classifier system is not considered serious since the anticipated process throughput for the Kilorod commitment is only a fraction of the designed throughput of the classifier unit. In a large production facility, screen blinding may present a serious problem. The classifier also presents the largest material holdup problem in powder preparation.

#### Storage Hoppers

The classified material is discharged into Pyrex glass storage hoppers. The glass storage hopper allows a visual determination of the amount of processed material of each size fraction.

# Recycle Hopper

The recycle hopper was designed to lift material for recycling to the jaw crusher and ball mill. The apparatus, which is chain driven by a hand crank outside the cubicle, consists of a hopper that is mounted on a vertical track that runs the height of the cubicle and a cam

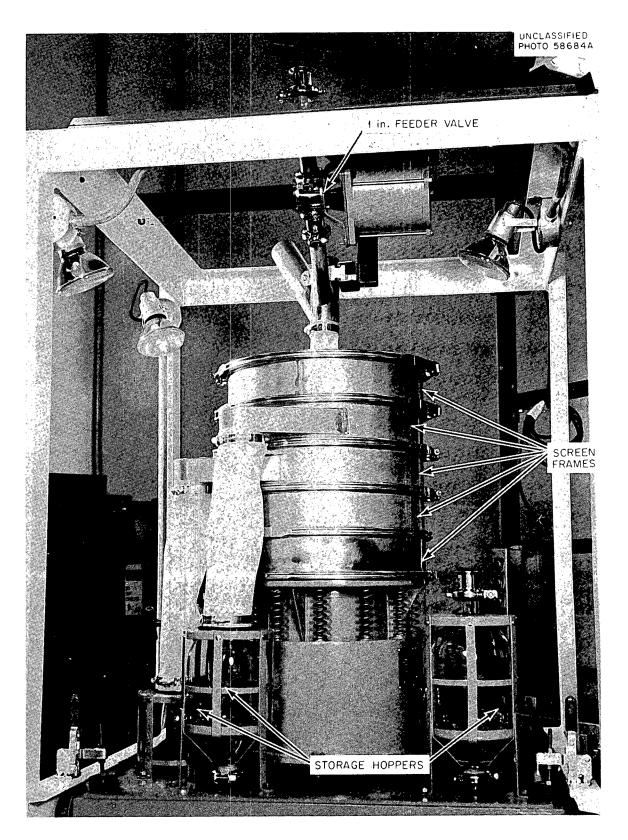


Fig. 11. Classifier.

mechanism for swinging the hopper into and out of position. The main problem with the hopper mechanism was in the initial lineup of the assembly.

# Feeder Valves

For controlling the rate of feed to the jaw crusher and/or the classifier, a motor-driven vane-type feeder valve is employed. The rate of feed is controlled by the drive motor which is a stepping-type synchronous motor. The major difficulty in the use of the vane valves was experienced in developing a suitable speed-control circuit for the stepping motors.

#### Powder Flow-Control Valves

Standard stainless steel ball values with Teflon packing are employed to control powder flow. The ball values have worked satisfactorily in the powder lines; however, the force required to operate the values was much higher than originally anticipated. A great deal of trouble was experienced because of insufficient structural strength of the components of the value extension handles. A torque of 50 to 100 lb is sometimes required to operate these values.

## Bypass Valve

A special plug-type value is used to divert powder flow between lines. Using Teflon sealing rings, the values work easily and have been satisfactory.

#### Piping

Standard sched-40 stainless steel pipe is used to convey the powder from one unit to the next. Two-inch pipe is used when handling +6 mesh material; 1-in. pipe is used for the other fractions. "Flex-master" couplings were used as pipe connectors to facilitate the maintenance of the equipment. These couplings, however, have proven very difficult to install remotely and also present a small area where material is retained. The amount of fuel retained per joint is small but the total for the entire system is significant.

#### Line Vibrators

Pulsating magnetic-line vibrators are used to help transport the powder through the lines. In the powder-preparation shaft, eight vibrators are used.

#### Weigher

The remote weigher (Fig. 12), employing a standard commercial scale, consists of one scale and three individually controlled feeders containing the three size fractions. The weigher uses a one-to-one ratio scale with an "over-under" weight-type indicator, precision feeder cutoff controls, an impact-free dumping mechanism, and an automatic dumping weighing pan. The feeders are electrically linked to weights that correspond to the desired weight of each of the three fractions.

The major limitation of the weigher is associated with the powderdusting problem. Containing the scale and feeders in a dust-tight enclosure reduces the dust spread; however, this greatly hampers the amount of in-place adjustment and maintenance.

#### Blender

The blender (Fig. 13) is a 4-qt twin-shell type that employs a camactuated seating mechanism for connecting and disconnecting the blender from the powder lines while maintaining a dust-tight seal. After blending, the powder is emptied into a bell valve transfer bottle for transfer to the vibratory compaction apparatus. This machine has presented no difficulties whatsoever.

#### Direct-Reading Scale

The fuel charge is check weighed on a direct-reading top-loading balance to an accuracy of  $\pm 0.1$  g.

# Reject Rod Decladder

The reject rod decladder (Fig. 14), located in the glove-maintenance area and connected to the powder-preparation area by a pipe, is used to return powder from rejected fuel rods back to the powder-preparation system. The decladder consists of a Plexiglas enclosure in which is located a rod positioner, a tubing cutter, and a funnel for receiving

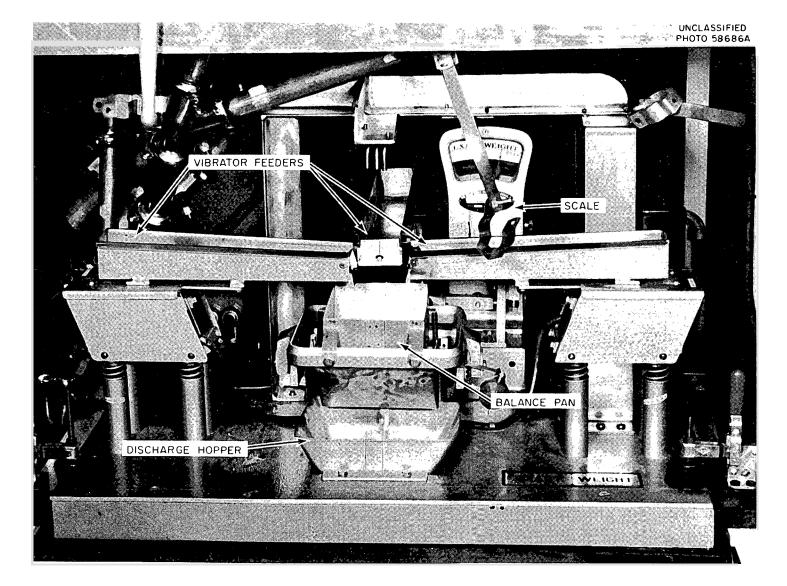


Fig. 12. Remote Weigher.

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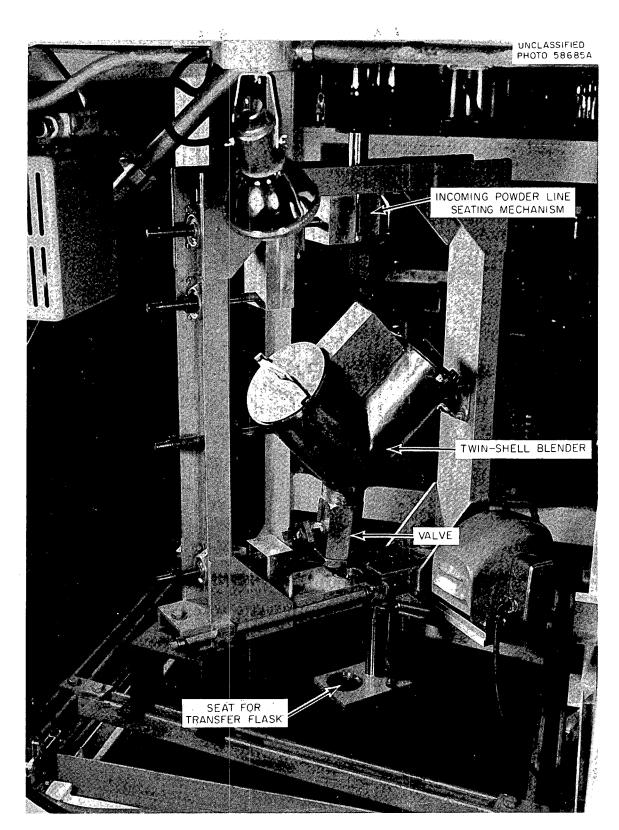


Fig. 13. Blender.

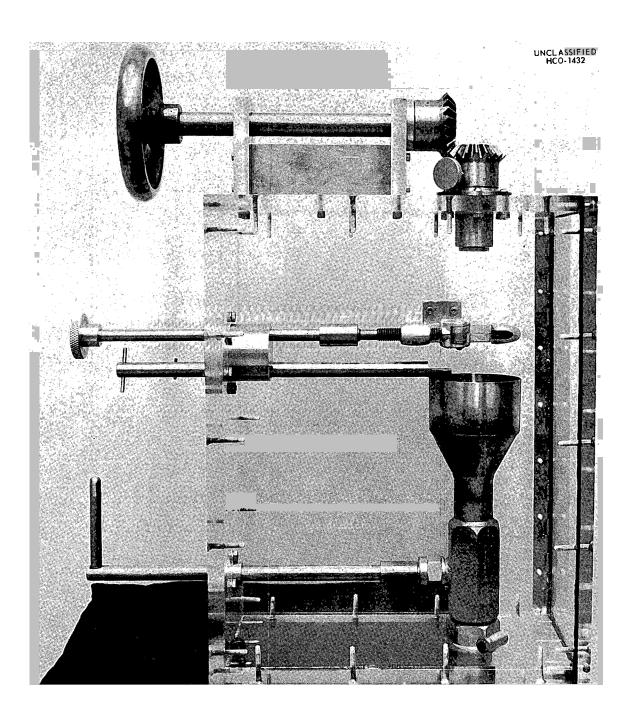


Fig. 14. Reject Rod Decladder.

the fuel. After removing the bottom end plug from the rod, powder is removed by tapping along the length rod with a soft-faced mallet.

## Vibratory Compaction Apparatus

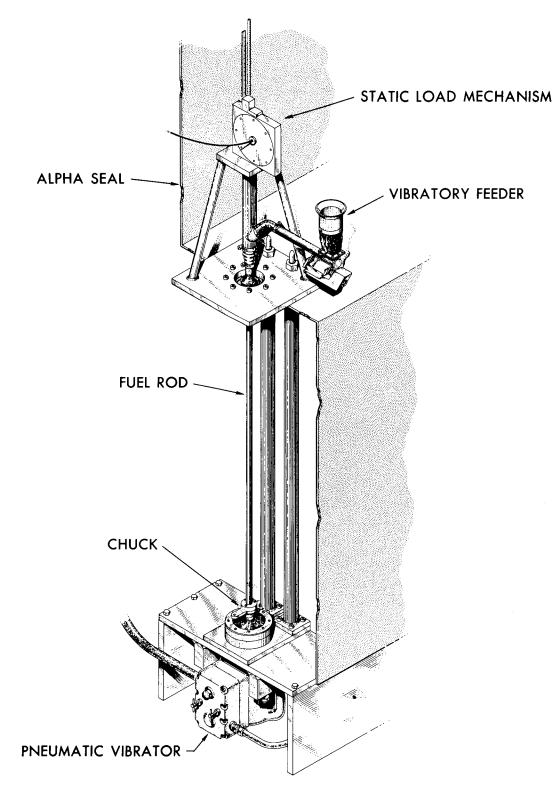
The uniformity with which a fuel tube is loaded and the rigidity with which the tube is held during vibration are important considerations in the design of vibratory compaction apparatus. The vibratory compaction equipment (Fig. 15) consists of two main components — the tubefilling assembly and the chuck assembly. The tube-filling assembly is located in the powder-preparation shaft at the upper right corner of the vibratory compaction welder cubicle, but it is separated from it by a nylon iris valve. The fuel tube is inserted through the iris into the filler mechanism.

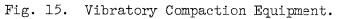
The tube-filling assembly consists essentially of a hopper into which blended fuel is received and a vibratory feeder which enables close control of the fuel feeding. Also included in this assembly are a funnel for directing the fuel into the tube without spreading dust and a mechanism for applying a static load to the fuel column during vibration. The static load mechanism, which weighs 0.7 kg, consists of a rack gear connected directly to a load and a disengageable pinion gear that enables the lowering of the static load onto the fuel column. The rack gear also serves as a direct means of measuring the height of the fuel column in the tube.

The vibrator-chuck assembly consists of an anvil, to which the chuck is attached and through which the vibrational energy is transmitted, and a "Branford"<sup>6</sup> variable-impact vibrator. The chuck employs camactuated sliding-tapered jaws. When the chuck is closed on the fuel rod, the tapered jaws engage the annular groove in the end plug of the rod making a rigid connection. The chuck and anvil are placed inside the cubicle. To allow for convenient servicing, the vibrator is located outside the cubicle and is sealed from the cubicle by a neoprene diaphragm.

<sup>6</sup>Manufactured by the Branford Company, New Britain, Connecticut.

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## Fuel Rod Elevator

Empty fuel rods are introduced into the vibratory compaction chamber from the glove-maintenance area by means of an elevator. The elevator, which is actuated in the glove-maintenance area, consists of a hand crank, a rod-holding bob for 10 to 12 rods, a linkage chain, and an elevator shaft.

## End-Cap Welding Machine

The vertical end-cap welding machine (Fig. 16) was specifically designed to weld the top end plug onto the fuel rod by a fusion-lip weld. The unit is also equipped with a press for seating the top end plug on the fuel rod immediately after the rod has been evacuated and backfilled with helium. The welding machine is comprised of two main components an elevating mechanism and the welding chamber.

The elevating mechanism employs a synchronous drive motor and a lead screw arrangement for inserting the fuel rod into the welding chamber. As the elevator seats the rod into the chamber, the elevator contacts a compression grommet which effects a vacuum seal around the rod.

The tungsten-arc torch and the end-plug press are located in the welding chamber. The press uses a lead screw and a synchronous motordriven arrangement for inserting the end plugs. The torch is positioned by two high-ratio lead-screw motor arrangements. During welding, the rod is rotated at approximately 6 rpm by a constant-speed motor. A lifting mechanism is provided to remove the welding chamber cover in order to change the tungsten welding tip.

## Decontamination Equipment

A l-kw ultrasonic cleaner (Fig. 17) is used to decontaminate the completed fuel rods one at a time. The cleaner is equipped with a cover that embodies a mechanism for holding and rotating the rods during cleaning. The cleaning cycle, which is manually controlled, consists of filling, cleaning, emptying, spray-rinsing, and drying.

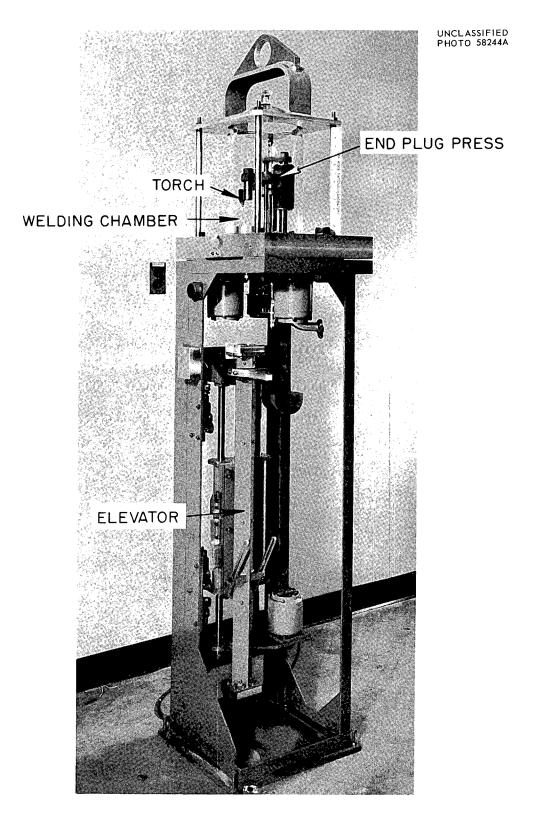
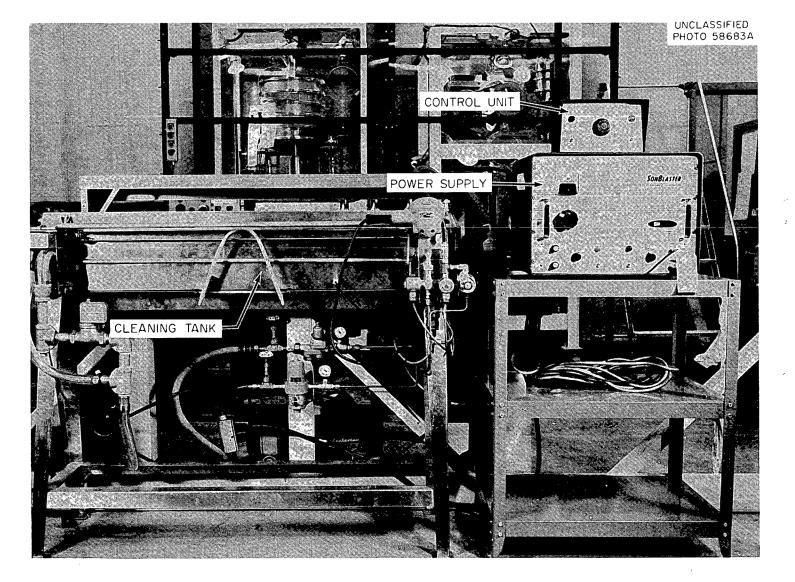


Fig. 16. End-Cap Welding Machine.



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Fig. 17. Ultrasonic Cleaner.

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## Helium Leak Detection System

The welded and decontaminated rod is checked for leaktightness with a mass-spectrometer helium leak detector having a sensitivity of  $1 \times 10^{-10}$  std cm<sup>3</sup>/sec. The system includes a chamber in which the fuel rod is placed, a standard leak, the leak detector, and a roughing vacuumpump station. Particle filters are used to isolate the vacuum chamber for the rod from the pumping and detection station.

## Gamma Scanner

The scanner (Fig. 18) consists of a trolley for passing the fuel rod at a constant speed through a  $1/8- \times 3/8$ -in. collimated gamma beam provided by a 1-curie Co<sup>60</sup> source and a NaI detecting crystal with its related power supply and recording equipment. Variations in the scanning speed from 1 to 10 ipm are obtained through the use of a variable speed drive motor on the trolley. Before scanning each rod, the scanner is calibrated by scanning a standard density rod. The standard rods contain lead-tin alloys which have been calculated and tested to show a density of 88, 89, and 90% of theoretical. Originally, ThO<sub>2</sub>-UO<sub>2</sub> pellet rods were to be used for calibration purposes; however, inhomogeneity within pellets in the density range of interest precluded their use.

## Shipping Cask

The shipping cask, designed to hold 120 rods, is loaded in the horizontal position in the facility and then discharged vertically at its destination. For loading, the cask is held on a dolly in the horizontal position and secured to the cubicle door with turnbuckles. The lattice structure which is provided in the cask to position the rods is partially inserted into the loading cubicles to facilitate loading by tongs. After loading, the lattice is retracted into the cask, the top secured, and the cask removed by means of an overhead building crane. During production, two casks will be used in a shuttle system.

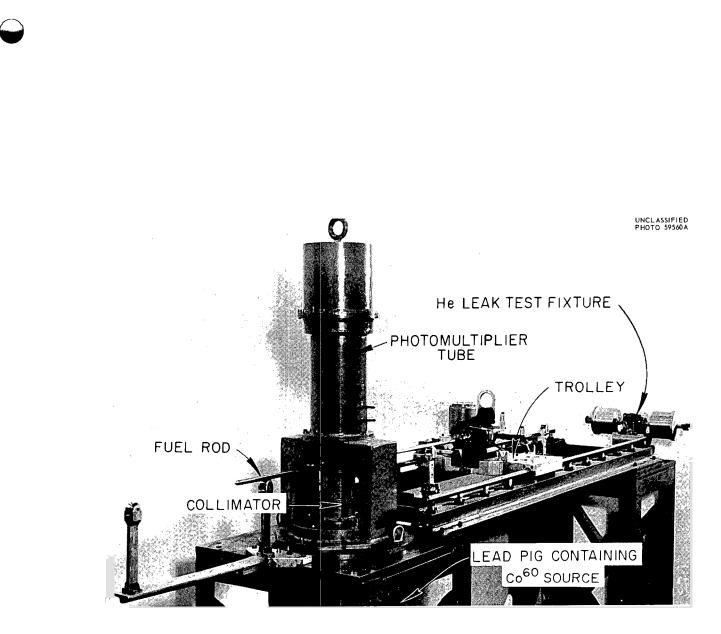


Fig. 18. Gamma Scanner.

## CONCEPT OF OPERATION

The facility and process equipment were planned so that the radiation exposure to operating personnel would be held to an absolute minimum. In operations where fuel material is present, the work is viewed through lead glass windows, and all necessary manipulations except where noted are performed with remote controls or with the nonarticulated castle-type manipulators. In most cases, each viewing window in the facility is complemented with two identical glove-manipulator ports. Each specific area of operation is described below.

## Powder-Preparation Shaft

Placement and design of the equipment in the powder-preparation shaft were planned for dust confinement, but it was recognized that during operation there would be an accumulation of dust on the outside surfaces of the equipment. The equipment was not designed for maximum dust confinement because of the prohibitive expense. In the equipment shaft, no direct manipulation is required as all operations are performed remotely with either electrical or mechanical linkages. The transfer of the loaded fuel bottle from the blender to the vibratorfeeder assembly is accomplished through the use of three manipulators. Manipulator-to-manipulator transfer is required to accomplish this operation.

## Vibratory Compaction

Design of the vibratory compaction and welding cubicle was to confine areas in which fuel is openly handled. The fuel-filling assembly is separated from the main cubicle and is actually in the powder preparation area because of the dusting problem associated with this component. The vibrator is housed in a separately enclosed compartment in the lower right corner of the cubicle to facilitate maintenance and transmits its force through a piston, alpha sealed with a neoprene diaphragm. Access to the vibrator is from the operating area.

One area where handling of the fuel with gloved hands and hand tongs is required is in the vibratory compaction welding cubicle. The operations of removing a rod from the fuel elevator and placing it into the vibratory chuck, unchucking and placing the rod in the welder, removing the rod from the welder, and transferring the rod to the cleaning cubicle require more dexterity than can be accommodated by the castle tong. At no time in the operations are there more than two rods in this cubicle.

## Decontamination

The ultrasonic decontamination system will accommodate one fuel rod at a time. Handling of the fuel rod and operation of the unit are done with a manipulator. A glove port is provided in the decontamination cubicle for smearing the fuel rod and transferring smear samples. The decontaminated fuel rod is transferred to the inspection cubicle through a small-diameter pass-through port.

## Inspection and Loading

Transfer of the rod to the density checker and density scanning are done remotely. After scanning, the rod is helium leak checked after being placed in the test chamber with a gloved hand and hand tong. The attachment of the hanger fitting requires dexterity beyond the capabilities of the castle manipulator and is done with tongs and a gloved hand. The loading of the fuel rod in the shipping cask is performed with a manipulator.

## OPERATING EXPERIENCE

### Mockup

The accelerated nature of the program made it impractical to construct an integrated mockup; therefore, each piece of equipment was evaluated independently. In addition, the powder-preparation equipment was partially mocked up. The mockup of the powder-preparation equipment (Fig. 19) was performed in two sections because of the working height limitation of the available laboratory area.

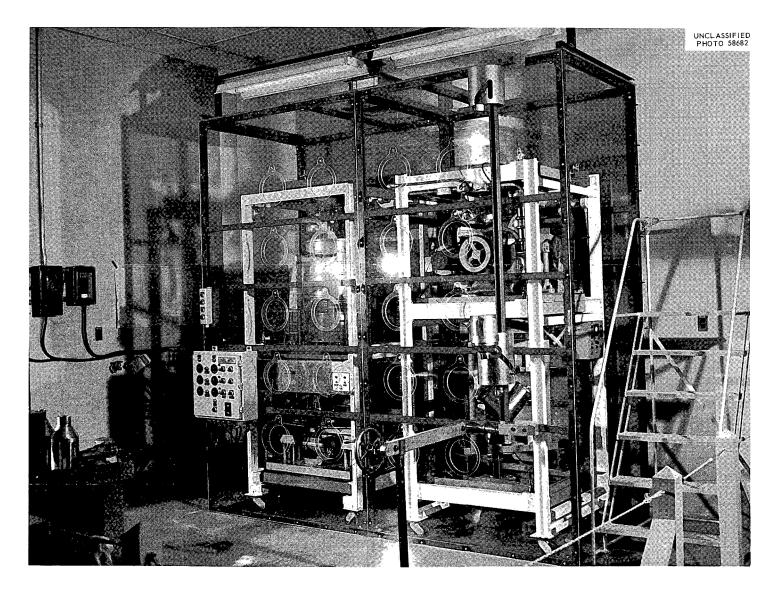


Fig. 19. Building 4508 Mockup of the Powder-Preparation Equipment.

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During the mockup period, a large number of assembly and design errors were corrected. In the powder-preparation equipment, the major problem areas were in the jamming of the jaw crusher and in the design of the ball mill. In the vibratory compaction unit, major modifications were made to the fuel-feeding system and the fuel rod-holding chuck. The initial design of the welder had a variable-speed rod-rotating drive motor; however, the high-frequency arc-starting mechanism caused erratic behavior of the synchronous stepping motor; thus, a change to a constantspeed motor was necessitated. No initial difficulties were experienced with the ultrasonic cleaner except for the extremely slow drying cycle. Modifications were made to correct this inadequacy. The major difficulty with the gamma scanner was experienced in the alignment of the gammabeam collimator. The size of the collimator was changed during this period from a 1/8-in. circular to a 1/8-  $\times 3/8$ -in. rectangular slot.

## Preliminary Check-Out

Cell-containment checks were made before introducing the stand-in (Th-3 wt % U<sup>238</sup>)O<sub>2</sub> into the system. The containment checks were made with all gloves, bag-out ports, and service entries in the operating condition. After some minor alterations, the air inleakage rate was measured to be 0.004 cell vol/min at 1 in. of water pressure difference. This measured value is well below the maximum recommended value of 0.01 cell vol/min at 2 in. of water pressure.

The noise level associated with the pneumatic vibrator was checked by the ORNL Industrial Hygiene Group. The noise level on the second and third levels was below tolerance while the noise level on the first floor directly in front of the vibrator was slightly above the permissible value (maximum of 90 db compared to permissible level of 86 db). Special ear protectors are provided for the use of the operators in this area. Instrument and functional checks were made on each piece of equipment before operation. These checks corrected a number of alignment and minor operational problems. In this preliminary check-out period, operators were trained in the operation of the equipment.

## Operating Experience with Stand-in Oxide

During the initial operation of the fabrication equipment with standin oxide (depleted U-Th oxide), it soon became evident that the powderconditioning equipment was the area of major concern. Despite efforts to contain dust within the system, an unexpectedly large quantity of oxide dust was seen to accumulate on the exterior of the equipment. Obviously, this very abrasive dust can cause excessive wear of bearing and bearing surfaces. The abrasive nature of the powder caused extensive trouble with the ball mill. The requirements of the mill to be rotated about three axes simultaneously required the use of several types of bearings. Extensive modifications were necessary to obtain a suitable working situation. Even after apparently solving the bearing problem, other modifications were necessary because of the wearing of bearing surfaces causing extraneous material to be introduced into the fuel. Before operation, there was concern that the classifier screens might blind during operation; however, during the cold runs there was no evidence of screen blinding. The remainder of the powder-conditioning equipment has performed satisfactorily. The material holdup in the complete system of approximately 2 kg was observed during the cold runs.

During the operation of the vibrator system, several modifications were necessary. The need to observe the feeding of the fuel into the rod required the elimination of the dust boot over the end of the feeder trough. Although the elimination of the boot increased the dusting, it was felt that adequate feeder control could not be obtained without observing the feeding. The chuck for holding the rod was changed to utilize a slightly modified Swagelok tube coupling. This coupling uses a standard 1/2-in. pipe to 1/2-in. tube male connector with specially machined split ferrule. The original chuck was replaced because of the expense and difficulty of replacing it in the event of a failure. During the cold operations, failure of the Swagelok chuck was usually observed after 10 to 12 rods; therefore, it is planned to change the Swagelok tube coupling after the compaction of six rods. Also, a number of failures in the other components of the vibrator-chuck assembly are anticipated because of the extremely high levels of acceleration associated with the

"Branford" vibrator (reportedly as high as 20,000 to 100,000 times the acceleration due to gravity). Along with daily maintenance checks on all fasteners on the unit, spare components to the entire vibratory compaction assembly are considered absolutely essential.

In operating the vibrator, it was found that the freedom of the anvil, to which the rod to be filled is attached and upon which the pneumatic hammer impinges, is a very important factor. The anvil must be allowed to move a finite distance (in the order of 1/16 in.) to obtain the desired compaction. If the anvil is not allowed to reciprocate, a reduction in compacted density of from 8 to 10% is observed. Some difficulties were experienced with the "Branford" vibrator due to component failures within the vibrator unit.

After demonstrating the ability of the powder-preparation equipment to produce powders of three size fractions for loading into the fuel tubes, it was decided to modify the system to produce powders of a binary-size distribution. The decision to operate the system with two size fractions was based on two factors: (1) the binary system is equal to the ternary in compaction density that is attainable and (2) the binary is much easier to operate, especially with a remote system. During the cold runs, the binary size distribution was optimized and now consists of a charge of 55% of a classified -6 +16 mesh fraction and 45% of an unclassified ball-mill fraction. The ball-mill fraction which is produced by controlling the charging rate of the mill and the amount of milling time has the following approximate composition:

> -16 +50, 40% -50 +140, 21% -140 +200, 7% -200 +325, 16% -325, 16%

With this distribution, 20 cold samples were compacted that had an average bulk density of 90% of theoretical with a deviation from rod-to-rod of less than 1%. The density profile measured with the gamma scanner within these rods was well within the specified  $\pm 2\%$  with the majority showing a deviation of less than  $1 \frac{1}{2\%}$ . The results were most gratifying as results of this nature had not been predicted from laboratory experience.

### CONCLUSIONS

Through the design, construction, and operation of the Kilorod Facility and its fabrication equipment, the practicability and economics of refabrication of  $Th(U^{233})O_2$ -bearing fuel are being assessed.

Although the fabrication process used in the facility probably represents the simplest remote fabrication route that can possibly be used in the fabrication of such fuels, it nevertheless poses problems of significant proportion, particularly with the equipment. It is our judgment that the problems encountered in design, construction, and simulated operation have been satisfactorily solved. The equipment has now undergone extensive tests under simulated conditions using depleted uranium; however, the applicability of the process and equipment cannot be evaluated fully until the completion of the initial runs with  $U^{233}$ . It is certain that improvements in fuel cycle technology and a better understanding of the fuel cycle economics will result from the operation of the facility.

### ACKNOWLEDGMENTS

The concerted efforts of many people were involved in the execution of the large project that has been described in this document. The authors would like to acknowledge: D. A. Douglas, W. C. Thurber, D. E. Ferguson, J. C. Bresee, and R. B. Brooksbank for their part in supervision and direction of the Kilorod Program; J. T. Lamartine (now with Westinghouse Astronuclear Corporation, Pittsburgh, Pennsylvania) for the early technical direction; J. E. Van Cleve for invaluable assistance in the installation and cold operation of the process equipment; W. A. Pate and members of his group for the excellent design assistance; G. E. Pierce for engineering assistance; C. M. Smith, Jr., M. E. Woodward, and R. J. Shannon for their assistance in installation and operation of the equipment; W. S. Ernst for laboratory support involving all facets of vibratory compaction; J. W. Tackett for assistance in welding; and B. E. Foster and B. C. Duggins for assistance in density scanning.

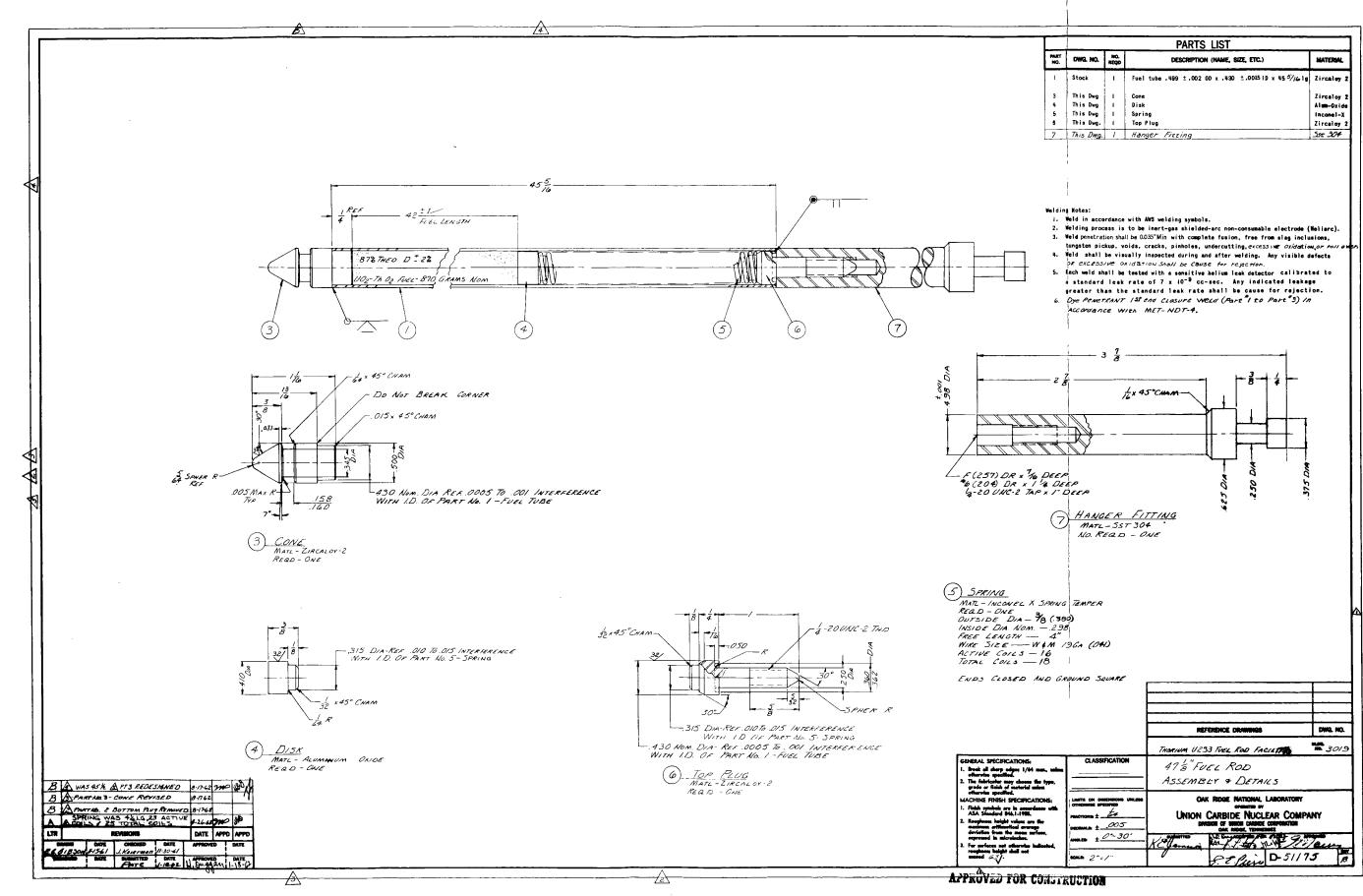
APPENDIX A

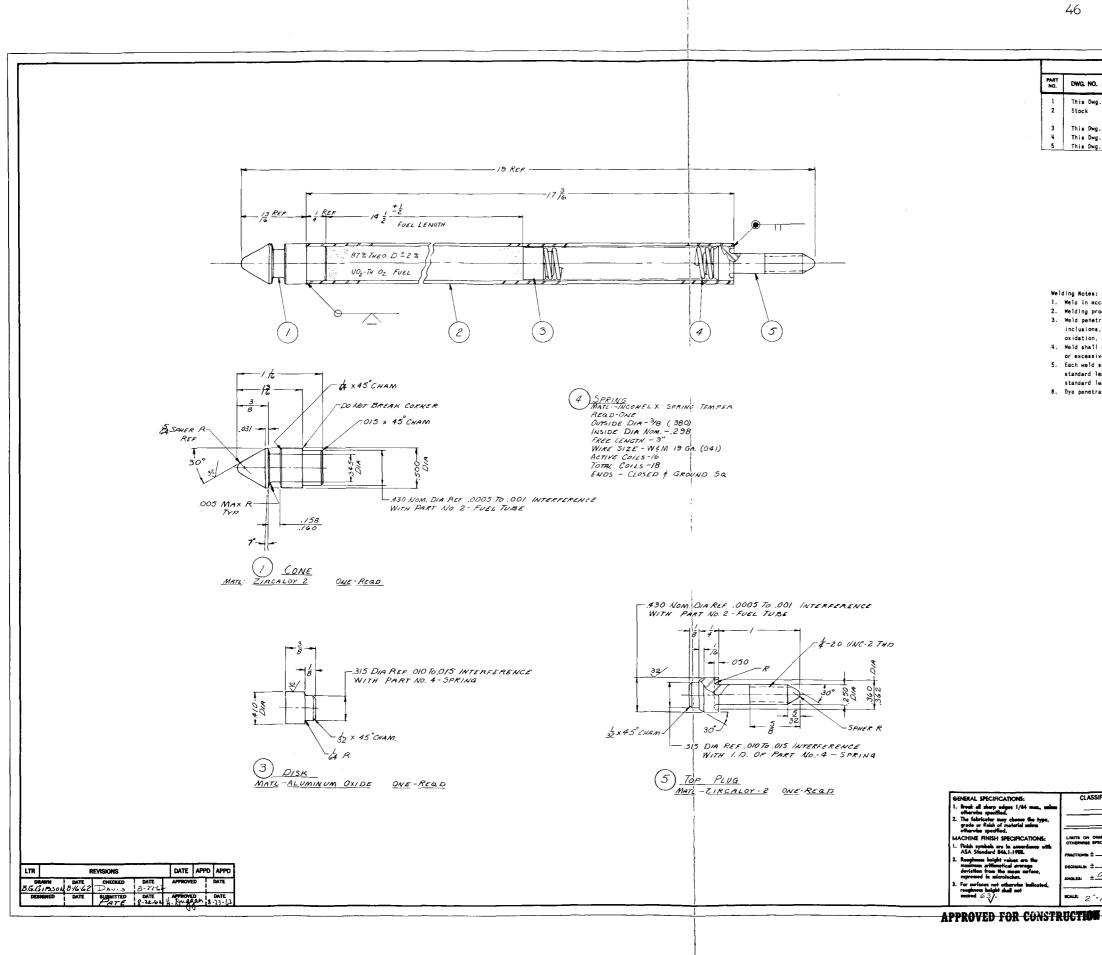
Fuel Rod Assemblies

1. 47 1/8-in. Fuel Rod - D-51175

2. 19-in. Fuel Rod - D-54899

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| g.<br>g.                                      | 1                                                                                   | Disk<br>Sprin<br>Top P                                                 | 9                                                                                                                                                         |                                                                                                                                               |                                                                                       | Alum-Oxide<br>Inconel-X<br>Zircaloy-2 |  |  |
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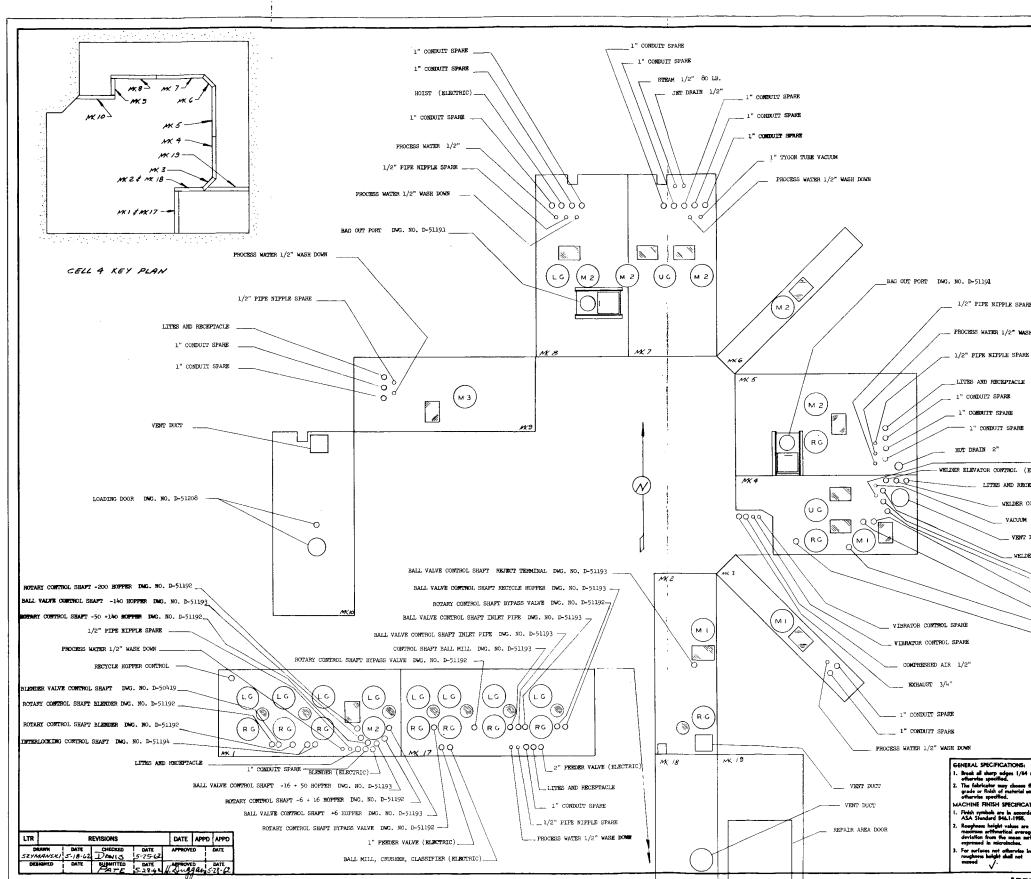
## APPENDIX B

## Penetrations

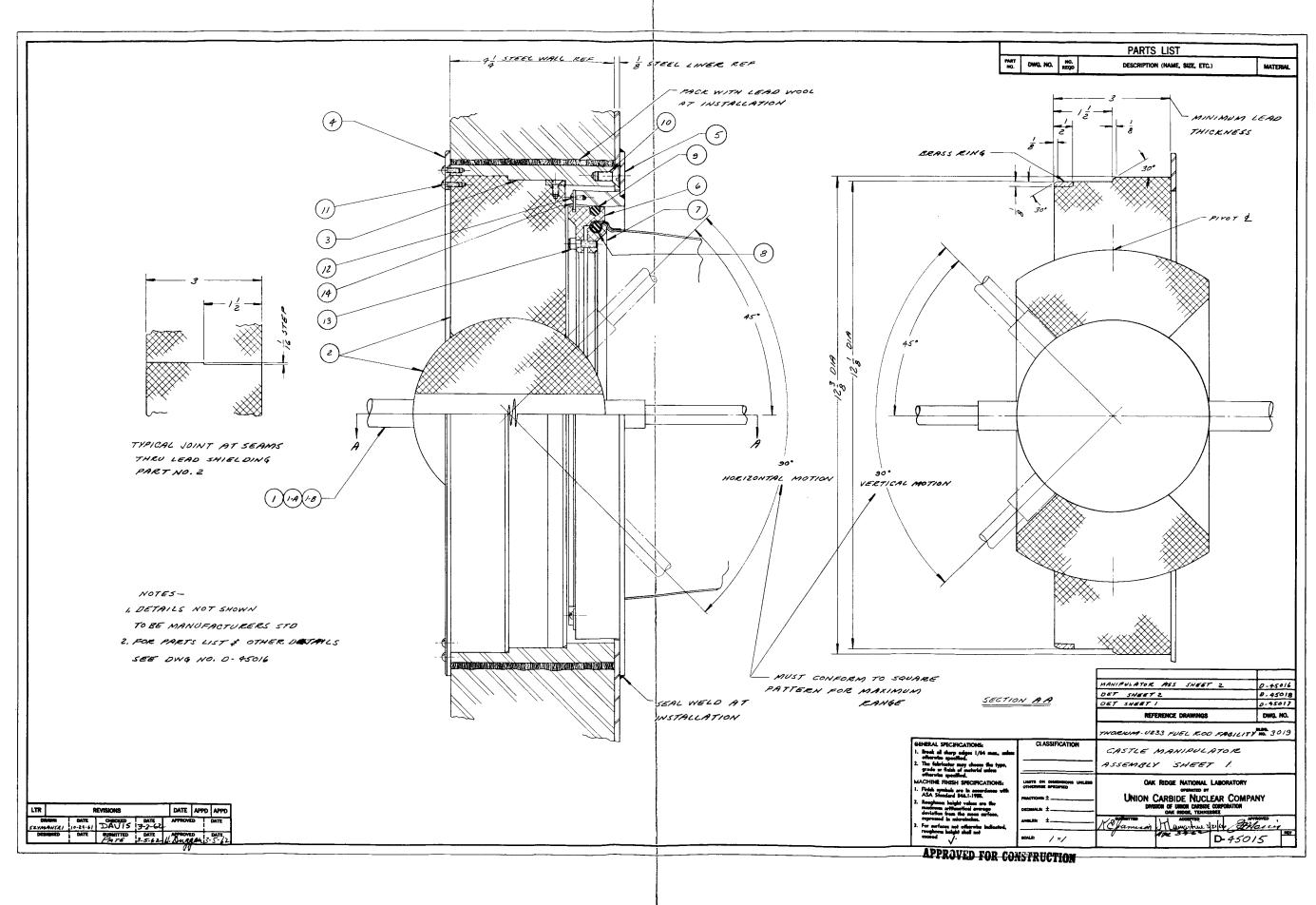
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|----|-----------------------------------------------|
| 2. | Castle Manipulator Assembly Sheet 1 - D-45015 |
| 3. | Castle Manipulator Assembly Sheet 2 - D-45016 |
| 4. | Lead Plug for Glove Ports - D-45021           |
| 5. | Bag-Out Port Adapter — D-56683                |
| 6. | Bag-Out Port (Off-set) — D-51191              |
| 7. | Rotary Control Shaft Assemblies - D-51192     |
| 8. | Ball Valve Control Shaft Assemblies - D-51193 |



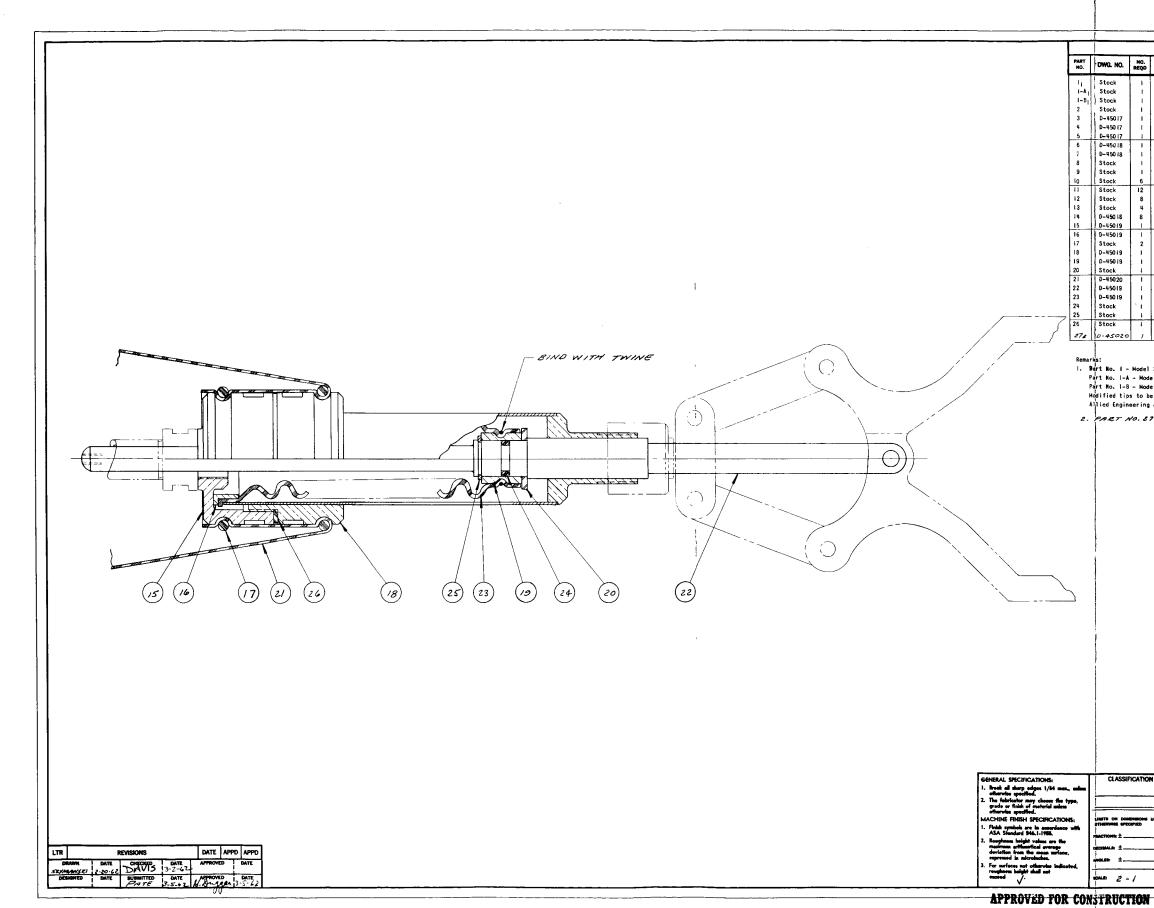
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| 8 X 12 LEAD GLASS WITHOW           (N)         6 DIA, LEAD GLASS WITHOW           (N)         6 DIA, LEAD GLASS WITHOW           (N)         REPERTING GLASS           (N)         REPERTING           (N)         REPERTING           (N)         REPERTING           (N)         REPERTING           (N)         REPERTING           (R)         REPERTING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 8 X 12 LEAD GLASS KYDDON           6 DIA, MOREL RO, 3651 8-4 24° DM, RO, D-45015           6 DIA           6 DIA           7 DIA      <                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                          | DWG. NO.                                                                                       | NO.<br>REQD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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| 8 X 12 LEAD GLASS VIENDON           8 X 12 LEAD GLASS VIENDON           8 D2A, LEAD GLASS VIENDON           8 D2A, LEAD GLASS VIENDON           9 D2A, LEAD GLASS VIENDON           9 D2 HAND GLOVE           9 D2 HAND HAND HAND HAND HAND HAND HAND HAND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 8 X 12 JEAD GLASS VIENDON           6 DIA, LEAD GLASS VIENDON           (1)           (2)           (2)           (2)           (2)           (3)           (4)           (5)           (5)           (4)           (5)           (5)           (5)           (5)           (5)           (5)           (5)           (5)           (6)           (7)           (8)           (8)           (8)           (8)           (8)           (8)           (8)           (8)           (8)           (8)           (8)           (8)           (8)           (8)           (8)           (8)           (8)           (8)           (8)           (8)           (8)           (8)           (8)           (8)           (8)           (8)           (8)           (8)                                                                                                                                   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| 8 X 12 LEAD GLASS MUTCON           8 X 12 LEAD GLASS WITCON           8 D2A, LEAD GLASS WITCON           9 D2A, D2A, D2A, D2A, D2A, D2A, D2A, D2A,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 8 X 12 LEAD GLASS MUSICON           9 X 12 LEAD GLASS MUSICON <td></td> <td></td> <td></td> <td></td> <td></td>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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| 6         DIA. LEAD DLASS VIENCY           (N)         RIGHT HAND GLOVE           (N)         RIGHT HAND GLOVE           (N)         HET HAND GLOVE           (N)         HANTFULATOR HOBEL NO. 3651 8-4 24° DMC. NO. D-45015           (N)         MANTFULATOR HOBEL NO. 3651 8-4 24° DMC. NO. D-45015           (N)         MANTFULATOR HOBEL NO. 3651 8-4 24° DMC. NO. D-45015           (N)         MANTFULATOR HOBEL NO. 3651 8-4 24° DMC. NO. D-45015           (N)         MANTFULATOR HOBEL NO. 3651 8-4 24° DMC. NO. D-45015           (REENTACL)         MANTFULATOR HOBEL NO. 3651 8-4 24° DMC. NO. D-45015           (REENTACL)         (REENTACL)           (REENTACL)         (REE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 24" DAG. NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 24" DAG. NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 24" DAG. NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 30" DAG. NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 30" DAG. NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 30" DAG. NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 30" DAG. NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 30" DAG. NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 30" DAG. NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 30" DAG. NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 30" DAG. NO. D-51156           (x)         MANIFULATOR HOBEL NO. NO. D-51156           (x)         MANIFULATOR HOBEL NO. NO. D-51157           (x)         MANIFULATOR HOBEL NO. NO. D-51156           (x)         MANIFULATOR HOBEL NO. NO. D-51157           (x)         MANIFULATOR HOBEL NO. NO. D-51157           (x)         MANIFULATOR HOBEL NO</td> <td>8 X 12 LIEAD GLASS WINDOW</td> <td></td> | No.         RUDE BADD CLOVE           (x)         RUDE BADD CLOVE           (x)         LEFT HADD CLOVE           (x)         UNITERLATOR HOBEL NO. 3653 8-4 24" DAG. NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 24" DAG. NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 24" DAG. NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 24" DAG. NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 30" DAG. NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 30" DAG. NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 30" DAG. NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 30" DAG. NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 30" DAG. NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 30" DAG. NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 30" DAG. NO. D-45015           (x)         MANIFULATOR HOBEL NO. 3651 8-4 30" DAG. NO. D-51156           (x)         MANIFULATOR HOBEL NO. NO. D-51156           (x)         MANIFULATOR HOBEL NO. NO. D-51157           (x)         MANIFULATOR HOBEL NO. NO. D-51156           (x)         MANIFULATOR HOBEL NO. NO. D-51157           (x)         MANIFULATOR HOBEL NO. NO. D-51157           (x)         MANIFULATOR HOBEL NO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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                                                                                                                                                                                                                                                                                                    | 8 X 12 LIEAD GLASS WINDOW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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| Image: Service in the intervent of                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Image: Several control control shart viework form         Image: Several control control shart viework form         Image: Several control control shart viework form           Image: Several control control shart viework form         Image: Several control control shart viework form         Image: Several control control shart viework form           Image: Several control control shart viework form         Image: Several control control shart viework form         Image: Several control control shart viework form           Image: Several control control shart viework form         Image: Several control control shart viework form         Image: Several control control control shart viework form           Image: Several control control control shart viework form         Image: Several control contr                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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| Image: Service of the servic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | (2)         LET HAND GLOVE           (3)         URIVERSAL GLOVE           (4)         URIVERSAL GLOVE           (5)         URIVERSAL GLOVE           (4)         URIVERSAL GLOVE           (5)         URIVERSAL GLOVE           (6)         URIVERSAL GLOVE           (7)         URIVERSAL GLOVE                                                                                                                                                                               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| (D)         UNTVERSAL GLOVE           (N)         NANTEVILATOR MODEL NO. 5633 8-4 24" DMC. NO. D-45015           (N-1)         NANTEVILATOR MODEL NO. 5631 8-4 24" DMC. NO. D-45015           (N-2)         MATEVILATOR MODEL NO. 5631 8-4 24" DMC. NO. D-45015           (N-3)         NANTEVILATOR MODEL NO. 5631 8-4 24" DMC. NO. D-45015           (N-3)         NANTEVILATOR MODEL NO. 5631 8-4 24" DMC. NO. D-45015           (N-3)         NANTEVILATOR MODEL NO. 5631 8-4 30" DMC. NO. D-45015           (N-3)         NANTEVILATOR MODEL NO. 5631 8-4 30" DMC. NO. D-45015           (N-3)         NANTEVILATOR MODEL NO. 5631 8-4 30" DMC. NO. D-45015           (N-3)         NANTEVILATOR MODEL NO. 5631 8-4 30" DMC. NO. D-45015           (N-4)         NANTEVILATOR MODEL NO. 5631 8-4 30" DMC. NO. D-45015           (N-5)         RECENTED           (N-1)         NANTEVILATOR MODEL NO. 5631 8-4 30" DMC. NO. D-51195           (N-5)         NANTEVILATOR MODEL NO. 5631 9-51195           (N-5)         NANTEVILATOR FILME TOB. D. NO. D-51195           (N-5)         PASH FULL CONTROL SHAFT VIBRATOR FROM DOL NO. D-51195           (N-6)         NO. THORNAL ADORATORY           (N-6)         NO. THORNAL NATIONAL ADORATORY           (N-6)         NO. THORNAL NATIONAL ADORATORY           (N-6)         NO. THORNAL NATIONAL NATIONAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | (0)         UNTURBERAL GLOVE           (1)         UNTURBERAL GLOVE           (1)         MANITPULATOR MODEL NO. 3651 8-4 24" DMC. NO. D-45015           (1)         (1)           (1)         MANITPULATOR MODEL NO. 3651 8-4 24" DMC. NO. D-45015           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)         (1)           (1)                                                                                                                                                                                                                                                                                                                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                                                                                                                                                                                                                                                                                                                               | RIGHT HAND GLOVE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| Image: Space       Image: Space <td< td=""><td>N-1       NANTERLACOR MODEL NO. 3653 8-4 24" DRC. NO. D-45015         NO. (1990)       NO. (1990)         NO. (1990)       NO. (1990)</td><td colspan="3">La La</td><td>LEFT HAND GLOVE</td><td></td></td<>                                             | N-1       NANTERLACOR MODEL NO. 3653 8-4 24" DRC. NO. D-45015         NO. (1990)       NO. (1990)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   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| Image: SPARE       (H-2)       MANIEPULATOR MODEL NO. 3651 5-4 24" DMC. NO. D-45015         Image: SPARE       (H-2)       MANIEPULATOR MODEL NO. 3651 5-4 24" DMC. NO. D-45015         Image: SPARE       (H-2)       MANIEPULATOR MODEL NO. 3651 5-4 26" DMC. NO. D-45015         Image: SPARE       (H-2)       MANIEPULATOR MODEL NO. 3651 5-4 26" DMC. NO. D-45015         Image: SPARE       (H-2)       MANIEPULATOR MODEL NO. 3651 5-4 26" DMC. NO. D-45015         Image: SPARE       (H-2)       MANIEPULATOR MODEL NO. 3651 5-4 26" DMC. NO. D-45015         Image: SPARE       (H-2)       MANIEPULATOR MODEL NO. 3651 5-4 26" DMC. NO. D-45015         Image: SPARE       (H-2)       MANIEPULATOR MODEL NO. 3651 5-4 26" DMC. NO. D-45015         Image: SPARE       (H-2)       MANIEPULATOR MODEL NO. 3651 5-4 26" DMC. NO. D-45015         Image: SPARE       (H-2)       (H-2)       (H-2)         Image: SPARE       (H-2)       (H-2)       (H-2)       (H-2)         Image: SPARE       (H-2)       (H-2)       (H-2)       (H-2)       (H-2)       (H-2)         Image: SPARE       (H-2) <t< td=""><td>SPARE     (H2)     MANIFULATOR MODEL NO. 3651 5-4 24" DAG. NO. D-45015       ***     MANIFULATOR MODEL NO. 3651 5-4 20" DAG. NO. D-45015       ***     MANIFULATOR MODEL NO. 3651 5-4 20" DAG. NO. D-45015       ***     MANIFULATOR MODEL NO. 3651 5-4 20" DAG. NO. D-45015       ***     MANIFULATOR MODEL NO. 3651 5-4 20" DAG. NO. D-45015       ***     MANIFULATOR MODEL NO. 3651 5-4 20" DAG. NO. D-45015       ***     MANIFULATOR MODEL NO. 3651 5-4 20" DAG. NO. D-45015       ***     MANIFULATOR MODEL NO. 3651 5-4 20" DAG. NO. D-45015       ***     MANIFULATOR MODEL NO. 3651 5-4 20" DAG. NO. D-45015       ***     MANIFULATOR       ****     MANIFULATOR       ***     MANIFULATOR       ****     MANIFULATOR       ****     MANIFULATOR       ****     MANIFULATOR       ****     MANIFULATOR       ****     MANIFULATOR       ***********       *******</td><td></td><td></td><td>Ű</td><td>G UNIVERSAL GLOVE</td><td></td></t<>                                                                 | SPARE     (H2)     MANIFULATOR MODEL NO. 3651 5-4 24" DAG. NO. D-45015       ***     MANIFULATOR MODEL NO. 3651 5-4 20" DAG. NO. D-45015       ***     MANIFULATOR MODEL NO. 3651 5-4 20" DAG. NO. D-45015       ***     MANIFULATOR MODEL NO. 3651 5-4 20" DAG. NO. D-45015       ***     MANIFULATOR MODEL NO. 3651 5-4 20" DAG. NO. D-45015       ***     MANIFULATOR MODEL NO. 3651 5-4 20" DAG. NO. D-45015       ***     MANIFULATOR MODEL NO. 3651 5-4 20" DAG. NO. D-45015       ***     MANIFULATOR MODEL NO. 3651 5-4 20" DAG. NO. D-45015       ***     MANIFULATOR MODEL NO. 3651 5-4 20" DAG. NO. D-45015       ***     MANIFULATOR       ****     MANIFULATOR       ***     MANIFULATOR       ****     MANIFULATOR       ****     MANIFULATOR       ****     MANIFULATOR       ****     MANIFULATOR       ****     MANIFULATOR       ***********       *******                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | G UNIVERSAL GLOVE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                     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| Image: Service       Image: Service         Image: Service       Image: Ser                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Image: Series       (***)       MANIFULATOR MODEL NO. 3651 5-4 24" DMC. NO. D-45015         ** MASH DOME       (***)       MANIFULATOR MODEL NO. 3651 5-4 24" DMC. NO. D-45015         ** MASH DOME       (***)       MANIFULATOR MODEL NO. 3651 5-4 24" DMC. NO. D-45015         ** MASH DOME       (***)       MANIFULATOR MODEL NO. 3651 5-4 24" DMC. NO. D-45015         ** MASH DOME       (***)       MANIFULATOR MODEL NO. 3651 5-4 24" DMC. NO. D-45015         ** MASH DOME       ****       MANIFULATOR MODEL NO. 3651 5-4 24" DMC. NO. D-45015         ************************************                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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                         | -1 MANIFULATOR MODEL NO. 3653 8-4 24"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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NO. D-45015                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| SPARE       (H-3)       MATERULECCR MODEL NO. 3651 5-4 30" DMG. NO. D-45015         ** WATE DOWN       SPARE         SPARE       NOTES WATER 1/2" MASH DOWN         SPARE       NOTES WATER 1/2" MASH DOWN         DL (ELETTRIC)       POCHES WATER 1/2" MASH DOWN         DL (ELETTRIC)       NOTES WATER 1/2" MASH DOWN         DL (ELETTRIC)       POCHES WATER 1/2" MASH DOWN         DR ZEEFTACLE       POCHES WATER 1/2" MASH DOWN         DER CONTROL SEAT TIER TORS DATE DOWN NO. POLICITICS       POCHES WATER RED CONTROL SHAFT DOWN NO. POLICITICS         VIERMOOR REDER RED CONTROL SHAFT VIERATOR FRAME DOW. NO. POLICITIC       POSH FULL CONTROL SHAFT VIERATOR FRAME DOW. NO. POLICITIC         POSH FULL CONTROL SHAFT VIERATOR FRAME DOW. NO. POLICITIC       POSH FULL CONTROL SHAFT VIERATOR CERCK DOW. NO. POLICITIC         POSH FULL CONTROL SHAFT VIERATOR CERCK DOW. NO. POLICITIC       POSH FULL CONTROL SHAFT VIERATOR CERCK DOW. NO. POLICITIC         POSH FULL CONTROL SHAFT VIERATOR CERCK DOW. NO. POLICITIC       POSH POLIC CONTROL SHAFT VIERATOR CERCK DOW. NO. POLICITIC         INFORMATION DATE       CLASSIFICATION       CELL 9 SERVICE         INFORMATION DATE       CLASSIFICATION       CELL 9 SERVICE         INFORMATION DATE       CONTROL SHAFT VIERATOR CERCK DOWNNOS       DWG NOT         INFORMATION DATE       CLASSIFICATION       CELL 9 SERVICE         INFORMATIONO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | SPARE       (H-3)       MATERULICOR MODEL NO. 3651 S-4 30" EMG. NO. D-45015         * WORN DOWN       SPARE         SPARE       POCKES MATER 1/2" MASH DOWN         SPARE       POCKES MATER 1/2" MASH DOWN         SPARE       POCKES MATER 1/2" MASH DOWN         DL (ELECTRIC)       POCKES MATER 1/2" MASH DOWN         DL (ELECTRIC)       1" CONDUCT SPARE         VIENDER GROUPD LEAD (ELECTRIC)       1" CONDUCT SPARE         VIENDER RUL CONTROL SHAFT VIENATOR FRAME DRG. NO. D-51196       POSH PULL CONTROL SHAFT VIENATOR FRAME DRG. NO. D-51197         POSH PULL CONTROL SHAFT VIENATOR FRAME DRG. NO. D-51197       POSH PULL CONTROL SHAFT VIENATOR FRAME DRG. NO. D-51195         POSH PULL CONTROL SHAFT VIENATOR FRAME DRG. NO. D-51196       POSH PULL CONTROL SHAFT VIENATOR FRAME DRG. NO. D-51195         POSH PULL CONTROL SHAFT VIENATOR FRAME DRG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               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| (H-3)         MANEFULACOR MODEL NO. 3691 8-4 30" DHG. NO. D-45015           "MASH DOOR         SPADE           ACLE         S           ACLE         RECENTED           DL (ELECTRIC)         ROCESS WATER 1/2" WASH DOWN           DL (ELECTRIC)         RECENTRIC)           DRECENTRIC)         If CONTROL SHAFT NUMBER DOWN           JEER COMPOL (ELECTRIC)         " CONDITI SPANE           VERNE ROLE         If CONTROL SHAFT VIERATOR FILLER TUBE           VERNE ROLE DAWNER LEAD (ELECTRIC)         " CONTROL SHAFT VIERATOR FILLER TUBE           VERNE ROLE ROLE CONTROL SHAFT VIERATOR FILLER TUBE         DOG. NO. D-51192           POSE PULL CONTROL SHAFT VIERATOR FILLER TUBE         DOG. NO. D-51192           POSE PULL CONTROL SHAFT VIERATOR FILLER TUBE         DOG. NO. D-51192           POSE PULL CONTROL SHAFT VIERATOR FILLER TUBE         DOG. NO. D-51195           POSE PULL CONTROL SHAFT VIERATOR FILLER TUBE         DOG. NO. D-51195           POSE PULL CONTROL SHAFT VIERATOR CHICK DAWNEGS         DWG. NO.           THORIN-U <sup>233</sup> PUEL ROD FACILITY         TEX 3015           CASSIFICATION         CLASSIFICATION           CELL Q SCHWINGS         DWG. NO.           THORIN-U <sup>233</sup> PUEL ROD FACILITY         TEX 3015           CONSI.         CONSI DELEMON CARE DOMANOS           UNION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | (H-3)         MANIFULACOR MODEL NO. 3651 3-4 30" DHG. NO. D-45015           "MASH DOOR         SPADE           ACLE         S           ACLE         FOCKES WATER 1/2" WASH DOWN           DL (ELECTRIC)         WEDBR OWER LEAD (ELECTRIC)           WEDBR OWER LEAD (ELECTRIC)         " CONDITION SHAFT VIERATOR FILLER TUBEL DOG. NO. D-51192           VIERATOR RIDER FOD CONTROL SHAFT VIERATOR FILLER TUBEL DOG. NO. D-51192         FOCKET FLOOR FILL CONTROL SHAFT VIERATOR FRAME DOG. NO. D-51195           POSE PULL CONTROL SHAFT VIERATOR FRAME DOG. NO. D-51192         FOCKET FLOOR DOG NO. D. D. D-51195           POSE PULL CONTROL SHAFT VIERATOR FRAME DOG. NO. D-51195         FOCKET PULL CONTROL SHAFT VIERATOR CHICK DOG. NO. D-51195           POSE PULL CONTROL SHAFT VIERATOR CHICK DAG. NO. D-51195         FOCKET PULL CONTROL SHAFT VIERATOR CHICK DAG. NO. D-51195           POSE PULL CONTROL SHAFT VIERATOR CHICK DAG. NO. D-51195         FOCKET PULL CONTROL SHAFT VIERATOR CHICK DAG. NO. D-51195           POSE PULL CONTROL SHAFT VIERATOR CHICK DAG. 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CASEDIGE CONONING         M                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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                                                                                                                                 | -2) MANIFULATOR MODEL NO. 3651 S-4 24"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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NO. D-45015                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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                                                                                 | -3) MANIFULATOR MODEL NO. 3651 S-4 30"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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NO. D-45015                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| ARE ARE ARE ARE PL (ELECTRIC) PROCESS WATER 1/2" WASH DOWN PR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ARE ARE ARE ARE ARE CLESTRIC RELEATABLE RECOVERED (ELECTRIC) CLON 3/4" VELOR CONTROL (ELECTRIC) VELOR CONTROL SHAT VIENCION INC. D-51196 RELEAT CONTROL SHAT VIENCION FILLER THE DAG. NO. D-51196 RELEAT CONTROL SHAT VIENCION FILLER THE DAG. NO. D-51196 RELEAT CONTROL SHAT VIENCION FRAME DAG. NO. D-51196 RELEAT CONTROL SHAT VIENCION GENCK DAG. NO. RELEAT CONTROL SHAT VIENCION GENC DAG. RELEAT CONTROL SHAT VIENCION GENC DAG. RECEAT CONTROL SHAT VIENCION GENC D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 942N                     |                                                                                                |                                                                                                                                                                  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| PROCESS WATER 1/2" WASH DOWN  DI (ELECTRIC)  PROCESS WATER 1/2" WASH DOWN  DI (ELECTRIC)  RECEPTACLE  DER COMPROL (ELECTRIC)  VELDER GROUD LEND (ELECTRIC)  VELDER FORM FLEAD (ELECTRIC)  VELDER FORME READ (ELECTRIC)  VELDER FORME RED CONTROL SHAFT VIERATOR FLILER TUBE DAG. NO. D-51192  PUSH FULL CONTROL SHAFT VIERATOR FRAME DAG. NO. D-51195  PUSH FULL CONTROL SHAFT VIERATOR GROUD DAG. NO. D-51195  PUSH FULL CONTROL SHAFT VIERATOR GROUD DAG. NO. D-51195  PUSH FULL CONTROL SHAFT VIERATOR GROUD DAG. NO. D-51195  CONS. REFERENCE DRAMMAS  DWG. NO.  THORIDA-U <sup>233</sup> PUEL ROD FACILITY  VIENT DAG. SO IS  CIASSIFICATION  CELL 9 SETEMATOR  CHAST TO IS UNDERSON UNLER  OAK RODE NATIONAL LABORATORY  DOWN NO.  THORIDA-U  DAG. COMPANY  MINUTE 1  CONTROL SHAFT VIERATOR  CHAST TO IS UNDERSON UNLER  OAK RODE NATIONAL LABORATORY  DOWN NO.  THORIDA J  CHAST 10 // // / / / / // // // // // // // //                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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| PARE  PARE  POCESS WATER 1/2" WASH DOWN  DU (RESTRIC)  RECEPTACLE  RECOMPOL (REDITEC)  VELOR COMPOL (REDITEC)  VELOR FORM LEAD (RESTRIC)  VELOR FORM FOR LEAD (RESTRIC)  VELOR FORM FOR LEAD (RESTRIC)  VELOR FORM FOR READ (RESTRIC)  VELOR FORM FOR SAFT VERATOR FILLER TURE DAG. NO. D-51192  FUSH FULL CONTROL SHAFT VERATOR FILLER TURE DAG. NO. D-51192  FUSH FULL CONTROL SHAFT VERATOR FILLER TURE DAG. NO. D-51195  FUSH FULL CONTROL SHAFT VERATOR FILLER TURE DAG. NO. D-51195  FUSH FULL CONTROL SHAFT VERATOR FILLER TURE DAG. NO. D-51195  FUSH FULL CONTROL SHAFT VERATOR FILLER TURE DAG. NO. D-51195  FUSH FULL CONTROL SHAFT VERATOR FILLER TURE DAG. NO. D-51195  FUSH FULL CONTROL SHAFT VERATOR FILLER TURE DAG. NO. D-51195  FUSH FULL CONTROL SHAFT VERATOR FILLER TURE DAG. NO. D-51195  FUSH FULL CONTROL SHAFT VERATOR FILLER TURE DAG. NO. D-51195  FUSH FULL CONTROL SHAFT VERATOR FILLER TURE DAG. NO. D-51195  FUSH FULL CONTROL SHAFT VERATOR FILLER TURE DAG. NO. 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D-51195  FUSH FUEL CONTROL SHAFT VERATOR FILLER TURE TURE TURE TURE TURE TURE TURE TU                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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| PROCESS WATER 1/2" WASH DOWN  DL (ELECTRIC)  PROCESS WATER 1/2" WASH DOWN  LL (ELECTRIC)  PROCESS WATER 1/2" WASH DOWN  LLECTRIC)  PROCESS WATER 1/2" WASH DOWN  LLECTRIC)  PROCESS WATER 1/2" WASH DOWN  PROCESS WASH D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | PARE PROCESS WATER 1/2" WASH DOWN  I. (ELECTRIC) PROCESS WATER 1/2" WASH DOWN  L. (ELECTRIC) PROCESS WATER 1/2" WASH DOWN  L. (ELECTRIC) PROCESS WATER 1/2" WASH DOWN  L. 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| PROCESS WATER 1/2" WASH DOWN  L (ELECTRIC)  RECEPTACIE  DER COMPACIE  DER COMPACIE  DER COMPACIE  DER COMPACIE  VELDER GROUND IZAD (ELECTRIC)  VELDER GROUND IZAD (ELECTRIC)  VELDER RODURD IZAD (ELECTRIC)  VELDER RODURT IDE ROD CONTROL SHAFT DE, NO. D-51196  ROTARY COMPACE RIBER ROD CONTROL SHAFT VIERATOR FILER TURE DEG. NO. D-51195  ROTARY COMPACE SHAFT VIERATOR FILER TURE DEG. NO. D-51195  ROTARY COMPACE SHAFT VIERATOR FILER TURE DEG. NO. D-51195  ROTARY COMPACE SHAFT VIERATOR FILER TURE DEG. NO. D-51195  ROTARY COMPACE SHAFT VIERATOR FILER TURE DEG. NO. D-51195  ROTARY COMPACE SHAFT VIERATOR FILER TURE DEG. NO. D-51195  ROTARY COMPACE SHAFT VIERATOR CHICK DEG. NO. D-51195  ROTARY COMPACE SHAFT DEG. NO. DESCROPTING OF UNION CAREDOR COMPONTOR ROTARY STORE SHAFT DEG. NO. DESCROPTING OF UNION CAREDOR COMPONTOR ROTARY STORE SHAFT DEG. NO. DESCROPTING OF UNION OF UNION CHICKENER SHAFT DEG. DOTORDATORY ROTARY STORE SHAFT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | PROCESS WATER 1/2" WASH DOWN           L (ELECTRIC)           SECRETACLE           DER CONTROL (ELECTRIC)           VELDER GROURD LEAD (ELECTRIC)           VELDER FORMER LEAD (ELECTRIC)           PUSH FULL CONTROL SHAFT VIERATOR CHUCK DAG. NO. D-51195           FUEL CONTROL SHAFT VIERATOR CHUCK DAG. NO. D-51195           FUEL CONTROL SHAFT VIERATOR CHUCK DAG. NO. D-51195           VERATION           CLASSIFICATION           CELL 9 SERVICE           I/144 men et DUBORDON UNLER           OAK ROBE NATIONAL LABORATORY OF DUBORDON UNLER           OAK ROBE NATIONAL LABORATORY OF DUBORDON UNLER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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| L (ELECTRIC)<br>RECERTACLE<br>DER CONTROL (ELECTRIC)<br>VELDER GROUND LEAD (ELECTRIC)<br>VELDER FOWER LEAD (ELECTRIC)<br>VERMETOR RIDER ROL CONTROL SHAFT DWG, NO. D-51196<br>ROTARY CONTROL SHAFT VIBRATOR FILLER TUBE DWG, NO. D-51192<br>PUSH FULL CONTROL SHAFT VIBRATOR FILLER TUBE DWG, NO. D-51195<br>PUSH FULL CONTROL SHAFT VIBRATOR FRAME DWG, NO. D-51195<br>PUSH FULL CONTROL SHAFT VIBRATOR CHICK DWG, NO. D-51195<br>PUSH FULL CHICK DWG, NO. D-51195<br>PUSH FULL CHICK DWG, NO. D-51195<br>PUSH FULL CONTROL SHAFT VIBRATOR CHICK DWG, NO. D-51195<br>PUSH FULL CHICK DWG, NO                                                                                                                                                                                                                                                                                                                                                                                                                                                      | L (ELECTRIC) RECERTRIC) RECERTRIC) RECONTROL (RECTRIC) UNIT SPARE UNIT SPARE VELORE ROWER LEAD (ELECTRIC) VELORE ROWER LEAD (ELECTRIC) VELORE ROWER LEAD (ELECTRIC) VELORE ROWER IDER ROD CONTROL SHAFT DIG. NO. D-51196 RECTARY CONTROL SHAFT VIBRATOR FILLER TUBE DWG. NO. D-51195 RECTARY CONTROL SHAFT VIBRATOR FILLER TUBE DWG. NO. D-51195 PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG. NO. D-51195 PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG. NO. D-51195 PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG. NO. 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D-51195 PUSH FULL CONTROL SHAFT VIBRATOR CHUCK CHUC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                          |                                                                                                |                                                                                                                                                  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| L (ELECTRIC)         D RECEPTACLE         DER CONTROL (RIDCTRIC)         VENDER GROUND LEAD (ELECTRIC)         VENDER GROUND LEAD (ELECTRIC)         VIENETOR RIDER ROD CONTROL SHAFT DWG. NO. D-51196         ROTARY CONTROL SHAFT VIBRATOR FILLER TUBE DWG. NO. D-51192         POSH FULL CONTROL SHAFT VIBRATOR FILLER TUBE DWG. NO. D-51195         FUSH FULL CONTROL SHAFT VIBRATOR FILLER TUBE DWG. NO. D-51195         FUSH FULL CONTROL SHAFT VIBRATOR FILLER TUBE DWG. NO. D-51195         FUSH FULL CONTROL SHAFT VIBRATOR FRAME DWG. NO. D-51195         FUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG. NO. D-51195         FUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG. NO. D-51195         FUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG. NO. D-51195         FUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG. NO. D-51195         FUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG. NO. D-51195         FUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG. NO. D-51195         FUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG. NO. 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D-51195         CHUCK AND CLASSIFICATION         LIGHT TO COMPANY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | PRETERTACLE         DER CONTROL (REDUTRIC)         VENDER CONTROL (REDUTRIC)         VENDER FONER LEAD (REDUTRIC)         VENDER FONER LEAD (REDUTRIC)         VENDER FONER LEAD (REDUTRIC)         VENDER FONER REDER REDUC (REDUTRIC)         VENDER FONER REDER REDUC (REDUTRIC)         VENDER FONER REDER RED CONTROL SHAFT DAG, NO. D-51196         REFERENCE DAG, NO. D-51195         PUSH FULL CONTROL SHAFT VIBRATOR FRAME DAG, NO. D-51195         PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DAG, NO. D-51195         PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DAG, NO. D-51195         PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DAG, NO. D-51195         PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DAG, NO. D-51195         PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DAG, NO. D-51195         PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DAG, NO. D-51195         PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DAG, NO. D-51195         PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DAG, NO. D-51195         PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DAG, NO. D-51195         PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DAG, NO. D-51195         PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DAG, NO. D-51195         PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DAG, NO. D-51195         PUSH FULL CONTROL SHAFT VIBRATOR FRAME DAG, NO. D-51195         PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DAG, NO. D-51195         PUSH FULL CONTROL SHAFT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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| DER COMTROL (ELECTRIC)<br>CUM 3/4" FENT DUCT<br>WELDER GROUND I EAD (ELECTRIC)<br>WELDER POWER LEAD (ELECTRIC)<br>POSE PULL CONTROL SHAFT VIERATOR FILLER TURE DWG. NO. D-51192<br>POSE PULL CONTROL SHAFT VIERATOR FILLER TURE DWG. NO. D-51195<br>PUSH PULL CONTROL SHAFT VIERATOR FRAME DWG. NO. D-51195<br>FUSH PULL CONTROL SHAFT VIERATOR CHUCK DWG. NO. D-51195<br>FUSH PULL CONTROL SHAFT VIERATOR CHUCK DWG. NO. D-51195<br>FUSH FULL CONTROL SHAFT VIERATOR CHUCK DWG. DWG. DWG. DWG. DWG. CONTROL SHAFT<br>FUSH FUSH FULL CONTROL SHAFT VIERATOR CHUCK DWG. CONTROL LABORATORY<br>OWEN TO CLEBRE COMPANY<br>DWGGATT TO CHUCK CARE DWGGATTOR DWGGATTO                                                                                                                                                                                                                                                                                                                                                                                                                   | DER COMTROL (ELECTRIC)<br>CUM 3/4" FENT DUCT<br>WELDER GROUND LEAD (ELECTRIC)<br>WELDER FOWER LEAD (ELECTRIC)<br>WELDER FOWER ILEAD (ELECTRIC)<br>WELDER FOWER RUDE (ELECTRIC)<br>WELDER FOWER ILEAD (ELECTRIC)<br>WELDER FOWER RUDE CONTROL SHAFT VIBRATOR FILLER TUBE DAG. NO. D-51192<br>POSH FULL CONTROL SHAFT VIBRATOR FILLER TUBE DAG. NO. D-51195<br>PUSH FULL CONTROL SHAFT VIBRATOR FILLER TUBE DAG. NO. D-51195<br>FUSH FULL CONTROL SHAFT VIBRATOR FILLER TUBE DAG. NO. 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D-51195<br>FUSH FUSH FUSH FUSH FUSH FUSH FUSH FUSH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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| CUUM 3/4" TENT DUCT VELDER GROUND LEAD (ELECTRUC)  VELDER FOMER LEAD (ELECTRUC)  VELDER FOMER LEAD (ELECTRUC)  VELOER FOR RIDER ROD CONTROL SHAFT VIBRATOR FILLER TUBE DWG. NO. D-51196  ROTARY CONTROL SHAFT VIBRATOR FILLER TUBE DWG. NO. D-51195  PUSH FULL CONTROL SHAFT VIBRATOR FRAME DWG. NO. D-51195  PUSH FULL CONTROL SHAFT VIBRATOR GENCK DWG. NO. D-51195  PUSH FULL CONTROL SHAFT VIBRATOR GENCK DWG. NO. D-51195  PUSH FULL CONTROL SHAFT VIBRATOR GENCK DWG. NO. D-51195  PUSH FULL CONTROL SHAFT VIBRATOR GENCK DWG. NO. D-51195  PUSH FULL CONTROL SHAFT VIBRATOR GENCK DWG. NO. D-51195  PUSH FULL CONTROL SHAFT VIBRATOR GENCK DWG. NO. D-51195  PUSH FULL CONTROL SHAFT VIBRATOR GENCK DWG. NO. D-51195  PUSH FULL CONTROL SHAFT VIBRATOR GENCK DWG. NO. D-51195  PUSH FULL CONTROL SHAFT VIBRATOR GENCK DWG. NO. D-51195  PUSH FULL CONTROL SHAFT VIBRATOR GENCK DWG. NO. D-51195  PUSH FULL CONTROL SHAFT VIBRATOR GENCK DWG. NO. D-51195  PUSH FULL CONTROL SHAFT VIBRATOR GENCK DWG. NO. 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D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | CUUM 3/4" rENT FUCT VENDER GROUND LEAD (ELECTRUC)  VELDER GROUND LEAD (ELECTRUC)  VELDER ROMER LEAD (ELECTRUC)  VEBRETOR RIDER ROD CONTROL SHAFT VIERATOR FILLER TUBE DWG. NO. D-51196  ROTARY CONTROL SHAFT VIERATOR FILLER TUBE DWG. NO. D-51195  PUSH FULL CONTROL SHAFT VIERATOR FRAME DMG. NO. D-51195  PUSH FULL CONTROL SHAFT VIERATOR FRAME DMG. NO. D-51195  FIRST FLOOR PLAN D-50195  FIRST FLOOR PLAN D-50195  CLASSIFICATION  CLAS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | CLE                      |                                                                                                |                                                                                                                    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| VENT DUCT VELOER FOWER LEAD (ELECTRIC) VELDER FOWER LEAD (ELECTRIC)  VELOER FOWER LEAD (ELECTRIC)  VERAFOR RIDER ROD CONTROL SHAFT DWG, NO. D-51196 ROTARY CONTROL SHAFT VIBRATOR FILLER TUBE DWG, NO. D-51192 PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG, NO. D-51195 PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG, NO. D-51195 PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG, NO. D-51195 PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG, NO. D-51195 PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG, NO. D-51195 PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG, NO. D-51195 PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG, NO. D-51195 PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG, NO. D-51195 PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG, NO. D-51195 PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG, NO. D-51195 PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG, NO. D-51195 PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG, NO. D-51195 PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG, NO. D-51195 PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG, NO. 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D-51095 PUSH FULL CONTROL SHAFT VIBRATOR PUSH FULL CONTROL SHAFT VIBRATOR PUSH FULL CONTROL SHAFT VIBRATOR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | VENT DUCT<br>WELDER GROUND LEAD (ELECTRIC)<br>WELDER FOWER LEAD (ELECTRIC)<br>1" CORDUIT SPARE<br>VIBRETOR RIDER ROD CONTROL SHAFT DIG, NO. D-51196<br>ROZARY CONTROL SHAFT VIBRATOR FILLER TUBE DWG. NO. D-51192<br>PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG. NO. D-51195<br>PUSH FULL CONTROL SHAFT VIBRATOR CHUCK DWG. NO. CHUCK CHUCK CONTROL OF CONTROL SHAFT<br>PUSH BUGGING THORESET<br>PUSH FULL CONTROL SHAFT VIBRATOR DWG. NO. CAREDO CONTROL CHUCK CONTROL DWG. NO. ROGATORY<br>PUSH FULL STATES STORESET<br>PUSH FULL STAFT VIBRATOR SHAFT NO. CAREDO CONTROL SHAFT<br>PUSH FULL STAFT VIBRATOR SHAFT VIBRATORY<br>PUSH FULL STAFT VIBRATORY<br>PUSH FUL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ELDER CONTROL (ELECTRIC) |                                                                                                |                                                                                                                                                                                  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| WELDER GROUND LEAD (ELECTRIC)     1" CORDUTT SPARE       VIERRETOR REDER ROD CONTROL SHAFT DWG. NO. D-51196       ROTARY CONTROL SHAFT VIERATOR FILLER TURE DWG. NO. D-51192       PUSH FULL CONTROL SHAFT VIERATOR FRAME DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHICK DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHICK DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHICK DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHICK DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHICK DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHICK DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHICK DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHICK DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHICK DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHICK DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHICK DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHICK DWG. NO. 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DCCLER COMPANY <t< td=""><td>WELDER GROUND LEAD (ELECTRIC)        </td><td>4"</td><td></td><td></td><td></td><td></td></t<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | WELDER GROUND LEAD (ELECTRIC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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| WELDER POWER LEAD (ELECTRIC)     1" CONTAULT SPANS       VIENATOR RIDER ROD CONTROL SHAFT VIERATOR FILLER TURE     DMG. NO. D-51192       PUSH FULL CONTROL SHAFT VIERATOR FILLER TURE     DMG. NO. D-51195       PUSH FULL CONTROL SHAFT VIERATOR FRAME     DMG. NO. D-51195       PUSH FULL CONTROL SHAFT VIERATOR FRAME     DMG. NO. D-51195       PUSH FULL CONTROL SHAFT VIERATOR CHUCK DMG. NO. D-51195     PUSH FULL CONTROL SHAFT VIERATOR CHUCK DMG. NO. D-51195       PUSH FULL CONTROL SHAFT VIERATOR CHUCK DMG. NO. D-51195     PUSH FULL CONTROL SHAFT VIERATOR CHUCK DMG. NO. D-51195       PUSH FULL CONTROL SHAFT VIERATOR CHUCK DMG. NO. D-51195     PUSH FULL CONTROL SHAFT VIERATOR CHUCK DMG. NO. D-51195       PUSH FULL CONTROL SHAFT VIERATOR CHUCK DMG. NO. D-51195     DMG. NO.       PUSH FULL CONTROL SHAFT VIERATOR CHUCK DMG. NO. D-51195     DMG. NO.       CHASSIFICATION     CELL 4 SERVICE       Intermedia unless     OAK RIDGE NATIONAL LABORATORY OF UNLESS       Intermedia unless to compare on unless t                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | WELDER POWER LEAD (ELECTRIC)     1" CONTAULT SPANS       VIENATOR RIDER ROD CONTROL SHAFT DWG. NO. D-51196       ROTARY CONTROL SHAFT VIENATOR FILLER TURE DWG. NO. D-51192       PUSH PULL CONTROL SHAFT VIENATOR FRAME DWG. NO. D-51195       PUSH PULL CONTROL SHAFT VIENATOR FRAME DWG. NO. D-51195       PUSH PULL CONTROL SHAFT VIENATOR CHUCK DWG. NO. D-51195       PUSH PULL CONTROL SHAFT VIENATOR CHUCK DWG. NO. D-51195       PUSH PULL CONTROL SHAFT VIENATOR CHUCK DWG. NO. D-51195       PUSH PULL CONTROL SHAFT VIENATOR CHUCK DWG. NO. D-51195       PUSH PULL CONTROL SHAFT VIENATOR CHUCK DWG. NO. D-51195       PUSH PULL CONTROL SHAFT VIENATOR CHUCK DWG. NO. D-51195       PUSH PULL CONTROL SHAFT VIENATOR CHUCK DWG. NO. D-51195       PUSH PULL CONTROL SHAFT VIENATOR CHUCK DWG. NO. D-51195       PUSH PULL CONTROL SHAFT VIENATOR CHUCK DWG. NO. D-51195       PUSH PULL CONTROL SHAFT VIENATOR CHUCK DWG. NO. D-51195       PUSH PULL CONTROL SHAFT VIENATOR CHUCK DWG. NO. D-51195       PUSH PULL CONTROL SHAFT VIENATOR CHUCK DWG. NO. D-51195       PUSH PULL CONTROL SHAFT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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NO. D-51196           ROTARY CONTROL SHAFT VIERATOR FILLER TUBE DAG. NO. D-51192           PUSH PULL CONTROL SHAFT VIERATOR FRAME DAG. NO. D-51195           PUSH PULL CONTROL SHAFT VIERATOR CHUCK DAG. NO. D-51195           PUSH PULL CONTROL SHAFT VIERATOR CHUCK DAG. NO. D-51195           PUSH PULL CONTROL SHAFT VIERATOR CHUCK DAG. NO. D-51195           PUSH PULL CONTROL SHAFT VIERATOR CHUCK DAG. NO. D-51195           PUSH PULL CONTROL SHAFT VIERATOR CHUCK DAG. NO. D-51195           PUSH PULL CONTROL SHAFT VIERATOR CHUCK DAG. NO. D-51195           PUSH PULL CONTROL SHAFT VIERATOR CHUCK DAG. NO. D-51195           PUSH PULL CONTROL SHAFT VIERATOR CHUCK DAG. NO. D-51195           PUSH PULL CONTROL SHAFT VIERATOR CHUCK DAG. NO. D-51195           PUSH PULL CONTROL SHAFT VIERATOR CHUCK DAG. NO. D-51195           PUSH PULL CONTROL SHAFT VIERATOR CHUCK DAG. NO. D-51195           PUSH PULL CONTROL SHAFT VIERATOR CHUCK DAG. NO. D-51195           PUSH PULL CONTROL SHAFT VIERATOR CHUCK DAG. NO. 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D-50192 Q                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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| VIERATOR RIDER ROD CONTROL SHAFT DWS. NO. D-51196       ROTARY CONTROL SHAFT VIERATOR FILLER TUBE DWG. NO. D-51192       PUBH FULL CONTROL SHAFT VIERATOR FRAME DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR FRAME DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHUCK DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHUCK DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHUCK DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHUCK DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHUCK DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHUCK DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHUCK DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHUCK DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHUCK DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHUCK DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR FRAME DWG. NO. D-51195       FUSH FULL CONTROL SHAFT VIERATOR CHUCK DWG. NO. 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THORTON VIEW DW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | VIERATOR RIDER ROD CONTROL SHAFT DWS. NO. D-51196       ROTARY CONTROL SHAFT VIERATOR FILLER TUBE       PUSH FULL CONTROL SHAFT VIERATOR FRAME       PUSH FULL CONTROL SHAFT VIERATOR CHUCK DAG. NO. D-51195       FUEST FLOOR FLAM     D-50476       REFERENCE DRAWINGS     DWG. NO.       THORTIN-U <sup>233</sup> FUEL ROD FACTLITY     THORTIN-U <sup>233</sup> FUEL ROD FACTLITY       THORTIN-U <sup>233</sup> FUEL ROD FACTLITY     THORE 3015       CLASSIFICATION     CELL 4 SERVICE       I//d man, mine     UNION CAREDOR ON UNLER       DAK RIDGE NATIONAL LABORATORY     ONK RIDGE NATIONAL LABORATORY       Secondard with     THORTING SECONDOR OF UNION CAREDOR CONTANTON       Main an an data with the secondard of UNION CAREDOR CONTANTON     DAK RIDGE NATIONAL LABORATORY       Secondard with     THORTING SECONDOR OF UNION CAREDOR CONTANTON       Secondard with     THORTING SECONDO                                                                                                                                                                                                                                                                                                                                                                                                                      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| ROTARY CONTROL SHAPT VIBRATOR FILLER TUBE DAG. NO. D-51192<br>PUSH FULL CONTROL SHAPT VIBRATOR FRAME DAG. NO. D-51195<br>FUSH FULL CONTROL SHAPT VIBRATOR CHUCK DAG. NO. D-51095<br>FUSH FULL CONTROL SHAPT VIBRATOR CHUCK DAG. NO. D-51095<br>FUSH FULL CONTROL SHAPT VIBRATOR CHUCK DAG. NO. D-51095<br>FUSH FULL CONTROL SHAPT VIBRATOR DAG. D-50092 A MICK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ROTARY CONTROL SHAPT VIBRATOR FILLER TUBE DAG. NO. D-51192<br>PUSH FULL CONTROL SHAPT VIBRATOR FRAME DAG. NO. D-51195<br>FUSH FULL CONTROL SHAPT VIBRATOR CHUCK DAG. NO. D-51195<br>FUSH FULL CONTROL SHAPT VIBRATOR FULL SHAPT VIBRATOR OF CHUCK DAG. NO. CONTROL CHUCK DAG. NO. CONTROL SHAPT VIBRATOR OF CHUCK DAG. TENKED OF CHUCK DAG. NO. AND CHUCK DAG. CONTON<br>FUSH DAG. TENKED SHAPT VIBRATOR FULL SHAPT VIBRATOR OF CHUCK DAG. CONTON TO CONTROL CAREDOC CONTONTON<br>MADE DAG. TENKED SHAPT VIBRATOR FULL SHAPT VIBRATOR OF CHUCK DAG. CONTONTON<br>FUSH DAG. TENKED SHAPT VIBRATOR FULL SHAPT VIBRATOR OF CHUCK DAG. CONTONTON<br>FUSH DAG. TENKED SHAPT VIBRATOR FULL SHAPT VIBRATOR OF CHUCK DAG. CONTONTON<br>FUSH DAG. TENKED SHAPT VIBRATOR FULL SHAPT VIBRATOR OF CHUCK DAG. CONTONTON<br>FUSH DAG. TENKED SHAPT VIBRATOR FULL SHAPT VIBRATOR OF CHUCK DAG. CONTONTON<br>FUSH DAG. TENKED SHAPT VIBRATOR FULL SHAPT VIBRATOR OF CHUCK DAG. DOT VIBR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                          | ATTOR RTDER                                                                                    | BOD CONTROL                                                                                                                                                                                                                                       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| PUSH FULL CONTROL SHAFT VIBRATOR FRAME DMC. NO. D-51195<br>PUSH FULL CONTROL SHAFT VIBRATOR CHICK DAG. NO. D-51195<br>PUSH FULL CONTROL SHAFT VIBRATOR CHICK DAG. NO. D-51195<br>FIRST FLOOR PLAN D-5097E<br>REFERENCE DRAWINGS DWG. NO.<br>THORTUN-U <sup>233</sup> FUEL ROD FACILITY MAX 3015<br>ONG:<br>1/44 max. make<br>CLASSIFICATION<br>CELL 4 SERVICE<br>INDEX<br>CELL 4 SERVICE<br>INDEX<br>CHASSIFICATION<br>CELL 4 SERVICE<br>INDEX<br>UNION CARBIDE NUCLEAR COMPANY<br>OF UNION CARBOLE COMPANY<br>DISSING OF UNION CARBOLE COMPANY<br>DISSING TO UNION CARBOLE COMPANY                                                                                                                                                                                                                                                                                                                                                      | PUSH FULL CONTROL SHAFT VIBRATOR FRAME DAG. NO. D-51195<br>PUSH FULL CONTROL SHAFT VIBRATOR CHICK DAG. NO. D-51195<br>PUSH PULL CONTROL SHAFT VIBRATOR CHICK DAG. NO. D-51195<br>F/RST FLOOR PLAN D-50478<br>REFERENCE DRAWINGS DWG. NO.<br>THORTUG-U <sup>233</sup> FUEL ROD FACTLITY MAD. 3015<br>THORTUG-U <sup>233</sup> FUEL ROD FACTLITY MAD. 3015<br>I/M man. mater<br>I/M                                                                                                                                                                                                                                                                                                                                                                                                                                              |                          | 1                                                                                              |                                                                                                                                                                                                                                                                                                                  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NO.<br>THORTUN-U <sup>233</sup> FUEL ROD FACTLITY MOD. 3015<br>THORTUN-U <sup>233</sup> FUEL ROD FACTLITY MOD. 3015<br>INDEX<br>CLASSIFICATION<br>CELL 4 SERVICE<br>INDEX<br>UNION CAREDE NATIONAL LABORATORY<br>OVARITY DVISION & UNICER<br>THORTUN-U <sup>233</sup> FUEL ROD FACTLITY MOD. 3015<br>INDEX<br>UNION CAREDE NATIONAL LABORATORY<br>OVARITY DVISION & UNICER<br>THORTUN-U <sup>234</sup><br>INDEX<br>UNION CAREDE NATIONAL LABORATORY<br>OVARITY DVISION & UNICER<br>THORE INTO DIMENSION UNLER<br>THORE INTO DIMENSION INTO THE INTO DIMENSION INTO THE INTO DIMENSION UNLER<br>THORE INTO DI                                                                                                                                                                                                                                                                                                                                                                                                                             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| REFERENCE DRAWINGS         DWG. NO.           THORIUM-U <sup>233</sup> FUEL ROD FACILITY         MGG. 3015           1/44 max. water<br>word and the<br>series that type.         CLASSIFICATION         CELL 4 SEREVICE<br>INDEX           1/44 max. water<br>word and type.         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| REFERENCE DRAWINGS         DWG. NO.           THORIUM-U <sup>233</sup> FUEL ROD FACILITY         MGG. 3015           1/44 max. water<br>word and the<br>series that type.         CLASSIFICATION         CELL 4 SEREVICE<br>INDEX           1/44 max. water<br>word and type.         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| REFERENCE DRAWINGS         DWG. NO.           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| REFERENCE DRAWINGS         DWG. NO.           THORIUM-U <sup>233</sup> FUEL ROD FACILITY         MGG. 3015           1/44 max. water<br>word and the<br>series of the type.         CLASSIFICATION         CELL 4 SEREVICE<br>INDEX           1/44 max. water<br>word and type.         Users on Distributions UNLESS<br>DAK RIDGE NATIONAL LABORATORY<br>ordenated at<br>macrosoft to the type.         OAK RIDGE NATIONAL LABORATORY<br>ordenated at<br>MDEX           Users of the<br>macrosoft to the<br>series of the<br>macrosoft to the<br>series of the<br>macrosoft to the<br>series of the<br>macrosoft to the<br>series of the<br>series                                                                                                                                                                                                                                                                                                                             | REFERENCE DRAWINGS         DW2 NO.           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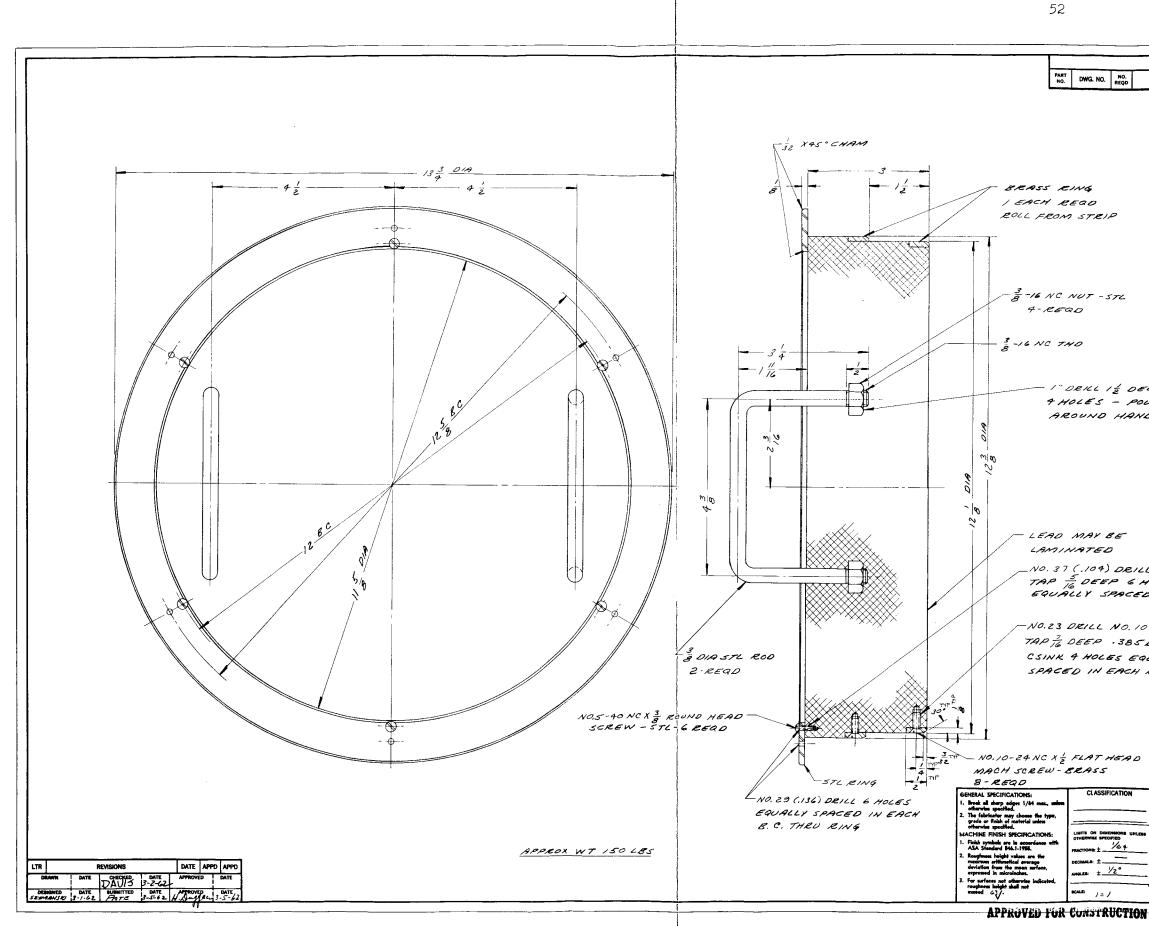
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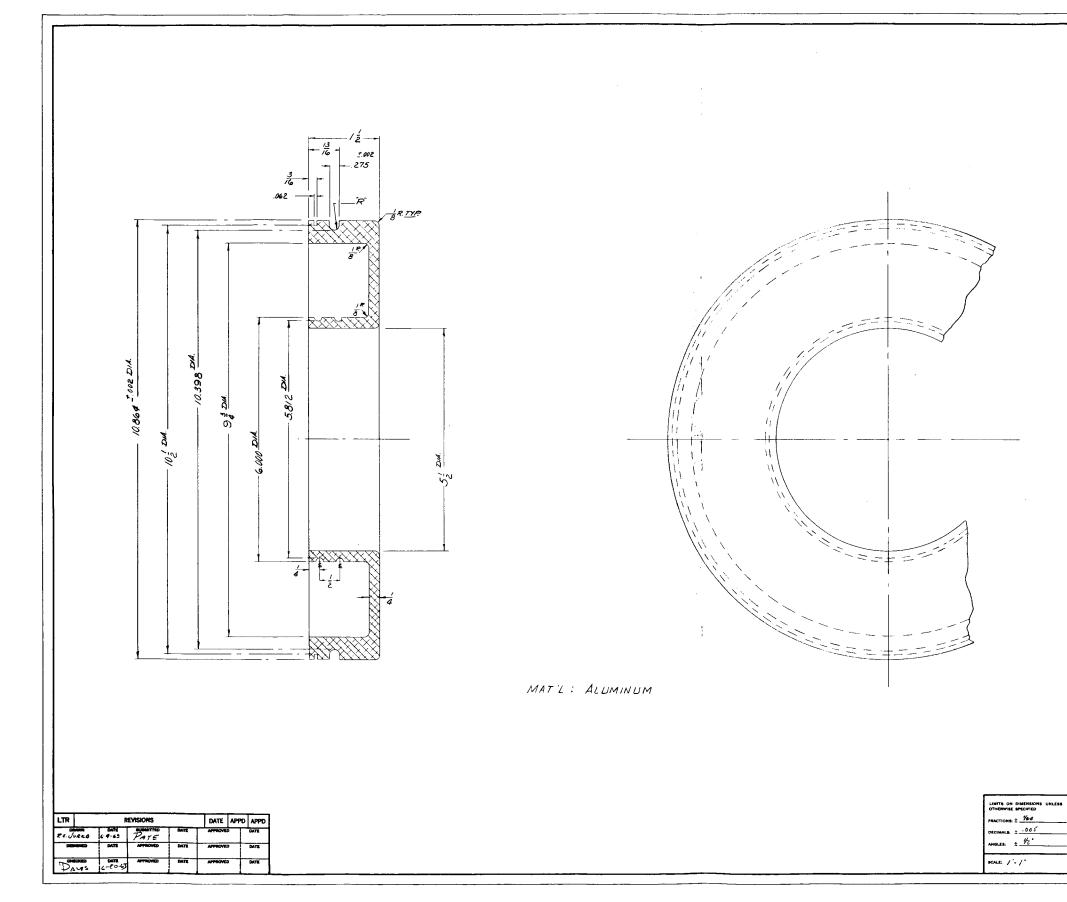
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| 1           | Stock              | 1              | Kanipulator tong                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |  |  |
| 1-A         | Stock<br>Stock     |                | Nanipulator tong<br>Manipulator tong                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |  |  |
| 2           | Stock              | l ¦            | Manipulator tong<br>Castle joint <i>(cycinider - DISC TYPE</i> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |  |  |
| 3           | D-45017            | i i            | Mounting ring                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | St1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |  |
| 4           | D-45017            | 1              | Retaining ring                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Stl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |  |
| 5 6         | D-45017<br>D-45018 |                | Sealing ring<br>Adapter ring                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Stl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |  |
| 7           | D-45018            |                | Adapter ring<br>Inner adapter ring                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Alum.<br>Alum.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |
| 8           | Stock              | i              | "0" ring AN-6227-75 9 1/2 x 10 x 1/4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Neoprene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |  |
| 9           | Stock              | 1              | "0" ring AN-6227-76 10 x 10 1/2 x 1/4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Neoprene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |  |
| 10<br>11    | Stock              | 6              | Flat head mach screw, 1/4-20NC x 1/2<br>Round head screw No. 5-40NC x 3/8                                                                                                                                                                                                                                                                                                                                                                                                                                                        | St <br>St                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
| 12          | Stock              | 8              | Round head screw No. 5-40NC x 1/4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Sti                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |  |
| 13          | Stock              | 4              | Soc head cap screw No. 10-24NC x 1/2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Sti                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |  |
| 14          | D-45018            | 8              | Clip                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Sti                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |  |
| 15<br>16    | D-45019<br>D-45019 |                | Nut Band                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Brass<br>Brass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |
| 17          | Stock              | 2              | рапо<br>"О" ring, АМ-6227-23 і І/4 х І І/2 х І/В                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Neoprene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |  |
| 8           | D-45019            | 1 1            | Housing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Brass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |
| 19          | D-45019            |                | Ring<br>Martine 500 ID = 0/10 00 - 4/11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Brass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |
| 20<br>2 I   | 5tock              |                | Washer, .500 ID x 3/4 0D x .062<br>Boot                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | STL.<br>Keoprene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |  |
| 22          | D-45019            |                | Shaft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | SST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |  |
| 23          | D-45019            | i              | Boot                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Neoprene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |  |
| 24          | Stock              | <u>`!</u>      | "0" ring, AN-6227-6 5/16 x 7/16 x 1/16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Neoprene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |  |
| 25<br>26    | Stock              | +              | Retaining ring, Truarc No. 5100-43<br>Gasket, I 5/8 0D x I 1/4 ID x 1/16 thick                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Stl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |  |
| 272         | 0-45020            | 1              | Gasket, 1 5/8 00 x 1 1/4 10 x 1/16 thick<br>Bacy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Neor RENE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
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| <i>e.</i>   | Слет Л             | <i>10, 2</i> ; | 7 70 88 USEO WITH RAET NO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <i></i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |
| 2.          |                    | <i>/0,2;</i>   | NANIPULATOR ASSY SHEET !<br>DET SHEET 4<br>DET SHEET 3<br>REFERENCE DRAWINGS                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0-45015<br>0-45015<br>0-45019<br>DWR NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |  |
| 2.          |                    | <i>/0,2;</i>   | MANIPULATOR ASSY SHEET I<br>DET SHEGT 4<br>DET SHEGT 3<br>REFERENCE DRAWINGS                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0-+5015<br>0-+50L0<br>D-+5019<br>DWQ NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |  |
| 2.          |                    |                | MANIPULATOR ASSY SHEET I<br>DET SHEET 4<br>DET SHEET 3<br>NEFTRENE DRAWINGS<br>THORIUM-UR33 FUEL ROD FACILLY                                                                                                                                                                                                                                                                                                                                                                                                                     | 0-+5015<br>0-+50L0<br>D-+5019<br>DWQ NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |  |
|             | CLASSIF            |                | MANIPULATOR ASSY SHEET I<br>DET SHEET 4<br>DET SHEET 3<br>REFERENCE DRAWINGS<br>THORIUMI-U233 FUEL ROD FACILLI                                                                                                                                                                                                                                                                                                                                                                                                                   | 0- +5015<br>0- +5019<br>D+5019<br>DWG NO.<br>- J <sup>MDA</sup> 3019                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
| •<br>•      |                    |                | MANIPULATOR ASSY SHEET I<br>DET SHEET 4<br>DET SHEET 3<br>REFERENCE DRAWINGS<br>THORIUM-UR33 FUGL ROD FACILLY<br>CASTLE MANIPULATO                                                                                                                                                                                                                                                                                                                                                                                               | 0- +5015<br>0- +5010<br>0- +5010<br>0- +5019<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |  |  |
| •<br>•      |                    |                | MANIPULATOR ASSY SHEET I<br>DET SHEET 4<br>DET SHEET 3<br>REFERENCE DRAWINGS<br>THORIUMI-U233 FUEL ROD FACILLI                                                                                                                                                                                                                                                                                                                                                                                                                   | 0- +5015<br>0- +5010<br>0- +5010<br>0- +5019<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |  |  |
| 3<br>•      | CLASSIF            | ICATION        | MANIPULATOR ASSY SHEET I<br>DET SHEET 4<br>DET SHEET 3<br>REFERENCE DRAWINGS<br>THORIUM-UZ33 FUEL ROO FACILIT<br>CASTLE MANIPULATO<br>ASSEMBLY SHEET 2                                                                                                                                                                                                                                                                                                                                                                           | 0- +5015<br>0- +5010<br>0- +5010<br>0- +5019<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |  |  |
| 2.<br>      |                    | ICATION        | MANIAULATOR ASSY SHEET I<br>DET SHEET &<br>DET SHEET &<br>DET SHEET S<br>REFERENCE DRAWINGS<br>THORIUM-UR33 FUGL ROO FACILLY<br>CASTLE MANIAULATC<br>ASSEMBLY SHEET 2<br>OK ROCE NATIONAL LABORATORY<br>OFFANDE W                                                                                                                                                                                                                                                                                                                | 0-\$5015<br>0-\$5020<br>D-\$5020<br>D-\$5015<br>DWQ NO.<br>7 mm 3019                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
| 3<br>•••    | CLASSIF            | ICATION        | MANIPULATOR ASSY SHEET I<br>DET SHEET 4<br>DET SHEET 3<br>REFERENCE DRAWINGS<br>THORIUM-UR33 FUEL ROD FACILLI<br>CASTLE MARIIPULATO<br>ASSEMBLY SHEET 2<br>OAK RIDGE NATIONAL LABORATORY<br>ORDED BY<br>UNION CARBIDE NUCLEAR COMP                                                                                                                                                                                                                                                                                               | 0-\$5015<br>0-\$5020<br>D-\$5020<br>D-\$5015<br>DWQ NO.<br>7 mm 3019                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
| 3<br>•••    | CLASSIF            | ICATION        | MANIAULATOR ASSY SHEET I<br>DET SHEET &<br>DET SHEET &<br>DET SHEET S<br>REFERENCE DRAWINGS<br>THORIUM-UR33 FUGL ROO FACILLY<br>CASTLE MANIAULATC<br>ASSEMBLY SHEET 2<br>OK ROCE NATIONAL LABORATORY<br>OFFANDE W                                                                                                                                                                                                                                                                                                                | 0-\$5015<br>0-\$5020<br>D-\$5020<br>D-\$5015<br>DWQ NO.<br>7 mm 3019                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
| 3<br>       |                    | ICATION        | MANIAULATOR ASSY SNEET I<br>DET SNEET 4<br>DET SNEET 4<br>DET SNEET 3<br>REFERENCE DRAWINGS<br>THORIUM-U233 FUEL ROD FACILLI<br>CASTLE MANIAULABORTORY<br>GRANDE NUCLEAR COMP<br>DISSON OF UND LABORATORY<br>ONK RIDGE NATIONAL LABORATORY<br>ONK RIDGE NATIONAL LABORATORY<br>ONK RIDGE NATIONAL LABORATORY<br>ONK RIDGE TOWNDARY<br>UNION CARBIDE NUCLEAR COMP<br>DISSON OF UND LABORATORY<br>ONK RIDGE TOWNDARY<br>UNION CARBIDE NUCLEAR COMP<br>DISSON OF UND LABORATORY<br>ONK RIDGE TOWNDARY<br>UNION CARBIDE NUCLEAR COMP | 0- +5015<br>0- +5015<br>0- +5019<br>DWG NO.<br>DWG NO.<br>DWG NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |  |  |
| 3<br>••••   |                    |                | MANIAULATOR ASSY SHEET I<br>DET SHEET 4<br>DET SHEET 3<br>REFERENCE DRAWINGS<br>THORIUM-U233 FUEL ROD FACILIT<br>CRSTLE MANIAULATC<br>RSSEMSLY SHEET 2<br>OAK RIDGE NATIONAL LABORATORY<br>OWNIGN CARBIDE NUCLEAR COMPONITON<br>OM RIDGE COMPONITON                                                                                                                                                                                                                                                                              | 0-+5015<br>0-+5015<br>0-+5019<br>DWB NO.<br>DWB NO |  |  |  |



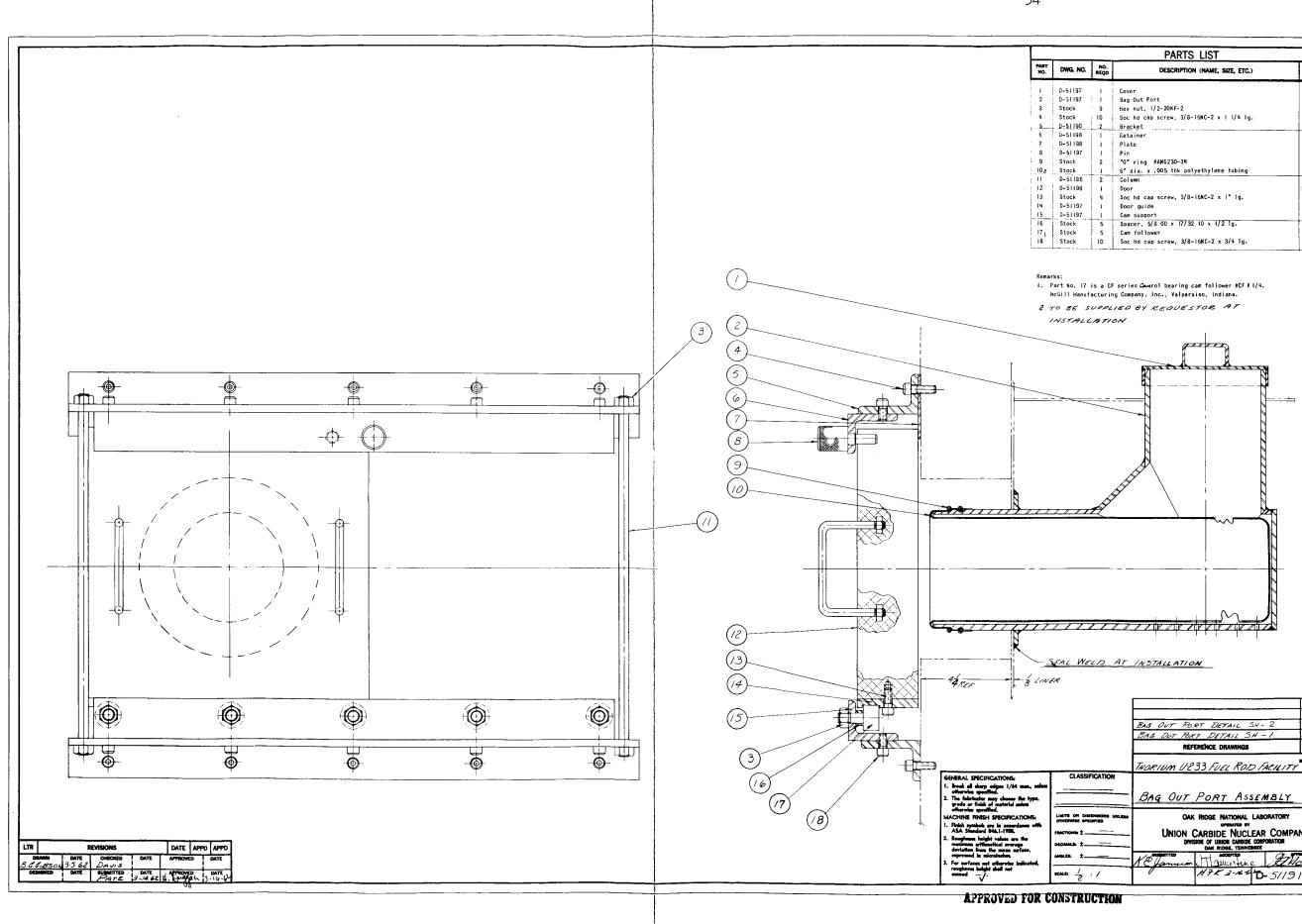
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|    |                                       |                                                                                      |                         |              | ERENCE DRAWIN                                 |            |        | DWG. N |     |  |
|    |                                       |                                                                                      |                         | THORIUM U.   | 233                                           |            |        | ND 30/ | _   |  |
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|    |                                       |                                                                                      | CATIONS                 |              |                                               |            |        |        |     |  |
| •  | GENE<br>Inless Othe                   | RAL SPECIFIC                                                                         | CATIONS<br>ed:          | 041          | RIDGE NATION                                  | AL LABO    | RATORY |        |     |  |
| 1  | oreax all<br>2. Type, gra<br>mav he / | wise Specifie<br>sharp edges 1<br>de, or finish o<br>bosen by fabi<br>si height of m | of material<br>ricator. | UNION (      | CARBIDE NU                                    | ICI FAR    |        | NY     |     |  |
| _3 | Surraces                              | Silen not exce                                                                       | <u> </u>                |              | ISION OF UNION CA<br>OAK RIDGE, T<br>ACCEPTED | ENNESSEE   | APP    | ICVED  | -   |  |
| _  | (Finish s<br>are in ac                | ymbols and h<br>cordance wit                                                         | neight values           | NA PATE      |                                               | <b>D</b> - |        |        | REV |  |
|    | B46.1-19                              | <del>\$</del> 5.)                                                                    |                         | 1            |                                               | D-5        | 6683   |        |     |  |
|    |                                       | <u> </u>                                                                             |                         |              |                                               |            |        |        |     |  |



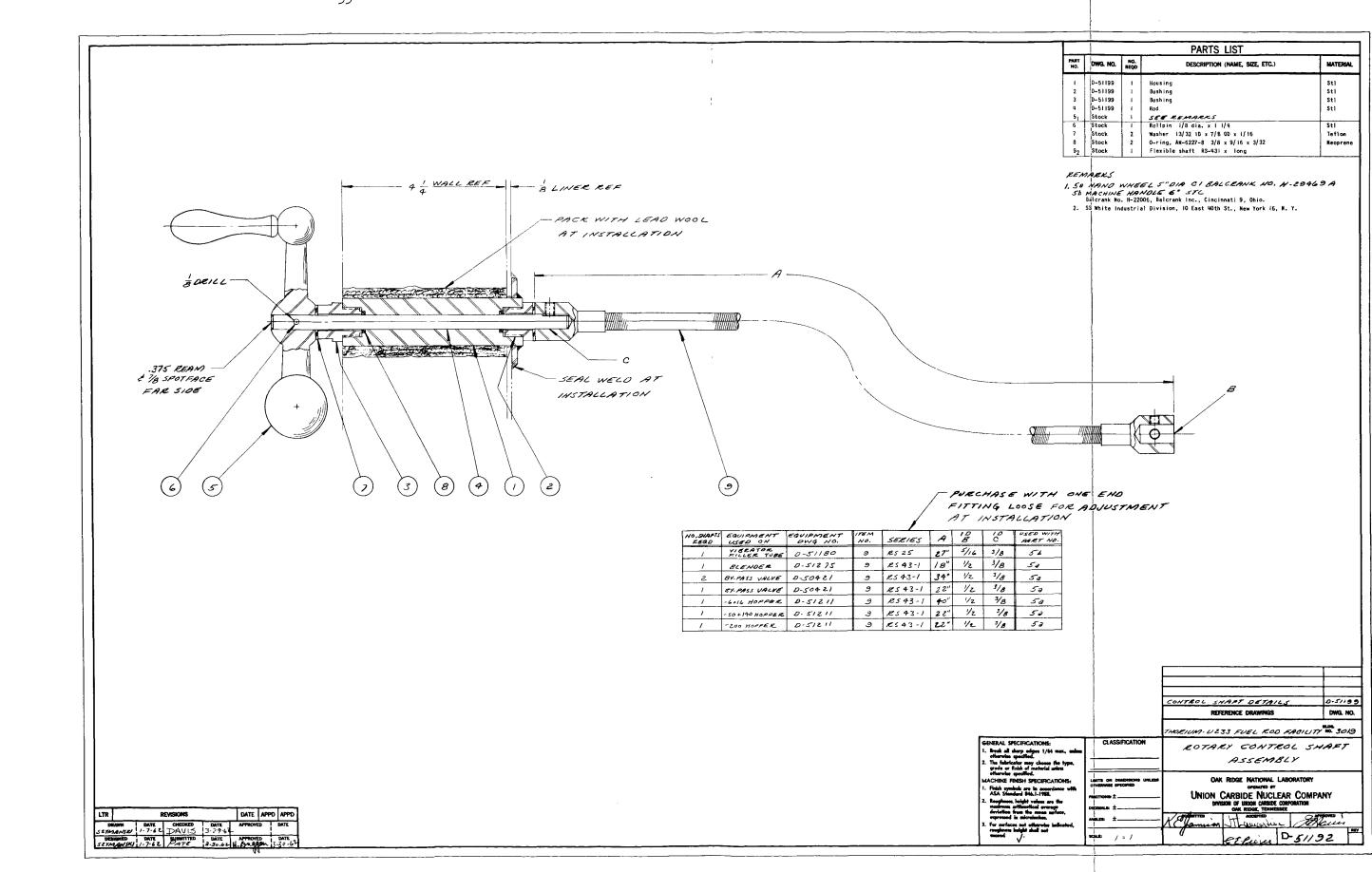
|          |             | PARTS LIST                               |            |
|----------|-------------|------------------------------------------|------------|
| DWG. NO. | NO.<br>REQD | DESCRIPTION (NAME, SIZE, ETC.)           | MATERIAL   |
| D-51197  |             | Cover                                    | St1        |
| 0-51197  | 1 n         | Bag Out Port                             | Stl        |
| Stock    | . 9         | Hex nut, 1/2-20NF-2                      | St1        |
| Stock    | ; 10        | Soc hd cap screw, 3/8-16NC-2 x    /4 ig. | St1        |
| 0-51198  | 2           | Bracket                                  | Sti        |
| 0-51198  |             | Retainer                                 | St1        |
| D~51198  | 1 1         | Plate                                    | Stl        |
| D-51197  |             | Pin                                      | St1        |
| Stock    | 2           | "0" ring #AN6230-34                      | Neoprene   |
| Stock    | 1           | 6" dia. x .005 thk polyethylene tubing   |            |
| 0-51198  | 2           | Column                                   | Sti        |
| D-51198  | 1 1 1       | Door                                     | Lead & Stl |
| Stock    | 4           | Soc hd cap screw, 3/8-16MC-2 x 1* 1g.    | St!        |
| D-51197  | 1           | Door guide                               | Stl        |
| D-51197  |             | Cam support                              | Stl        |
| Stock    | 5           | Spacer, 5/8 OD x 17/32 ID x 1/2 1g.      | St1        |
| Stock    | 5           | Cam follower                             |            |
| Stock    | 10          | Soc hd cap screw, 3/8-16NC-2 x 3/4 lg.   | Stl        |

|                 | BAB OUT FORT DETAIL SH- 2                       | D-51196               |
|-----------------|-------------------------------------------------|-----------------------|
|                 | BAG OUT BRT DETAIL SH - 1<br>REFERENCE DRAWINGS | D- 5/1 97<br>DWG. NO. |
|                 | THORIUM U233 FUEL ROD FACILI                    | TY \$ 3019            |
| CI ACCIERCATION |                                                 |                       |
|                 | BAG OUT PORT ASSEMBL                            |                       |
| CLASSIFICATION  |                                                 | <u>Y</u>              |

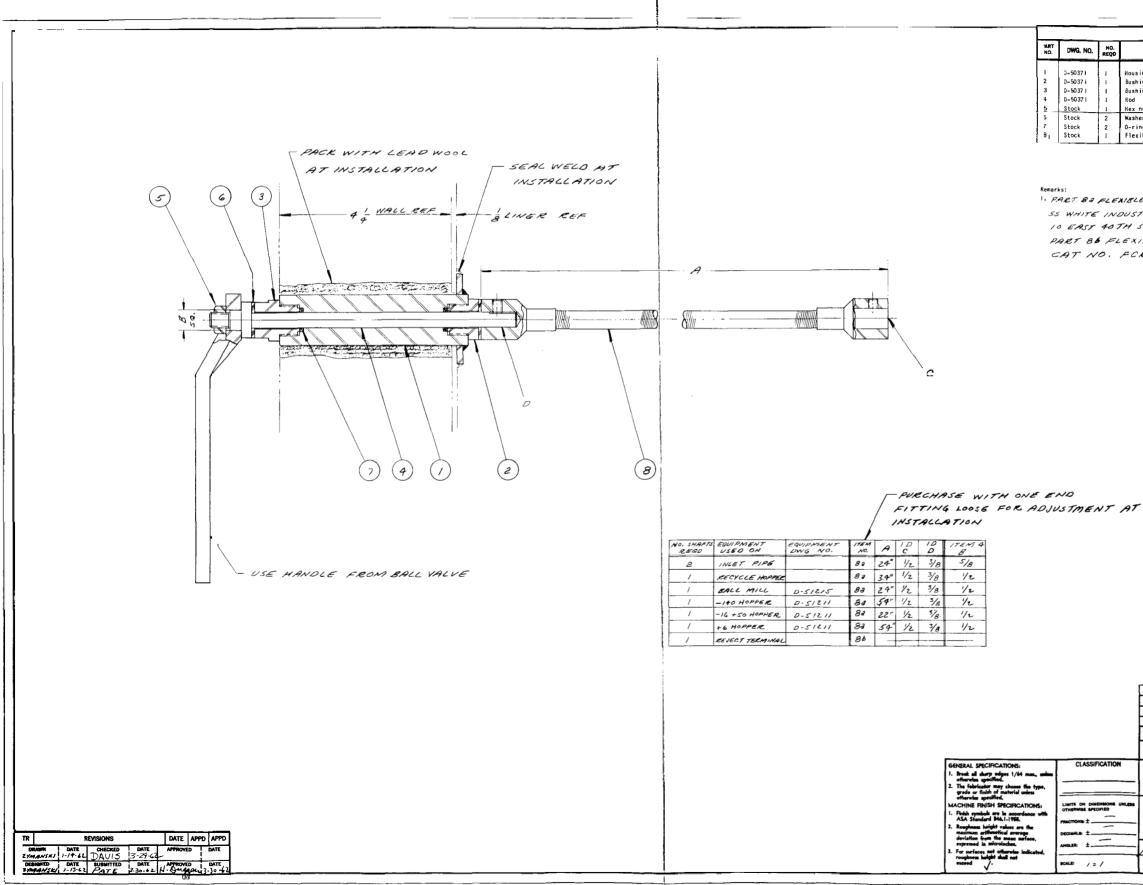


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| DWG. NO. | NO.<br>REQD | DESCRIPTION (NAME, SIZE, ETC.)      | MATERIAL |
|----------|-------------|-------------------------------------|----------|
| -50371   |             | Housing                             | Sti      |
| 0-5037 i |             | Bushing                             | Stl      |
| D-5037 I | 1           | Bushing                             | Sti      |
| D-5037 I | 1           | Rod                                 | Sti      |
| Stock    | 1           | Hex nut 3/8-16KC                    | St1      |
| Stock    | 2           | Washer 13/32 ID x 7/8 0D x 1/16     | Teflon   |
| Stock    | 2           | 0-ring, AN-6227-8 3/8 x 9/16 x 3/32 | Neoprene |
| Stock    |             | Flexible COUPLING                   |          |

. PART BA FLEXIBLE SHAFT SERIES ES-43. X A LONG SS WHITE INDUSTRIAL DIVISION 10 EAST 40TH ST NEW YORK NY PART 86 FLEXIBLE COUPLING BOSTON GEAR CAT NO. FOR 12 3/8 DIA HOLE

|                | CONTROL SHAFT DETAILS 0-5037                                                                 |
|----------------|----------------------------------------------------------------------------------------------|
|                | RÉFERENCE DRAWINGS DWG. NO.                                                                  |
|                | THORIUM-UESS FUEL ROD FACILITY NO. 3015                                                      |
| CLASSIFICATION | BALL VALVE CONTROL                                                                           |
|                | SHAFT ASSEMBLY                                                                               |
|                | OAK RIDGE NATIONAL LABORATORY                                                                |
|                | UNION CARBIDE NUCLEAR COMPANY<br>DYSION OF UNION CARBIDE CORPORATION<br>OAK RIDGE, TENNESSEE |
| aus: ±         | References Handertine Place                                                                  |
| un: /=/        | 57. Mins D- 51193                                                                            |



# APPENDIX C

# Equipment

# Powder Preparation

| 1.        | Installation Drawing - D-53483              |
|-----------|---------------------------------------------|
| 2.        | Jaw Crusher Assembly - D-51212              |
| 3.        | Ball Mill Assembly - D-51215                |
| 4.        | Ball Mill Assembly, Modifications - D-56699 |
| 5.        | Classifier Assembly - D-53500               |
| 6.        | Blender Assembly - D-51225                  |
| 7.        | 2-in. Feeder Valve Assembly - D-51221       |
| 8.        | l-in. Feeder Valve Assembly - D-51200       |
| 9.        | Feed Valve Motor Control Circuit - D-54471  |
| 10.       | Bypass Valve Assembly - D-50421             |
| 11.       | 2-in. Bypass Valve Assembly - D-56677       |
| 12.       | Recycle Hopper Assembly - D-46558           |
| Vibratory | Compactor                                   |
| 1.        | Vibrator Main Assembly - D-51189            |
| 2.        | Vibrator Chuck Subassembly - D-51176        |
| 3.        | Vibrator Chuck Modifications - D-54270      |
| 4.        | Vibrator Filler Tube Subassembly - D-51180  |

5. Vibrator Filler Tube Modifications - D-56684

\_\_\_\_\_

6. Fuel Tube Elevator Assembly - D-45022

End-Cap Welder

1. Remote Welder Main Assembly - D-52450

2. Remote Welder Subassembly A - E-52451

3. Remote Welder Subassembly B - E-52452

## Density Checker

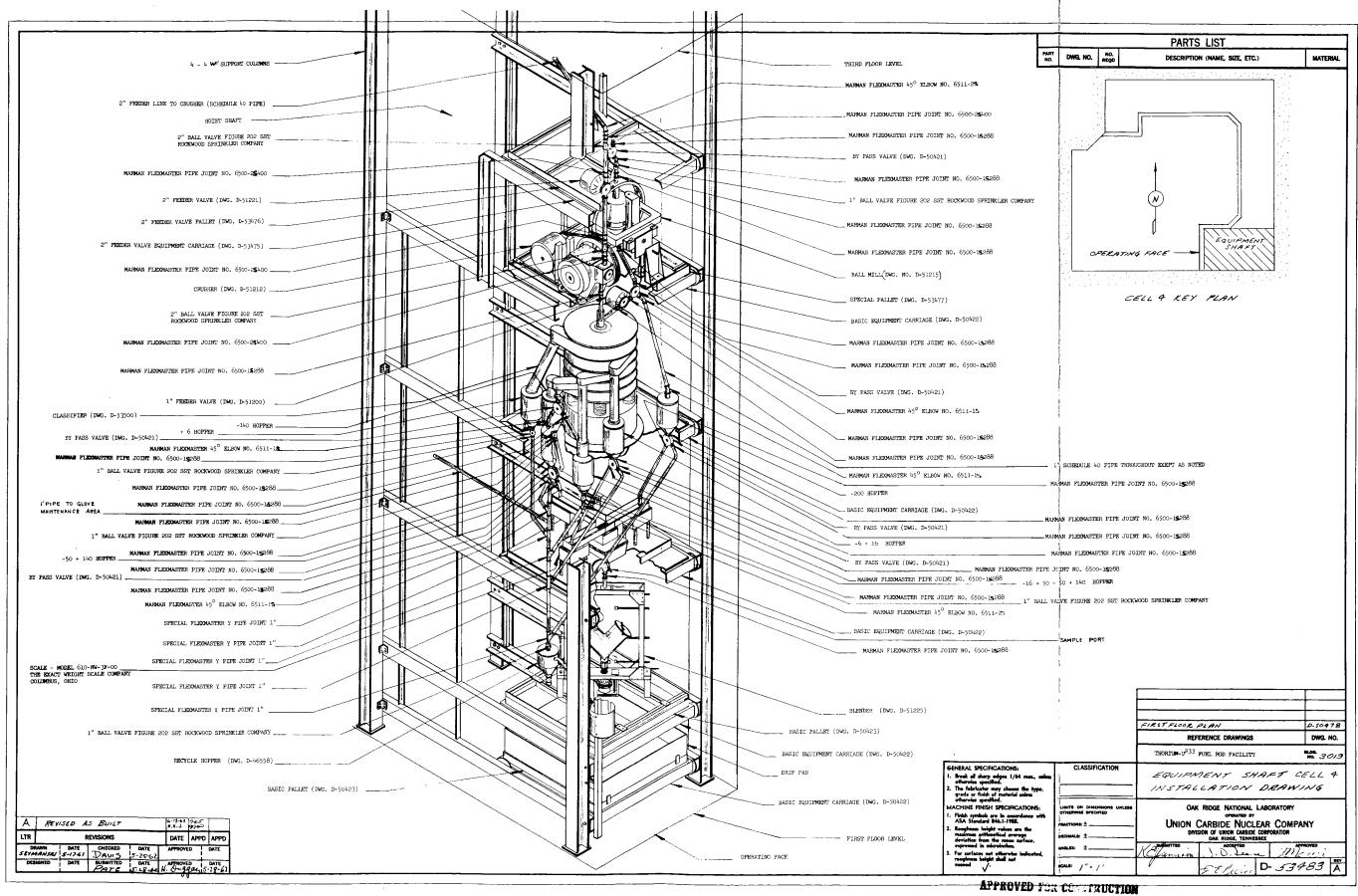
1. Density Checker Main Assembly - E-54877

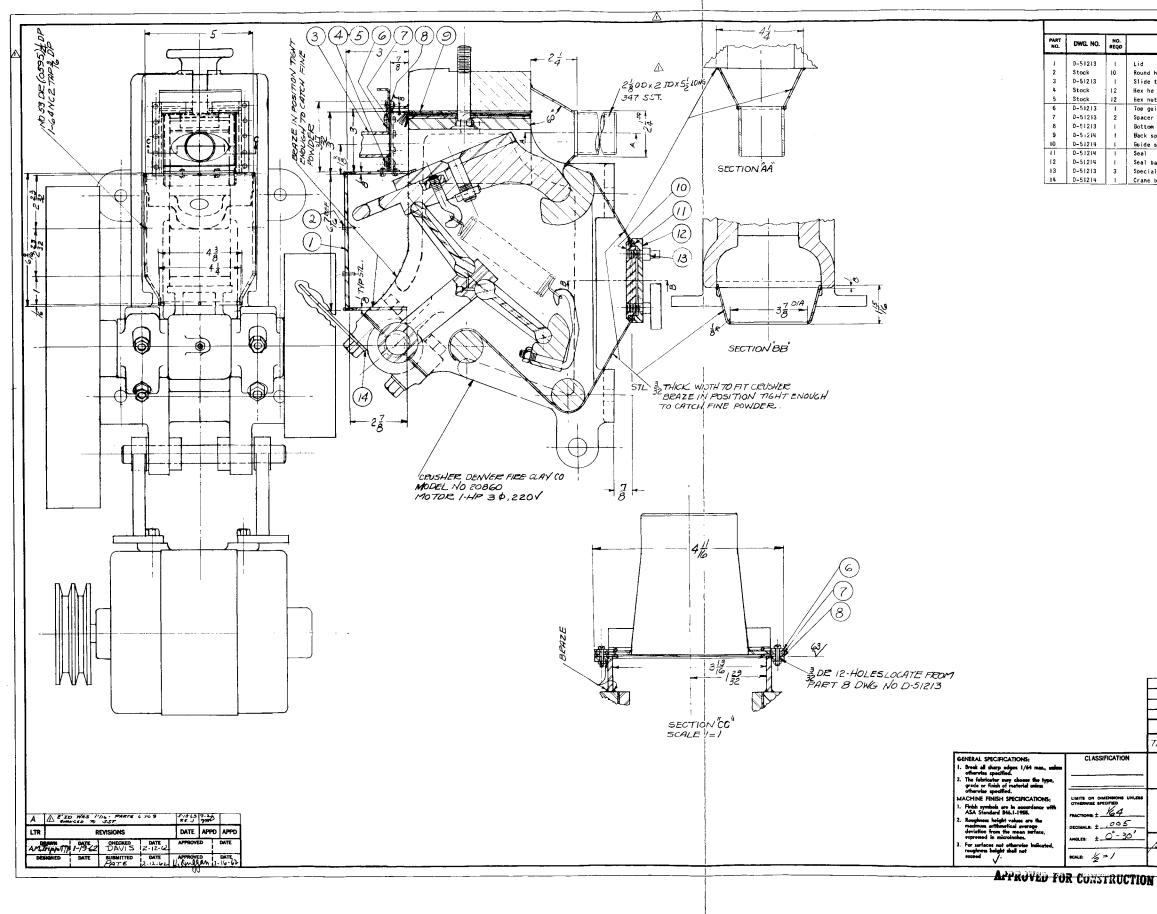
2. Density Checker Subassembly A - E-54878

3. Density Checker Subassembly B - D-54879

4. Density Checker Subassembly C - D-54880

5. Density Checker Electrical Layout - Q-2535-12

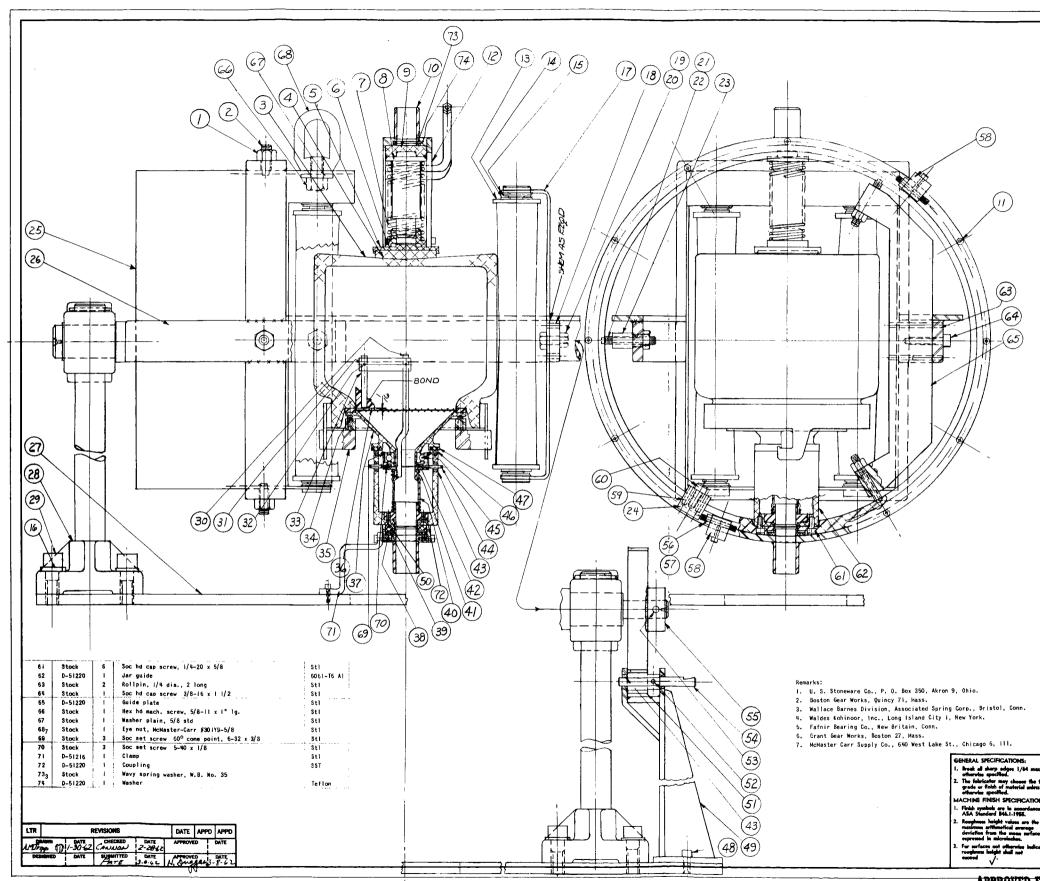




|             | PARTS LIST                             |                |
|-------------|----------------------------------------|----------------|
| NO.<br>REQD | DESCRIPTION (NAME, SIZE, ETC.)         | MATERIAL       |
| I           | Lid                                    | Sti            |
| 10          | Round hd mach screw, 1-64 x 1/4        | Sti            |
| 1           | Slide top                              | SST            |
| 12          | Hex hø machine screw, 5-40 x 1/2       | Sti            |
| 12          | liex nut 5-40                          | Stl            |
| 1           | Top guide                              | SST            |
| 2           | Spacer                                 | SST            |
| 1           | Bottom gwide                           | SST            |
| 1           | Back spacer                            | STL            |
| 1           | Guide seal                             | 60 6 I - T6 A1 |
| 1           | Seal                                   | Rubber         |
| 1           | Seal base                              | 6061-T6 A1     |
| 3           | Special hex hd mach screw 1/4-20 x 3/4 | Stl            |
| 1           | Crane bracket                          | Stl            |

| CEUSHER DETAIL SHEET-1- D 51213                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------|
| REFERENCE DRAWINGS DWG. NO.                                                                                                                   |
| THORTUMU-233 FUEL ROO FACILITY 10:3019                                                                                                        |
| CEUSHER<br>ASSEMBLY                                                                                                                           |
| OAK RIDGE NATIONAL LABORATORY<br>OF DEVIATION OF<br>UNION CARBIDE NUCLEAR COMPANY<br>DYSION OF UNION CARBIDE COMPANION<br>OVA RIDGE, TENNESEE |
| B.G. Listy Thomastine Hacing                                                                                                                  |
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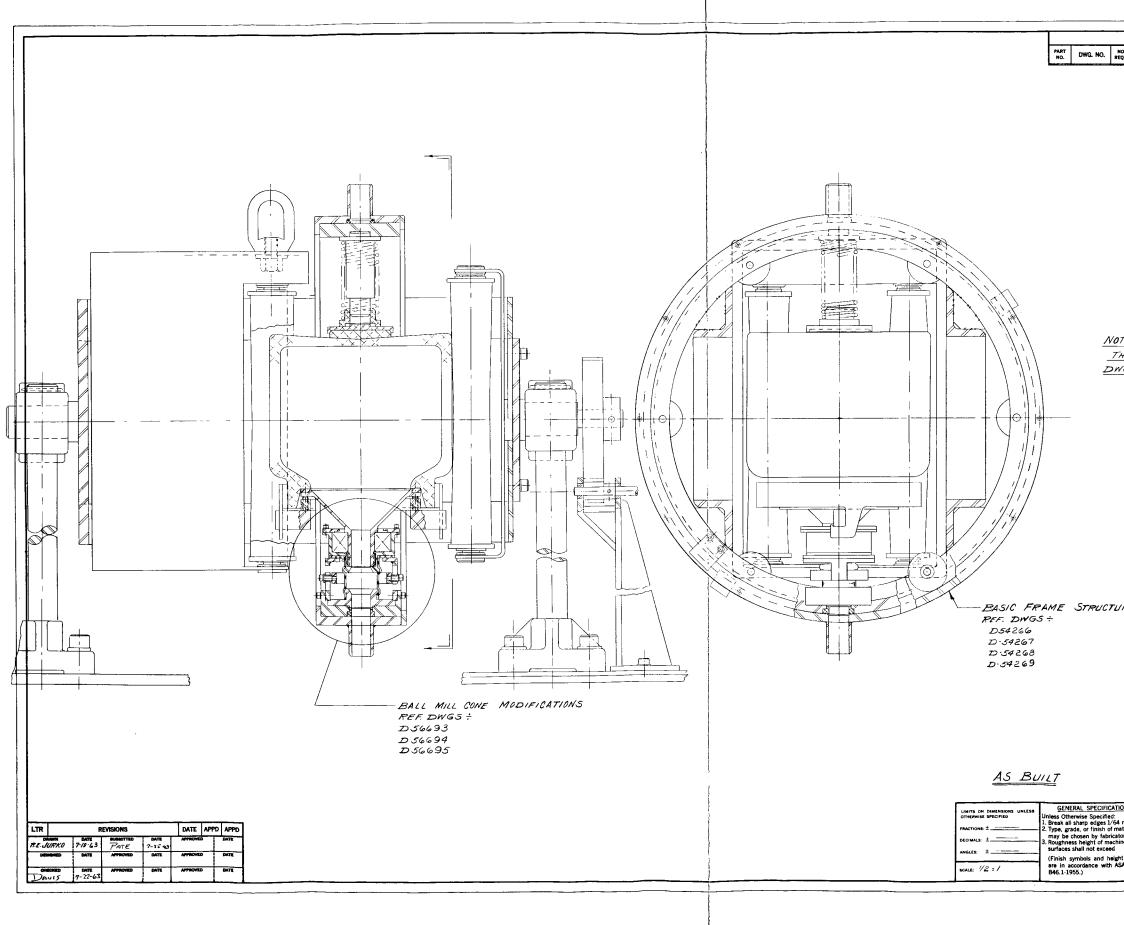




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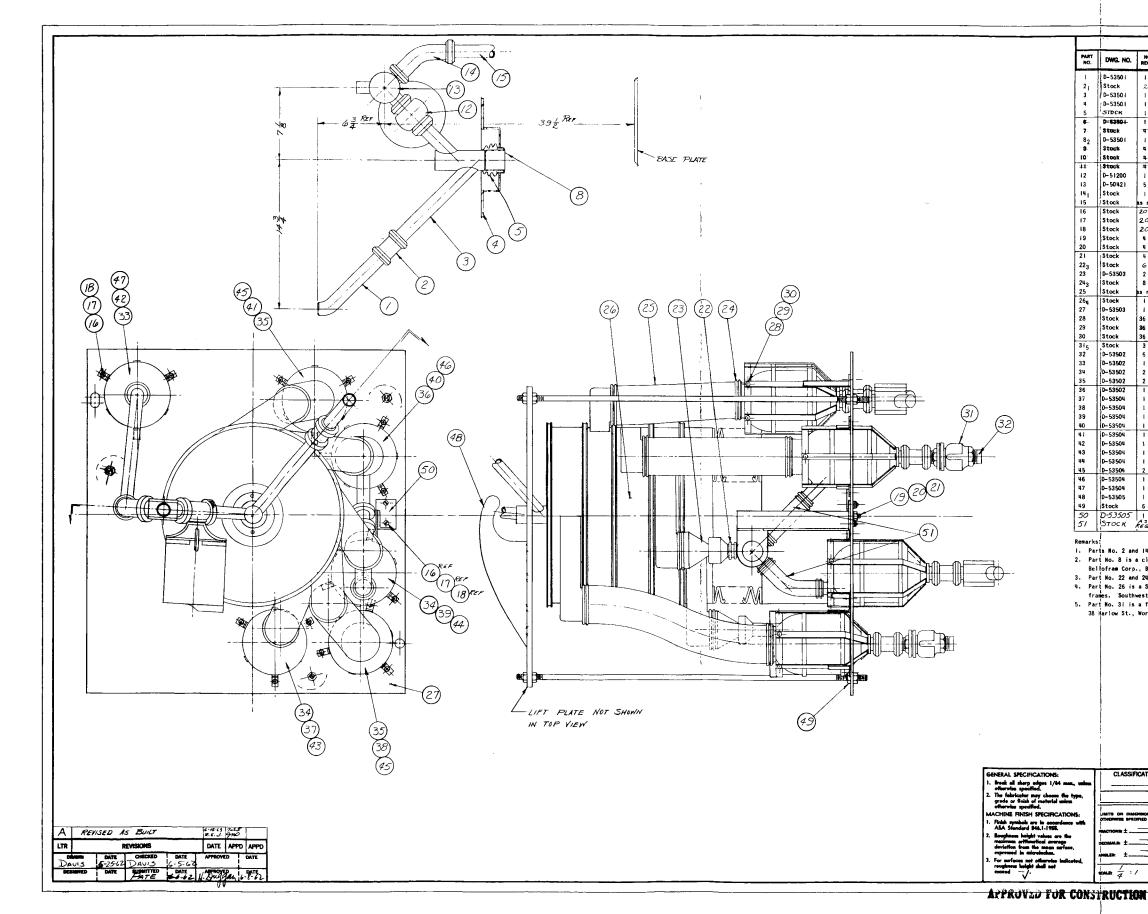
|                          |                                  |                      | PARTS LIST                                                                                     |               |
|--------------------------|----------------------------------|----------------------|------------------------------------------------------------------------------------------------|---------------|
| NO.                      | DWG. NO.                         | NO.<br>REQD          | DESCRIPTION (NAME, SIZE, ETC.)                                                                 | MATERIAL      |
| 1                        | Stock                            | 4                    | Hex nut, 1/2-13                                                                                | Stl           |
| 2                        | Stock                            | 4                    | Soc set screw, 1/2-13 x 1 1/2 full dog                                                         | Sti           |
| з.                       | Stock                            | 1                    | High alumina mill jar, size no.   (Fig. 773                                                    | 1             |
| 4                        | D-51216                          |                      | U. S. Stoneware Co. Bul. JM-290)<br>Bumper                                                     | Neoprene      |
| 5                        | D-51216                          |                      | Check bearing                                                                                  | Teflon        |
| 6 <sup>.</sup>           | C-51216                          |                      | Spring bearing                                                                                 | Teflon        |
| 7                        | D-51216                          | 1 1 1                | Spring                                                                                         | Music Wire    |
| 8<br>9                   | D-51216                          | - I<br>- I           | Spring guide<br>Valve disc                                                                     | 6061-T6 A1    |
| 10                       | D-51217                          | e i -                | Yalve ring                                                                                     | St1           |
| н° Т                     | Stock                            | 18                   | Soc hd cap screw, #10-24 x 1/2" 1g.                                                            | Stl           |
| 12                       | D-51217<br>Stock                 |                      | Retaining washer                                                                               | Sti           |
| 131                      | JLOCK                            | 1                    | idler roll, Dwg. No. PB-1754-D Pt. No. (07502)<br>U. S. Stoneware Company                      |               |
| 14                       | Stock                            | 2                    | Flat washer 9/16 std.                                                                          | St1           |
| 151                      | Stock                            | 2                    | Ball bearing No. 487016V) Pt. No. 06506                                                        |               |
| 16                       | Stock<br>D-51217                 | 8                    | Lockwasher for 5/8 screw<br>Roller spring, Stk No.04-836-1660 Strip Stl Oil Hdn                | Stl           |
| 18                       | Stock                            | 2                    | Roll pin, 1/4 die. x 5/8                                                                       | Stl           |
| 19                       | Stock                            | 2                    | Hex nut 3/8-16                                                                                 | St1           |
| 20                       | Stock                            | 2                    | Hex hd mach screw, 3/8-16 x 1                                                                  | Stl           |
| 21 ·<br>22               | Stock<br>Stock                   | 3                    | Soc set screw, full dog point 3/8-16 x 2 1/2<br>Lock nut 3/8-16                                | St1<br>St1    |
| 22<br>23                 | D-51217                          | 3                    | Lock nut 3/8–16<br>Guide bushing                                                               | Sti           |
| 24                       | D-51217                          | 1                    | Stop                                                                                           | Stl           |
| 251                      | D-51218                          | 11                   | Unitized jar mill, U. S. Stoneware Fig. No. 753RM,                                             | <u> </u>      |
| 26                       | D-51218                          |                      | Serial No. CV62106<br>Frame                                                                    | Stl           |
| 27                       | D-51218                          |                      | Base                                                                                           | Sti           |
| 282                      | Stock                            | 2                    | Adjustable shaft supports Boston Gear No. BHA9                                                 |               |
| 29                       | Stock                            | 8                    | I 5√8 hole<br>Soc holcap screw, 5/8−11 x I I/2                                                 | Sti           |
| 30                       | D-51218                          | 8                    | Soc nd cap screw, 5/8-11 x 1 1/2<br>Bearing housing and rod                                    | SST           |
| 31                       | D-51219                          | 11                   | Guide block                                                                                    | SST           |
| 32                       | Stock                            | 2                    | Roll pin, 1/16 dia. x 1/2                                                                      | SST           |
| 33  <br>34               | D-51219<br>Stock                 | 4                    | Guide rod<br>Soc set screw, 1/4-20 x 3/4                                                       | SST<br>Stl    |
| 35                       | D-51219                          | 11                   | Holding ring                                                                                   | Sti           |
| 36                       | D-51219                          | 1 1                  | Paddle                                                                                         | Neoprene      |
| 37 '                     | D-51219                          | 1                    | Cone                                                                                           | 347 SST       |
| 38                       | D-51220<br>Stock                 |                      | Seal<br>Wavy spring washer, Wallace Barnes No. 40                                              | Teflon        |
| 393                      | SLOCK                            |                      | (1.543 0D, 1.201 1.D., .017 thick, .105 free                                                   |               |
|                          |                                  | . 1                  | height, .052 deflected ht., 19-23# load)                                                       |               |
| 40                       | D-51220                          |                      | Rubber or neoprene tubing                                                                      |               |
| 417<br>42 <sub>4</sub> ; | Stock<br>Stock                   | 2                    | Hose clamp, HcMaster Carr ∦5414K-100<br>Retaining ring, Truarc No. 5100-131                    | Stl<br>Stl    |
| 432                      | Stock                            | 5                    | Bushing, B.G. #868-3, 1/2 OD x 3/8 1D x 3/8 1g.                                                |               |
| 44 .                     | D-51220                          | 3                    | Guide screw                                                                                    | Drill Rod     |
| 455.<br>46               | Stock<br>D-51220                 | , ¦ .                | Bearing, Torque tube type, Fafnir B542DD<br>Thrust bearing                                     | Stl<br>Teflon |
| 47                       | D-51220                          | ; ; ·                | Thrust washer                                                                                  | Teflon        |
| 48                       | Stock                            | 2                    | Socket hd cap screw 3/8-16 x 3/4                                                               | St1           |
| 49                       |                                  |                      | Frame                                                                                          | St1           |
| 50<br>51 <sub>6</sub>    | Stock                            | 2                    | F1 hd machine screw, <b>#10-24 x 1/2 lg.</b><br>Spur gear, Grant No. 2212 1.000 P.D., 3/8 dia. | Stl           |
|                          |                                  |                      | hole, 3/4 face, 12 pitch, 12 teeth                                                             |               |
| 52 <sup>1</sup>          | Stock                            | 1                    | l/8 roll pin x 3/4 lg.                                                                         | Stl           |
| 53 :                     | Stock                            | 1                    | 1/4 roll pin x 1 7/8 lg.                                                                       | Stl           |
| 54 .<br>55               | D-51220<br>Stock                 |                      | Shaft<br>Spur gear, Grant No. 2244, 6.00 P.D., 12 pitch,                                       | Drill Rod     |
| 55                       |                                  |                      | 12 teeth, 3/4 face                                                                             | ,             |
| 56                       | Stock                            | 2                    | Locknut, hex, 1/4-20                                                                           | Sti           |
| 57<br>58                 | Stock<br>D-51217                 | 2                    | Soc set screw 1/4-20 x 2                                                                       | Sti<br>Sti    |
| 58<br>59 i               | Stock                            | 4                    | Adjustable stop<br>Roll pin, I/4 dia. x 3/4                                                    | St)           |
| 60                       | Stock                            | 2                    | Soc hd cap screw 3/8-16 x 3/4                                                                  | St1           |
|                          | 1                                |                      | BALL MILL DETAIL SHEET-5-                                                                      | D-51220       |
|                          | ļ                                |                      | BALLMILL DETAIL SHEET-1-                                                                       | D-51216       |
|                          | ,                                |                      | ······································                                                         | D-51217       |
|                          | 1                                |                      | " "-3-                                                                                         | DELIS         |
|                          | ;                                |                      |                                                                                                | D-5/219       |
|                          |                                  |                      | REFERENCE DRAWINGS                                                                             | DWG. NO.      |
|                          | 1                                |                      | THORIUMU-233 FUEL RODFACILITY                                                                  | 30/4          |
| <b>-</b> T               | CLASSIF                          | CATION               |                                                                                                |               |
| -                        |                                  |                      | BALL MILL                                                                                      |               |
|                          | i                                |                      | - ASSEMBLY                                                                                     |               |
| - [-                     | <u> </u>                         |                      |                                                                                                |               |
|                          | UNITS ON DIME<br>OTHERWISE SPECI | HINGHIS (JI<br>MINED | CAK RIDGE NATIONAL LABORATORY                                                                  |               |
| ۱,                       |                                  |                      | UNION CARBIDE NUCLEAR COMPA                                                                    | NY            |
|                          | CHALS: 1_                        |                      | DIVISION OF UNION CARBOD CONFACTION                                                            |               |
|                          | MOLER: 1                         |                      | ADDINITIES I ADDITIES STORES ANT                                                               | -             |
| 1.2                      | <u></u>                          |                      | Refamina Thimastice The                                                                        | accin         |
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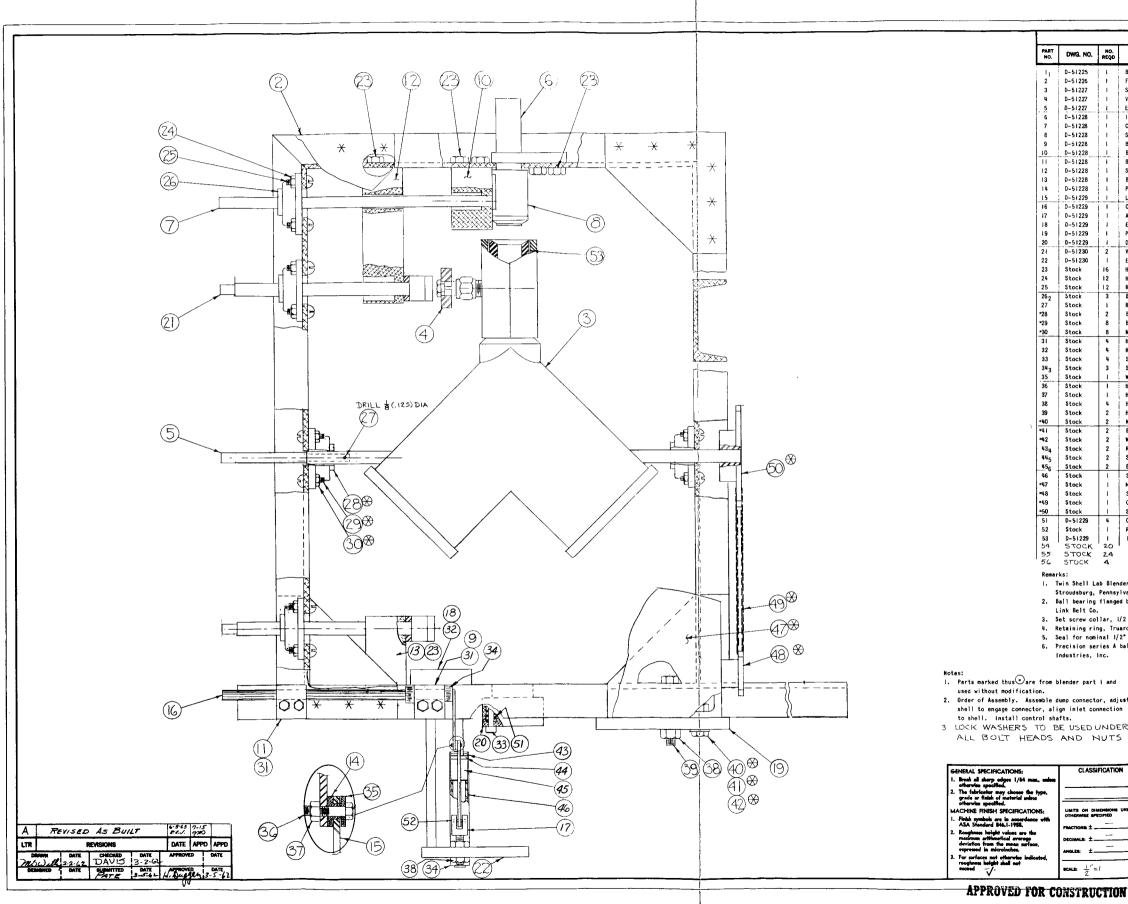


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| NO.<br>REQD                                    |                                                                                                                                                                                       | n (name, size,                                                                                                                                                                        | ETC.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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|                                                | DRAWING<br>DS1215                                                                                                                                                                     | FOR CLA                                                                                                                                                                               | <u>RIFI</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           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|                                                | BALL MILL CO<br>BALL MILL CO<br>BALL MILL C<br>BALL MILL N                                                                                                                            | NE MODIF.                                                                                                                                                                             | DETAIL<br>ICATIO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | D-566<br>D566                                                                                                                                                                    | 94<br>93                              |
|                                                | BALL MILL CO<br>BALL MILL C<br>BALL MILL M<br>BALL MILL M                                                                                                                             | NE MODIF.<br>ONE MODIF<br>ODIF. DETA                                                                                                                                                  | DETAIL<br>ICATIO<br>IL SH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | SHT #1<br>NS<br>T # 3<br>T #2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | D-566<br>D566<br>D542<br>D-542                                                                                                                                                   | 94<br>93<br>69<br>68                  |
|                                                | BALL MILL CO<br>BALL MILL C<br>BALL MILL M<br>BALL MILL M<br>BALL MILL M                                                                                                              | NE MODIF.<br>ONE MODIF<br>10DIF. DETA<br>0DIF. DETA<br>0DIF. DETA                                                                                                                     | DETAIL<br>ICATIO<br>IL SH<br>IL SH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | SHT #1<br>NS<br>T # 3<br>T #2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | D-566<br>D566<br>D:542                                                                                                                                                           | 94<br>93<br>69<br>68<br>67            |
|                                                | BALL MILL CO<br>BALL MILL C<br>BALL MILL M<br>BALL MILL M                                                                                                                             | NE MODIE<br>ONE MODIE<br>ODIE DETA<br>ODIE DETA<br>ODIE DETA<br>DIFICATIONS                                                                                                           | DETAIL<br>ICATIO<br>IL SH<br>IL SH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | SHT #1<br>NS<br>T # 3<br>T #2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | D-566<br>D566<br>D542<br>D-542<br>D-542                                                                                                                                          | 94<br>93<br>69<br>68<br>67<br>66      |
|                                                | BALL MILL CO<br>BALL MILL C<br>BALL MILL M<br>BALL MILL M<br>BALL MILL M<br>BALL MILL MO<br>BALL MILL ASS                                                                             | NE MODIE<br>ONE MODIE<br>ODIE DETA<br>ODIE DETA<br>ODIE DETA<br>DIFICATIONS                                                                                                           | DETAL<br>TCATIO<br>TL SH<br>TL SH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | SHT #1<br>NS<br>T # 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|                                                | BALL MILL CO<br>BALL MILL C<br>BALL MILL M<br>BALL MILL M<br>BALL MILL M<br>BALL MILL MO<br>BALL MILL ASS<br>REF                                                                      | ME MODIF.<br>DNE MODIF<br>TODIF. DETA<br>DDIF. DETA<br>DDIF. DETA<br>DIFICATIONS<br>5'Y<br>ERENCE DRAWIN                                                                              | DETAL<br>TICATIO<br>TL SH<br>TL SH<br>TL SH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | SHT #1<br>NS<br>T # 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|                                                | BALL MILL (S)<br>BALL MILL (S)<br>BALL MILL (S)<br>BALL MILL MIL<br>BALL MILL MIL<br>BALL MILL MIL<br>BALL MILL MIL<br>BALL MILL ASS<br>REF<br>THORIUM LI-233<br>BALL                 | NE MODIE<br>OWE MODIE<br>ODIE DETA<br>DOIE DETA<br>DOIE DETA<br>DIFICATIONS<br>S'Y<br>ERENCE DRAWN<br>FUEL ROD                                                                        | DETMU<br>TICATIO<br>UL SH<br>MIL SH<br>MIL SH<br>MGS<br>FACILIT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | SHT #1<br>NS<br>T # 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| TIONS                                          | BALL MILL (S)<br>BALL MILL (S)<br>BALL MILL MILL<br>BALL MILL MIL<br>BALL MILL MIL<br>BALL MILL MIL<br>BALL MILL ASS<br>REF<br>THORIUM LI-233<br>BALL MIL<br>MODI                     | ME MODIE<br>ONE MODIE<br>ADDIE DETA<br>ODIE DETA<br>DIFICATIONS<br>S'Y<br>ERENCE DRAWIN<br>FUEL ROD<br>MILL A<br>VEICATIO                                                             | DETAU<br>FICATIO<br>IL SH<br>IL SH<br>IL SH<br>IL SH<br>FACILIT<br>155 E<br>N S                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | SAT #/<br>NS<br>T = 3<br>T = 2<br>T | D-566<br>D-566<br>D-542<br>D-542<br>D-542<br>D-542<br>D-542<br>D-542<br>D-542<br>D-542<br>D-542<br>D-542<br>D-542<br>D-542<br>D-542<br>D-542<br>D-542<br>D-542<br>D-542<br>D-546 | 94<br>93<br>69<br>68<br>67<br>66<br>5 |
| TIONS<br>54 max.<br>material<br>ator.<br>hined | BALL MULL (SG<br>BALL MULL (SG<br>BALL MULL M<br>BALL MULL MU<br>BALL MULL MU<br>BALL MULL MU<br>BALL MULL MG<br>BALL MULL ASS<br>REF<br>THORIUM LI-233<br>BALL MODI<br>OA<br>UNION O | ME MODIE<br>ONE MODIE<br>MODIE DETA<br>DOLE DETA<br>DOLE DETA<br>DIFICATIONS<br>S'Y<br>ERENCE DRAWN<br>FUEL ROD<br>MILL A<br>VELE ROD<br>MILL A<br>VELE ATION<br>OFBATA<br>CARBIDE NI | DETMU<br>FICATIO<br>MU SH<br>MU S | SAT #1<br>MS<br>T # 3<br>T # 2<br>T #                                                                                                                                                                                                                                                                                                                                                                                                                                                        | D-546<br>D566<br>D542<br>D-542<br>D-542<br>D542<br>D542<br>D542<br>D542<br>V                                                                                                     | 94<br>93<br>69<br>68<br>67<br>66<br>5 |
| 54 max.<br>material<br>ator.<br>hined          | BALL MILL CA<br>BALL MILL CA<br>BALL MILL M<br>BALL MILL M<br>BALL MILL M<br>BALL MILL MIL<br>BALL MILL MIL<br>BALL MILL ASS<br>THORIUM LI233<br>BALL M<br>MODI<br>ON<br>ON           | ME MODIE                                                                                                                                                                              | DETAU<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATION<br>TCATIONA<br>TCATION<br>TCATION<br>TCATION<br>TCATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | SAT #1<br>MS<br>T # 3<br>T # 2<br>T #                                                                                                                                                                                                                                                                                                                                                                                                                                                        | D-566<br>D566<br>D542<br>D-342<br>D-342<br>D-342<br>D-342<br>D-342<br>D-342<br>D-342<br>D-342<br>D-342                                                                           | 94<br>93<br>69<br>68<br>67<br>66<br>5 |
| 54 max.<br>material<br>ator.<br>hined          | BALL MULL (SG<br>BALL MULL (SG<br>BALL MULL M<br>BALL MULL MU<br>BALL MULL MU<br>BALL MULL MU<br>BALL MULL MG<br>BALL MULL ASS<br>REF<br>THORIUM LI-233<br>BALL MODI<br>OA<br>UNION O | ME MODIE                                                                                                                                                                              | DETAU<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO<br>TCATIO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | SAT #1<br>MS<br>T # 3<br>T # 2<br>T #                                                                                                                                                                                                                                                                                                                                                                                                                                                        | D-546<br>D566<br>D542<br>D-542<br>D-542<br>D542<br>D542<br>D542<br>D542<br>V                                                                                                     | 94<br>93<br>69<br>68<br>67<br>66<br>5 |

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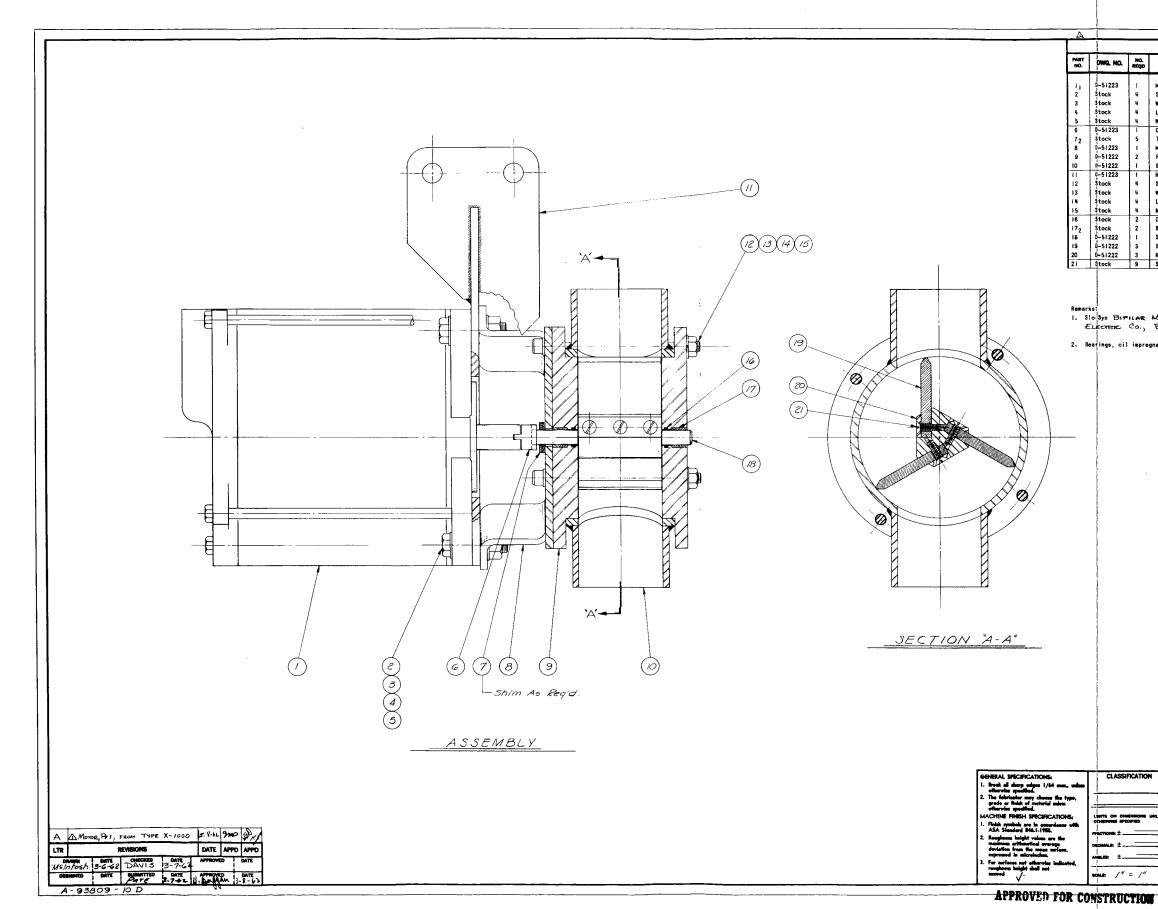


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| 4<br>5                                                   | D-53502<br>D-53502                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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| 5<br>6                                                   | D-53502                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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| 7                                                        | D 53504                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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| 6                                                        | 0-53504                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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| 9<br>D                                                   | D 53504<br>D 53504                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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| marks<br>Par<br>Par<br>Bel<br>Par<br>Far<br>fra          | D-53505<br>STOCK<br>ts No. 2 an<br>t No. 8 is<br>fofram Corp<br>t No. 22 an<br>t No. 26 is<br>mes. South<br>t No. 31 is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | $\frac{1}{R \in Q D}$ $\frac{1}{R \in Q D}$ $\frac{1}{R \in Q D}$ $\frac{1}{R \in Q }$ $\frac$ |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | es, Calif.<br>phragm,<br>ng<br>California.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 0<br>7<br>Par<br>Par<br>Bel<br>Par<br>Far<br>fra<br>Par  | D-53505<br>STOCK<br>ts No. 2 an<br>t No. 8 is<br>fofram Corp<br>t No. 22 an<br>t No. 26 is<br>mes. South<br>t No. 31 is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | $\frac{1}{R \in Q D}$ $\frac{1}{R \in Q D}$ $\frac{1}{R \in Q D}$ $\frac{1}{R \in Q }$ $\frac$ | e obtained from Aeroquip Corp., Marman Div., Los Angel<br>4, cylinder bore 2.50, H - 200, Bellofram Rolling Dia<br>ington, Mass.<br>e obtained from McMaster Carr Supply Co., Chicago, III<br>o vibro-energy separator, four deck with five 3" spaci<br>Engineering Co., 4800 Santa Fe Ave., Los Angeles 58,<br>re 202 I' ball valve obtained from Rockwood Sprinkler<br>ter 5, Mass.<br>DETAIL SMEET No. 5<br>DETAIL SMEET No. 5                                                                                                                                                                                                                                          | Neonee<br>es, Calif.<br>phraga,<br>ng<br>California.<br>Co.,<br>D-53500<br>D-53500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| 0<br>7<br>Par<br>Par<br>Bel<br>Par<br>Far<br>fra<br>Par  | D-53505<br>STOCK<br>ts No. 2 an<br>t No. 8 is<br>fofram Corp<br>t No. 22 an<br>t No. 26 is<br>mes. South<br>t No. 31 is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | $\frac{1}{R \in Q D}$ $\frac{1}{R \in Q D}$ $\frac{1}{R \in Q D}$ $\frac{1}{R \in Q }$ $\frac$ | e obtained from Aeroquip Corp., Marman Div., Los Angel<br>4, cylinder bore 2.50, H - 200, Bellofrem Rolling Dia<br>ington, Maas.<br>e obtained from McMester Carr Supply Co., Chicago, Ill<br>o vibro-energy separator, four deck with five 3" apaci<br>Engineering Co., 4800 Santa Fe Ave., Los Angeles 58,<br>re 202 I'b Ball valve obtained from Rockwood Sprinkler<br>ter 5, Mass.<br>DETRIL SMEET No. 5<br>DETRIL SMEET No. 3<br>DETRIL SMEET No. 3                                                                                                                                                                                                                   | <i>Neoree</i><br>es, Calif.<br>phragn,<br>ng<br>California.<br>Co.,<br><i>D-5350</i><br><i>D-5350</i><br><i>D-5350</i><br><i>D-5350</i><br><i>D-5350</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| 0<br>7<br>Par<br>Par<br>Bel<br>Par<br>Far<br>fra<br>Par  | D-53505<br>STOCK<br>ts No. 2 an<br>t No. 8 is<br>fofram Corp<br>t No. 22 an<br>t No. 26 is<br>mes. South<br>t No. 31 is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | $\frac{1}{R \in Q D}$ $\frac{1}{R \in Q D}$ $\frac{1}{R \in Q D}$ $\frac{1}{R \in Q }$ $\frac$ | e obtained from Aeroquip Corp., Marman Div., Los Angel<br>4, cylinder bore 2.50, H - 200, Bellofrem Rolling Dia<br>ington, Mass.<br>e obtained from McMaster Carr Supply Co., Chicago, 111<br>o vibro-energy separator, four deck with five 3" spaci<br>Engineering Co., 4800 Santa Fe Ave., Los Angeles 58,<br>re 202 1" ball valve obtained from Rockwood Sprinkler<br>ter 5, Mass.<br>DETAIL SHEET No. 5<br>DETAIL SHEET No. 4<br>DETAIL SHEET No. 1<br>DETAIL SHEET No. 1<br>REFERENCE DRAWINGS                                                                                                                                                                        | Aleance<br>es, Calif.<br>phragn,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 0<br>7<br>Par<br>Par<br>Bel<br>Par<br>Far<br>fra<br>Par  | D-53505<br>STOCK<br>is No. 2 and<br>i No. 8 is<br>iofram Corp<br>t No. 22 and<br>t No. 26 is<br>imes. South<br>t No. 31 is<br>harlow St.,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | e obtained from Aeroquip Corp., Marman Div., Los Angel<br>4, cylinder bore 2.50, H - 200, Bellofrem Rolling Dia<br>ington, Mass.<br>Engineering Co., 4800 Santa Fe Ave., Los Angeles 58,<br>re 202 I'b Ball valve obtained from Rockwood Sprinkler<br>ter 5, Mass.<br>DETAIL SHEET No. 4<br>DETAIL SHEET No. 4<br>DETAIL SHEET No. 1<br>REFERENCE DRAWINGS<br>THORIUM U <sup>23</sup> FUEL ROD FACILLY                                                                                                                                                                                                                                                                     | Aleance<br>es, Calif.<br>phragn,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 0<br>7<br>Par<br>Par<br>Bel<br>Par<br>Far<br>fra<br>Par  | D-53505<br>STOCK<br>is No. 2 and<br>i No. 8 is<br>iofram Corp<br>t No. 22 and<br>t No. 26 is<br>imes. South<br>t No. 31 is<br>harlow St.,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | $\frac{1}{R \in Q D}$ $\frac{1}{R \in Q D}$ $\frac{1}{R \in Q D}$ $\frac{1}{R \in Q }$ $\frac$ | e obtained from Aeroquip Corp., Marman Div., Los Angel<br>4, cylinder bore 2.50, H - 200, Bellofrem Rolling Dia<br>ington, Mass.<br>Engineering Co., 4800 Santa Fe Ave., Los Angeles 58,<br>re 202 I'b Ball valve obtained from Rockwood Sprinkler<br>ter 5, Mass.<br>DETAIL SHEET No. 4<br>DETAIL SHEET No. 4<br>DETAIL SHEET No. 1<br>REFERENCE DRAWINGS<br>THORIUM U <sup>23</sup> FUEL ROD FACILLY                                                                                                                                                                                                                                                                     | Aleance<br>es, Calif,<br>phragn,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 0<br>7<br>Parks<br>Par<br>Bel<br>Par<br>Fra<br>Par<br>38 | D-53505<br>STOCK<br>is No. 2 and<br>i No. 8 is<br>iofram Corp<br>t No. 22 and<br>t No. 26 is<br>imes. South<br>t No. 31 is<br>harlow St.,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | d 14 ar<br>a class<br>1 Burl<br>a 3 Wecces<br>western<br>Worces                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | e obtained from Aeroquip Corp., Marman Div., Los Angel<br>4, cylinder bore 2.50, H - 200, Bellofrem Rolling Dia<br>ington, Mass.<br>Engineering Co., 4800 Santa Fe Ave., Los Angeles 58,<br>re 202 I'b Ball valve obtained from Rockwood Sprinkler<br>ter 5, Mass.<br>DETAIL SHEET No. 4<br>DETAIL SHEET No. 4<br>DETAIL SHEET No. 1<br>REFERENCE DRAWINGS<br>THORIUM U <sup>23</sup> FUEL ROD FACILLY                                                                                                                                                                                                                                                                     | Neoree           es, Calif.           phragn,           .           ng           California.           Co.,           D-5350           D-5 |
| 0<br>7<br>Parks<br>Par<br>Bel<br>Par<br>Fra<br>Par<br>38 | D-53505<br>STOCK<br>is No. 2 and<br>i No. 8 is<br>iofram Corp<br>t No. 22 and<br>t No. 26 is<br>imes. South<br>t No. 31 is<br>harlow St.,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | d 14 ar<br>a class<br>1 Burl<br>a 3 Wecces<br>western<br>Worces                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | e obtained from Aeroquip Corp., Marman Div., Los Angel<br>4, cylinder bore 2.50, H - 200, Bellofrem Rolling Dia<br>ington, Mass.<br>e obtained from McMester Carr Supply Co., Chicago, 111<br>o vibro-energy separator, four deck with five 3" spaci<br>Engineering Co., 4800 Santa Fe Ave., Los Angeles 58,<br>re 202 1" ball valve obtained from Rockwood Sprinkler<br>ter 5, Mass.<br>DETAIL SHEET No. 4<br>DETAIL SHEET No. 4<br>DETAIL SHEET No. 1<br>REFERENCE DRAWINGS<br>THORIUM U <sup>23</sup> FUEL ROD FACILLY                                                                                                                                                  | Neoree           es, Calif.           phragn,           .           ng           California.           Co.,           D-5350           D-5 |
| 0<br>7<br>Parks<br>Par<br>Bel<br>Par<br>Fra<br>Par<br>38 | D-53505<br>STOCK<br>ts No. 2 and<br>t No. 8 is<br>iofran Corp<br>t No. 26 is<br>mes. South<br>t No. 26 is<br>mes. South<br>t No. 26 is<br>mes. South<br>t No. 26 is<br>mes. South<br>t No. 26 is<br>ner low St.,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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                                                                                                                                                                                                                                                                                                         | e obtained from Aeroquip Corp., Marman Div., Los Angel<br>4, cylinder bore 2.50, H - 200, Bellofram Rolling Dia<br>ington, Mass.<br>e obtained from McMaster Carr Supply Co., Chicago, III<br>o vibro-energy separator, four deck with five 3" spaci-<br>Engineering Co., 4800 Sante Fe Ave., Los Angeles 58,<br>re 202 1" ball valve obtained from Rockwood Sprinkler<br>ter 5, Nass.<br>DETAIL SWEET No. 3<br>DETAIL SWEET No. 3<br>DETAIL SWEET No. 3<br>DETAIL SWEET No. 2<br>DETAIL SWEET No. 2<br>DETAIL SWEET No. 2<br>DETAIL SWEET No. 2<br>DETAIL SWEET No. 1<br>REFERENCE DRAWINGS<br>THORIUM U <sup>233</sup> FUEL ROD FACILIN<br>CLASSIFIER ASSEMBL<br>Mass.   | Neoree           es, Calif.           phragn,           .           ng           California.           Co.,           D-5350           D-5 |
| 0<br>7<br>Par<br>Par<br>Bel<br>Par<br>Far<br>fra<br>Par  | D-53505<br>STOCK<br>ISTOCK<br>INO, B is<br>ISTOFRAG CORP<br>INO, 26 is<br>INO, 27 is | A sources                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | e obtained from Aeroquip Corp., Marman Div., Los Angel<br>4, cylinder bore 2.50, H - 200, Bellofrem Rolling Dia<br>ington, Mass.<br>Engineering Co., 4800 Santa Fe Ave., Los Angeles 58,<br>re 202 l' ball valve obtained from Rockwood Sprinkler<br>ter 5, Mass.<br>DETAIL SHEET No. 4<br>DETAIL SHEET No. 4<br>DETAIL SHEET No. 1<br>REFERENCE DRAWINGS<br>THORIUM U <sup>23</sup> SHEET ROD FACILIN<br>CLASSIFIER ASSEMBL<br>Mass                                                                                                                                                                                                                                       | <i>Neoree</i><br>es, Calif.<br>phragn,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 0<br>7<br>Parks<br>Par<br>Bel<br>Par<br>Fra<br>Par<br>38 | D-53505<br>STOCK<br>ts No. 2 and<br>t No. 8 is<br>iofran Corp<br>t No. 26 is<br>mes. South<br>t No. 26 is<br>mes. South<br>t No. 26 is<br>mes. South<br>t No. 26 is<br>mes. South<br>t No. 26 is<br>ner low St.,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | e obtained from Aeroquip Corp., Marman Div., Los Angel<br>4, cylinder bore 2.50, H - 200, Bellofram Rolling Dia<br>ington, Mass.<br>e obtained from McMaster Carr Supply Co., Chicago, III<br>o vibro-energy separator, four deck with five 3" spaci-<br>Engineering Co., 4800 Santa Fe Ave., Los Angeles 58,<br>re 202 1° ball valve obtained from Rockwood Sprinkler<br>ter 5, Mass.<br>DETAIL SHEET No. 3<br>DETAIL SHEET No. 3<br>DETAIL SHEET No. 3<br>DETAIL SHEET No. 1<br>REFERENCE DRAWINGS<br>THORIUM U <sup>233</sup> FUEL ROD FACILI<br>CLASSIFIER ASSEM BL<br>Mass<br>OAK RIDGE NATIONAL LABORATORY<br>OF COMPANY OF COMPANY OF COMPANY OF COMPANY OF COMPANY | <i>Neoree</i><br>es, Calif.<br>phragn,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 0<br>7<br>Parks<br>Par<br>Bel<br>Par<br>Fra<br>Par<br>38 | D-53505<br>STOCK<br>ISTOCK<br>INO, B is<br>ISTOFRAG CORP<br>INO, 26 is<br>INO, 27 is | A sources                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | e obtained from Aeroquip Corp., Marman Div., Los Angel<br>4, cylinder bore 2.50, H - 200, Bellofrem Rolling Dia<br>ington, Mass.<br>Engineering Co., 4800 Santa Fe Ave., Los Angeles 58,<br>re 202 l' ball valve obtained from Rockwood Sprinkler<br>ter 5, Mass.<br>DETAIL SHEET No. 4<br>DETAIL SHEET No. 4<br>DETAIL SHEET No. 1<br>REFERENCE DRAWINGS<br>THORIUM U <sup>23</sup> SHEET ROD FACILIN<br>CLASSIFIER ASSEMBL<br>Mass                                                                                                                                                                                                                                       | <i>Neoree</i><br>es, Calif.<br>phragn,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 0<br>7<br>Parks<br>Par<br>Bel<br>Par<br>Fra<br>Par<br>38 | D-53505<br>STOCK<br>ISTOCK<br>INO, B is<br>ISTOFRAG CORP<br>INO, 26 is<br>INO, 27 is | A sources                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | e obtained from Aeroquip Corp., Marman Div., Los Angel<br>4, cylinder bore 2.50, H - 200, Bellofram Rolling Dia<br>ington, Mass.<br>e obtained from McMaster Carr Supply Co., Chicago, III<br>o vibro-energy separator, four deck with five 3" spaci-<br>Engineering Co., 4800 Santa Fe Ave., Los Angeles 58,<br>re 202 1° ball valve obtained from Rockwood Sprinkler<br>ter 5, Mass.<br>DETAIL SHEET No. 3<br>DETAIL SHEET No. 3<br>DETAIL SHEET No. 3<br>DETAIL SHEET No. 1<br>REFERENCE DRAWINGS<br>THORIUM U <sup>233</sup> FUEL ROD FACILI<br>CLASSIFIER ASSEM BL<br>Mass<br>OAK RIDGE NATIONAL LABORATORY<br>OF COMPANY OF COMPANY OF COMPANY OF COMPANY OF COMPANY | <i>Neoree</i><br>es, Calif.<br>phragn,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

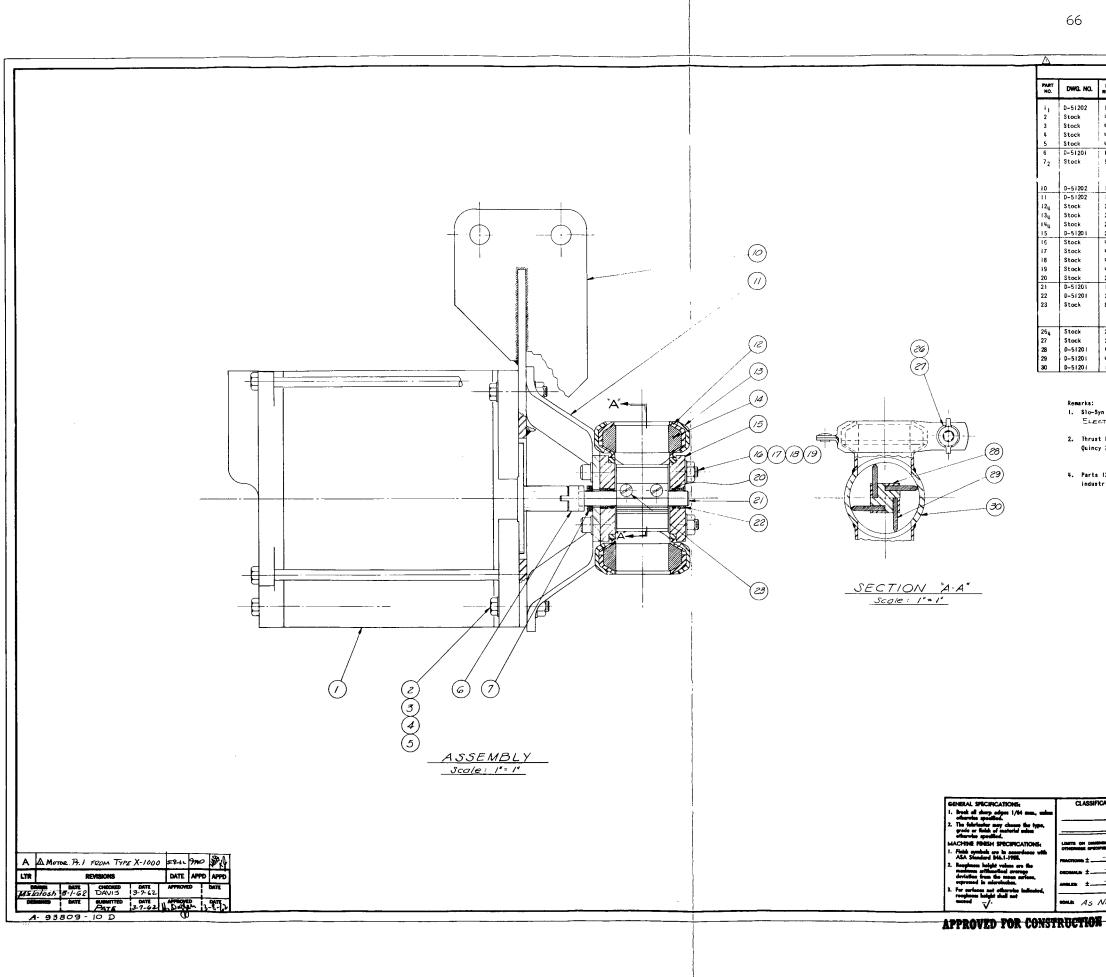


|                                     |                                                     | PARTS                                                                                                                                | LIST                                                                      |                               |                          |
|-------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------|--------------------------|
| NO.<br>EQD                          |                                                     |                                                                                                                                      | (NAME, SIZE, ETC.)                                                        |                               | MATERIAL                 |
|                                     | Blend                                               |                                                                                                                                      | · · · ·                                                                   |                               |                          |
|                                     | Frame<br>Shell                                      |                                                                                                                                      |                                                                           |                               | A1                       |
| .                                   | Valve                                               | handle                                                                                                                               |                                                                           |                               | Steel                    |
|                                     | Exten                                               |                                                                                                                                      |                                                                           |                               | Steel<br>SST             |
|                                     | Cam                                                 |                                                                                                                                      |                                                                           |                               | St)                      |
|                                     | Sleev<br>Brack                                      |                                                                                                                                      |                                                                           |                               | 6061-T6 A1               |
| i                                   | Beari                                               |                                                                                                                                      |                                                                           |                               | 6061-T6 Å1<br>6061-T6 Å1 |
|                                     | Brack                                               | et                                                                                                                                   |                                                                           |                               | 6061-T6 A1               |
|                                     | Suppo<br>Beari                                      |                                                                                                                                      |                                                                           |                               | 6061-T6 A1<br>6061-T6 A1 |
|                                     | Pivot                                               |                                                                                                                                      |                                                                           |                               | 6061-T6 A1               |
| <u> </u>                            | Link                                                |                                                                                                                                      |                                                                           |                               | Steel                    |
|                                     | Crank<br>Anche                                      |                                                                                                                                      |                                                                           |                               | Steel<br>Steel           |
|                                     |                                                     | tor Guide                                                                                                                            |                                                                           |                               | SST                      |
|                                     | Plate<br>Dumn                                       | connector                                                                                                                            |                                                                           |                               | 6061-T6 A1               |
|                                     |                                                     | shaft                                                                                                                                |                                                                           |                               | Steel                    |
| 5                                   | Eleva                                               |                                                                                                                                      | 6 x 2/4                                                                   |                               | Steel                    |
| 2                                   |                                                     | d cap screw, 3/8-1<br>ut, 5/16 x 18                                                                                                  | u . 3/4                                                                   |                               | Steel<br>Steel           |
| 2                                   | Rd hd                                               | cap screw, 5/16 x                                                                                                                    | 18 x 1 1/4                                                                |                               | Steel                    |
|                                     | Beari<br>Roll                                       | ng<br>pin, 1/8 dia. x 5/                                                                                                             | 8                                                                         |                               | Steel<br>Steel           |
| 2                                   | Beari                                               |                                                                                                                                      |                                                                           |                               |                          |
|                                     | Bolt<br>Nut                                         |                                                                                                                                      |                                                                           |                               |                          |
| •                                   | Nut<br>Hex h                                        | d cap screw 1/4-2                                                                                                                    | 0 x 1 1/4                                                                 |                               | Steel                    |
|                                     | Hex h                                               | d cap screw 1/4-2                                                                                                                    | 0 x 3/4                                                                   |                               | Steel                    |
|                                     |                                                     | t hd shid screw, i<br>crew collar                                                                                                    | /4 dia. x 2 shld                                                          | ig. x 10-                     | 24 Steel<br>Steel        |
|                                     | Washe                                               | r, 1/4 1D x 3/4 0D                                                                                                                   | x 1/8                                                                     |                               | Oilite                   |
|                                     |                                                     | d bolt, 1/4-20 x 1                                                                                                                   |                                                                           |                               | Steel                    |
|                                     |                                                     | ut, 1/4-20<br>ut, 3/8-16                                                                                                             |                                                                           |                               | Steel                    |
|                                     | Hex h                                               | d bolt, 3/8-16 x 3                                                                                                                   |                                                                           |                               | Steel                    |
|                                     | Nut<br>Bolt                                         |                                                                                                                                      |                                                                           |                               | Steel<br>Steel           |
| 2                                   | Washe                                               | r                                                                                                                                    |                                                                           |                               | Steel                    |
| 2                                   |                                                     | ning ring                                                                                                                            |                                                                           |                               | Steel                    |
| 2                                   | Seal<br>Ball                                        | bushing                                                                                                                              |                                                                           |                               | Steel                    |
|                                     |                                                     | r, 55/64 0D x 3/4                                                                                                                    | ID x 2.240                                                                |                               | Steel                    |
|                                     | Motor                                               |                                                                                                                                      |                                                                           |                               |                          |
|                                     | Chair                                               |                                                                                                                                      |                                                                           |                               |                          |
|                                     | Sproc                                               |                                                                                                                                      |                                                                           |                               |                          |
|                                     |                                                     | ession springs<br>pin, ł/4 dia.×3½                                                                                                   | LG.                                                                       |                               | Husic Wire<br>Steel      |
|                                     | Inser                                               | t                                                                                                                                    |                                                                           |                               | NOTED                    |
| 0'<br>4                             |                                                     | CKWASHER !                                                                                                                           | 4                                                                         |                               | Steel<br>Steel           |
| •                                   |                                                     | CKWASHER                                                                                                                             | 18                                                                        |                               | Steel                    |
| nnsy<br>ange<br>r, i<br>Tru<br>I I/ | lvania.<br>d block<br>/2 ID p<br>arc 500<br>2" shat | qt std. model, The<br>: for 5/8 dia. shaf<br>: i" OD x 7/16, par<br>:0-87, ORNL Part 0<br>:t, Part S-500, Tho<br>:shing for 1/2 shaf | t, open end, Part<br>t SC50. Boston G<br>7–087–0140.<br>mpson Industries, | No. F-21<br>war Works<br>Inc. | 0,                       |
|                                     |                                                     |                                                                                                                                      |                                                                           |                               |                          |
| and                                 | l                                                   | BLENDER                                                                                                                              |                                                                           |                               | T5 D-51230               |
| adj                                 | ust                                                 | BLENDER.                                                                                                                             | DETAI                                                                     | L SHE                         | ET4 D-51229              |
| ctio                                | n                                                   | BLENDER                                                                                                                              | DETAI<br>DE TAI                                                           | L SHE                         | ET3 D-51228              |
| DE                                  | R                                                   | BLENDER                                                                                                                              |                                                                           |                               | ET10-51226               |
| τs                                  |                                                     | REF                                                                                                                                  | ERENCE DRAWINGS                                                           |                               | DWG. NO.                 |
|                                     |                                                     | THORIUM-U23                                                                                                                          | 3 FUEL ROD                                                                | FACILI                        | TY 3019                  |
|                                     | •                                                   | BLENE                                                                                                                                | DER                                                                       |                               |                          |
| AT 10                               |                                                     |                                                                                                                                      |                                                                           |                               |                          |
|                                     |                                                     | OAK                                                                                                                                  | RIDGE NATIONAL                                                            | LABORATO                      | RY                       |
|                                     | VILLEBS                                             |                                                                                                                                      |                                                                           | -                             |                          |
|                                     | VICLES                                              | Union (                                                                                                                              | CARBIDE NUCL                                                              | ear Co                        | MPANY                    |
|                                     | UHLEBS                                              | Union (                                                                                                                              | CARBIDE NUCL                                                              | CORPORATIO                    | MPANY<br>*               |
|                                     | UH1.000                                             |                                                                                                                                      | CARBIDE NUCL                                                              | CORPORATIO                    |                          |
|                                     | UHU.000                                             | Union (                                                                                                                              | CARBIDE NUCL                                                              | CORPORATIO                    | 225                      |





| PARTS LIST           MM         MM </th <th>PARTS LIST           March         March         DESCRIPTION (MARE, SEZ, ETC.)         NATTRAL           1         2-51222         1         Steat         Steat         Steat           3         30ck         4         Nature, have algo fight         Steat         Steat           5         30cck         4         Nature, algo fight         Steat         Steat           7         50cck         1         Nature, algo fight         Steat         Steat           3         1         Height         Steat         Steat         Steat           3         1         Height         Steat         Steat         Steat           3         1         Height         Steat         Steat         Steat           3         1         Steat         Steat         Steat         Steat           4         Steat         Steat         Steat         Steat         Steat           3&lt;</th> <th>PARTS LIST           Model Particle of the set o</th> <th>Δ</th> <th>Į.</th> <th></th> <th></th> <th></th> | PARTS LIST           March         March         DESCRIPTION (MARE, SEZ, ETC.)         NATTRAL           1         2-51222         1         Steat         Steat         Steat           3         30ck         4         Nature, have algo fight         Steat         Steat           5         30cck         4         Nature, algo fight         Steat         Steat           7         50cck         1         Nature, algo fight         Steat         Steat           3         1         Height         Steat         Steat         Steat           3         1         Height         Steat         Steat         Steat           3         1         Height         Steat         Steat         Steat           3         1         Steat         Steat         Steat         Steat           4         Steat         Steat         Steat         Steat         Steat           3<                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | PARTS LIST           Model Particle of the set o                                                                                                                   | Δ       | Į.           |             |                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |
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| Image         Product         Example         Description (AMAE, SEC, ETC.)         MATERAL           1, 1, 1-51223         1         Notor         Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | DPML RX         argo         DECRMITON (Walk, SZ, ETC.)         MATENAL           11         5-3/23         1         Stock         Stock <th>DPML NX         args         DECRMITION (MARE, SZ, ETC.)         MATTERL           11         5-5123         1         Stock         4         Stock         5         Stock         5         Stock         4         Stock         5         Stock         5         Stock         4         Wather, fist - 3/8 non. (sed.)         Steel         Steel</th> <th><u></u></th> <th></th> <th></th> <th>PARTS LIST</th> <th></th> | DPML NX         args         DECRMITION (MARE, SZ, ETC.)         MATTERL           11         5-5123         1         Stock         4         Stock         5         Stock         5         Stock         4         Stock         5         Stock         5         Stock         4         Wather, fist - 3/8 non. (sed.)         Steel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <u></u> |              |             | PARTS LIST                                                                                                                                                                                                                                                                                                                                                                                                               |                               |
| 2       Stock 4       Strew, has he such - 24-196-2 x 1 3/8 1g.       Steel         3       Stock 4       Vasher, flat - 3/8 nos. (med.)       Steel         4       Stock 4       Uckwasher - 3/8 nos. (med.)       Steel         5       Stock 4       Uckwasher - 3/8 nos. (med.)       Steel         6       0       -51223       1       Oldhas coupling       Friil Ke         7       Stock 5       Threit baring - Boaton Gaer 18-12       Friange       Steel         8       0       -51223       1       Mator support bracket       Steel         10       -51223       1       Mator support bracket       Steel       Steel         11       0.5122       1       Baring       Steel       Steel         11       0.5122       1       Baring in the infinition (med.)       Steel       Steel         12       Stock 4       Strew, stock d cap, //-2006-2 x 4* 19.       Steel       Steel       Steel         13       Stock 4       Uckwasher - 1/4 2005       Steel       Steel       Steel       Steel         14       Stock 2       Dering, 3/8 10 x 1/2 00 x 1/10 N. Al-527-7       France       Steel       Steel       Steel       Steel       Steel       Steel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2       Stock       4       Strev, his ha dasch - 3/8-16/C-2 x 1 3/8 1g.       Steel         3       Stock       4       Vesher, ritt - 3/8 no. (sec.)       Steel         4       Stock       4       Vesher, - 3/8-16/C-2       Bteel         5       Stock       4       Netro support bracket       Bteel         8       0-51222       1       Others coupling       Format       Bteel         7       Stock       5       Thrust barring - Botom Gene Tb-612       Bteel       Bteel         8       0-51222       1       Netor support bracket       Bteel       Bteel       Bteel         9       0-51222       1       Netor support bracket       Bteel       Bteel       Bteel         10       0-51222       1       Netor support bracket       Bteel       Bteel       Bteel         11       0-5122       1       Netor support bracket       Bteel       Bteel       Bteel         12       Stock       4       Stock support bracket       Bteel       Bteel       Bteel         12       Stock       1       Dtracket       Bteel       Bteel       Bteel       Bteel         12       Stock       1       Bteel       B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2       Stock 4       Scree, fisch ansch - 3/8-166-2 x1 3/8 1g.       Steel         3       Stock 4       Vehner, fist - 3/8 no. (esc.)       Steel         4       Stock 4       Uckesster - 3/8 no. (esc.)       Steel         5       Stock 5       Thrat Baring - Stock 6er 13-612       Breate         5       Stock 5       Thrat Baring - Stock 6er 13-612       Breate         5       Stock 5       Thrat Baring - Stock 6er 13-612       Breate         6       Stock 5       Thrat Baring - Stock 6er 13-612       Breate         7       Stock 5       Thrat Parin (esc.)       Bteel         9       Stock 5       Thrat Parin (esc.)       Bteel         1       Stock 4       Screw, soch 6 cap, 1/4-2080-2 x 5/ 19.       Bteel         3       Stock 4       Exclusion (esc.)       Bteel       Bteel         1       Stock 5       Lockester - 1/4 Non. (esc.)       Bteel       Bteel         1       Stock 1       Exclusion (esc.)       Bteel       Bteel         1       Stock 1       Exclusion (esc.)       Thrat 1/4 non. (esc.)       Bteel         2       Stock 1       Exclusion (esc.)       Bteel       Bteel         3       Stock 1       Exclusion (esc.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | NAT NO. | DWG. NO.     | NO.<br>REQD | DESCRIPTION (NAME, SIZE, ETC.)                                                                                                                                                                                                                                                                                                                                                                                           | MATERIAL                      |
| 3       3 took       4       Vasher, flat3/8 noc. (set.)       itel         5       3 took       4       Lockware -3/8 noc. (set.)       itel         5       3 took       4       Not, hex -3/8 noc. (set.)       itel         7       3 took       4       Not, hex -3/8 noc. (set.)       itel         7       3 took       5       10 (data coupling       Prill Ko         7       3 took       5       10 (data coupling       Prill Ko         9       -5/122       1       Humper       itel       file         10       1-5/122       1       Humper       itel       file       file         11       1-5/122       1       Humper       file       file       file       file         12       10 (data coupling       7/14 no. (set.)       file       file       file       file         13       5 took       4       Lockward       file       file       file       file         15       5 took       1       Lockward       file       file       file       file         16       16       10       Lockward       file       file       file       file         17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 3       3 tock       4       Wahor, fitt 3/8 non. (sed.)       3 teal         5       3 tock       4       Net, her - 3/8 non. (sed.)       3 teal         7       3 tock       4       Net, her - 3/8 non. (sed.)       3 teal         7       3 tock       5       Thrast Bearing - 5oston Ger 15-612       8 teal         8       5-5122       1       Netro respect tracket       8 teal         9       6-5122       1       Netro respect tracket       8 teal         9       6-5122       1       Netro respect tracket       8 teal         9       6-5122       1       Netro respect tracket       8 teal         10       0-5122       1       Netro respect tracket       8 teal         3       3 tock       4       Stock       8 teal       8 teal         3       1       0-5122       1       Net ther - 1/4 non. (sed.)       8 teal         3       1       1       Stock       8       1       1       8 teal         1       4       5122       1       8 teal       8 teal       8 teal         1       5       8 tock       1       1       8 teal       8 teal         1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 3       3 tock       4       Waher, filt - 3/8 nos. (sed.)       3 teal         5       3 tock       4       Net, her - 3/8 nos. (sed.)       3 teal         7       3 tock       5       10 tolken coupling       Diffile         7       3 tock       5       Thrast basing - baston Geer 18-612       Beel         8       5-5122       1       Namper       Steel       Beel         9       6-5122       1       Namper       Steel       Beel         9       6-5122       1       Namper       Steel       Beel         1       9-5122       1       Namper       Steel       Beel         3       3tock       4       Steer, soch dcap, 1/4-2004-2 st*1 st.       Beel       Beel         3       3tock       4       Steer, fat 1/4-2004-2       Beel       Beel       Beel         5       3tock       2       Dering, Stotn Geer 5-8-3       Beel       Beel       Beel         6       4-5122       3       Blade       Botn       Beel       Beel       Beel         6       4-5122       3       Blade       Botn       Beel       Beel       Beel         1       3 tock <td< td=""><td></td><td></td><td></td><td></td><td></td></td<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |              |             |                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |
| 9         Stock         9         Lackwaher - 3/8 nos. (med.)         Steel           5         Stock         8         Pett, her - 3/8 - 1602.         Pett 1           6         0         1-51222         1         Other a coupting.         Pett 1           7         Stock         5         Threat hearing - bestom Gaer 18-812         Pett 2           8         3-51222         1         Heat respect bracket         Steel           9         1-51222         1         Heat respect bracket         Steel           10         1-51222         1         Heat respect bracket         Steel         Steel           11         1-51222         1         Heat respect bracket         Steel         Steel           12         3-1024         4         Strave sock decay, 1/4-2000-2 x 4" 18,         Steel         Steel           13         1024         4         Steel         Steel         Steel         Steel           13         1024         4         Steel         Steel         Steel         Steel         Steel           14         Stock         2         Dering, 3/6 10 x 1/2 00 x 1/16 01, 16 00 x 4/207-7         Heat sock         Steel at sock           15         10024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1         Stock         9         Lockssing - 3/2 mon. (set.)         Steal           2         Stock         Net. Het. Her. 3/2-1600. (set.)         Dist.         Dist.           3         Stock         1         Others coupling         Dist.         Dist.           3         Stock         5         Threst barring - Boston Gar TS-612         Dist.         Dist.           4         Stock         5         Threst barring - Boston Gar TS-612         Dist.         Dist.           5         Dist.         Threst barring - Boston Gar TS-612         Biss.         Dist.         Dist.           1         0-15122         1         Numper         Dist.         Dist.         Dist.           3         Stock         4         Sorew, co. Act. (set.)         Dist.         Dist.         Dist.           3         Stock         2         Darring. Dist.         Dist.         Dist.         Dist.           5         Stock         2         Darring. Dist.         Dist.         Dist.         Dist.           6         Stock         3         Stock         Dist.         Dist.         Dist.           7         Stock         3         Stock         Dist.         Dist.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1         Stock         4         Lockssher - 3/7 no. (msc.)         Stack           2         Stock         4         Met, how - 3/8-160-2         Stack         Drift Kee           6         0-51222         1         Other coupling         Drift Kee         Drift Kee           8         0-51222         1         Nator support brackst         Stack         Stack           9         0-5122         1         Nator support brackst         Stack         Stack           9         0-5122         1         Nator support brackst         Stack         Stack           1         0-5122         1         Nator support brackst         Stack         Stack           1         0-5122         1         Nator support brackst         Stack         Stack           3         Stock         5         Value (msc.)         Stack         Stack           3         Stock         2         Daring Stack (msc.)         Stack         Stack           3         Stock         2         Daring Stack (msc.)         Stack         Stack           4         Stock         2         Daring Stack         Stack         Stack           4         Stock         2         Baring Sta                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |              |             |                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |
| 5         Stock         4         Het, her 38-190-2         Steel           7         3 tock         5         Threat bearing - batin fear 18-612         Frill Ker           7         3 tock         5         Threat bearing - batin fear 18-612         Frill Ker           9         1-51222         2         Finge         Field         Frill Ker           9         1-5122         2         Finge         Field         Field           10         1-51222         1         Keny         Field         Field           2         3 tock         4         Keny         Field         Field           3         3 tock         4         Keny         Field         Field           3         3 tock         4         Lockmaker - (Mano, (eac.))         Field         Field           5         3 tock         2         Chring, both Gar Field         Field         Field           5         3 tock         2         Chring, both Gar Field         Field         Field           5         3 tock         1         Chring, both Gar Field         Field         Field           7         3 tock         2         Field         Field         Field         Field                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 5         Stock         4         Het, her - 3/8-196-2         Steel           72         Stock         5         Threat bearing - baston Gar TS-612         France           73         Stock         5         Threat bearing - baston Gar TS-612         France           9         D-51222         1         Numper         Stock         France           10         D-51222         1         Numper         Stock         Stock         Stock           2         Stock         4         Numper         Stock         Stoc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | S         Stock         Nut, her - 3/8-196-2         Steel           72         Stock         5         Thrat basing - baton Gar TS-612         Penze           8         5-5122         1         Name - bayer trackst         Biel           9         6-5122         1         Name         Biel         Biel           1         0-5122         1         Name         Biel         Biel           2         Stock         4         Store, soch drag, 1/4-200-2 x 5/1 19.         Biel           3         Stock         4         Nat, her - 1/4-200-2 (soc)         Biel           4         Stock         4         Nat, her - 1/4-200-2         Biel           5         Stock         2         Dering, Boton Gar 5-63-3         Biel         Biel           6         Stock         2         Dering, Boton Gar 5-63-3         Biel         Biel         Biel           4         Stock         2         Bearing         Distance         Biel         Biel           5         Stock         3         Biel         Biel         Biel         Biel           5         Stock         3         Biel         Biel         Biel         Biel           6 <td></td> <td></td> <td></td> <td></td> <td></td>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |              |             |                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |
| 72       Stock       5       Thrust bearing - baton fear 18-612       Frozz         8       0-51222       1       Notor report brackst       Itel       Stock         9       0-51222       1       Notor report brackst       Itel       Itel       Itel         1       0-51222       1       Norper       Itel       Itel       Itel       Itel         3       Stock       4       Norper, flat - 1/4 none (med.)       Itel       Itel       Itel         5       Stock       4       Nother, flat - 1/4 none (med.)       Itel       Itel       Itel         5       Stock       4       Not, flat - 1/4 none (med.)       Itel       Itel       Itel         5       Stock       2       Dering, 2/8 ID x 1/2 OD x 1/9 KM. Ad-5227-7       Forester       Forester         6       2       Basing, Roto Bar 10-83       Stock 2       Basing       Stock       Stock 2         4       Stock       3       Basing, Roto Bar 1/2 Noto Bar 10-84       Stock 2       Basing       Stock 2       Stock 2         6       2-51222       3       Basing       Stock 2       Stock 2       Stock 2       Stock 2       Stock 2         1       Stock 2 <td< td=""><td>72       Stock       5       Thrust basing - baston Gar TS-612       Protect         8       0-51222       1       Note support brackst       Bits ST         9       0-51222       1       Norger       Bits ST         1       0-51222       1       Norger       Bits ST         2       Stock       4       Norger       Bits ST         3       Stock       4       Norger       Bits ST         3       Stock       4       Norger, fist - 1/4 none, (med.)       Bits ST         5       Stock       4       Nort, fist - 1/4 none, (med.)       Bits ST         5       Stock       2       Cering, Staton Gar E-58-3       Bits ST         6       Stock       2       Dearing, Botton Gar E-58-3       Bits ST         6       Stock       3       Bits ST       Bits ST       Bits ST         10       Stock       3       Bits ST       Bits ST       Bits ST         11       Stock       3       Bits ST       Control Stock       Bits ST         11       Stock       3       Bits ST       Bits ST       Bits ST         Electromotic Cong       Bits ST       Bits ST       Bits ST       Bits ST</td><td>72       Stock       5       Thrust bearing: - baston Geer T8-612       Forme         8       0-51222       1       Notes temport tracket       Biel       Biel         9       0-51222       1       Nonger       Biel       Biel       Biel         1       0-51222       1       Nonger       Biel       Biel       Biel       Biel         2       Stock       4       Nonger       Biel       Biel       Biel       Biel         3       Stock       4       Not, her, fist - 1/4 none, (med.)       Biel       Biel       Biel         5       Stock       2       Dering, Batton Geer #68-3       Biel       Biel       Biel         6       51024       2       Dering, Batton Geer #68-3       Biel       Biel       Biel         6       51024       3       Stock       3       Stock       Biel       Biel         4       Stock       3       Stock       1       Biel       Biel       Biel         6       Stock       3       Stock       1       Biel       Biel       Biel         1       Stock       3       Stock       1       Biel       Biel       Biel</td><td>5</td><td>Stock</td><td>4</td><td>Nut, hex - 3/8-16NC-2</td><td>Steel</td></td<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 72       Stock       5       Thrust basing - baston Gar TS-612       Protect         8       0-51222       1       Note support brackst       Bits ST         9       0-51222       1       Norger       Bits ST         1       0-51222       1       Norger       Bits ST         2       Stock       4       Norger       Bits ST         3       Stock       4       Norger       Bits ST         3       Stock       4       Norger, fist - 1/4 none, (med.)       Bits ST         5       Stock       4       Nort, fist - 1/4 none, (med.)       Bits ST         5       Stock       2       Cering, Staton Gar E-58-3       Bits ST         6       Stock       2       Dearing, Botton Gar E-58-3       Bits ST         6       Stock       3       Bits ST       Bits ST       Bits ST         10       Stock       3       Bits ST       Bits ST       Bits ST         11       Stock       3       Bits ST       Control Stock       Bits ST         11       Stock       3       Bits ST       Bits ST       Bits ST         Electromotic Cong       Bits ST       Bits ST       Bits ST       Bits ST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 72       Stock       5       Thrust bearing: - baston Geer T8-612       Forme         8       0-51222       1       Notes temport tracket       Biel       Biel         9       0-51222       1       Nonger       Biel       Biel       Biel         1       0-51222       1       Nonger       Biel       Biel       Biel       Biel         2       Stock       4       Nonger       Biel       Biel       Biel       Biel         3       Stock       4       Not, her, fist - 1/4 none, (med.)       Biel       Biel       Biel         5       Stock       2       Dering, Batton Geer #68-3       Biel       Biel       Biel         6       51024       2       Dering, Batton Geer #68-3       Biel       Biel       Biel         6       51024       3       Stock       3       Stock       Biel       Biel         4       Stock       3       Stock       1       Biel       Biel       Biel         6       Stock       3       Stock       1       Biel       Biel       Biel         1       Stock       3       Stock       1       Biel       Biel       Biel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5       | Stock        | 4           | Nut, hex - 3/8-16NC-2                                                                                                                                                                                                                                                                                                                                                                                                    | Steel                         |
| a       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b       b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2         -5:1222         1         Netor support brackst         35call           0         -5:1222         2         Flagger         35 ast         4         35 ast         4         35 ast         4         35 ast         35 as                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | a         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |              |             |                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |
| 0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0        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       0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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 0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0                                                                                                                                                               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                                                                                                                                                                                                                                                                                                                             |                               |
| 2       1       Langer       Langer       Stock       1       Stock       S                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2       1       banger       Stock       4       Stock                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2       1       Numper       State       State<                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 9   I   | 0-51222      | 1 1         | Flange                                                                                                                                                                                                                                                                                                                                                                                                                   | 316 33T                       |
| 2       Stock       4       Stock, resc. for deep, 1/4-206-2 x 4" 19.       Steal         3       Stock       4       Wahner, flat 1/4 none. (sed.)       Steal         5       Stock       4       Wahner, flat 1/4 none. (sed.)       Steal         5       Stock       4       Wath. Ber 1/4 none. (sed.)       Steal         5       Stock       4       Wath. Ber 1/4 none. (sed.)       Steal         5       Stock       2       Dering, 1/4 none. (sed.)       Steal         5       Stock       2       Dering, 1/4 none. (sed.)       Steal         6       Stock       2       Dering, 1/4 none. (sed.)       Steal         7       Stock       2       Dering, 1/4 none. (sed.)       Steal         6       Stock       3       Stock issue of the sed.       Steal         6       Hotel       2       Steal       Steal       Steal         1       Stock       9       Screw, F.H. Mach #320C-2 x 5/6 1g.       Steal       Steal         1       Stock       9       Screw, F.H. Mach #320C-2 x 5/6 1g.       Steal       Steal         1       Stock       9       Screw, F.H. Mach #320C-2 x 5/6 1g.       Steal       Steal <td>2         Stock         4         Strow, soc hd cap, //4-201C-2; s* 1g.         Steel           3         Stock         4         Values, file. / // a.cos. (sec.)         Steel           3         Stock         4         Values, file. / // a.cos. (sec.)         Steel           5         Stock         2         Derring, 3/8 10 7 1/2 00 x 1/16 V. Al-6227-7         Storpress           5         Stock         2         Derring, Notion Gear 1-68-3         Storpress           6         Stock         2         Derring, Notion Gear 1-68-3         Storpress           6         Stock         2         Derring, Notion Gear 1-68-3         Storpress           6         Stock         2         Derring, Storpress         Storpress           7         Stock         2         Storpress         Storpress           7         Storpress         Storpress         Storpress         Storpress           1         Storpress         Storpress</td> <td>2       Stock       4       Stroir, soc hd cap, //4-201C-2; s* 1p.       Steel         3       Stock       4       Vester, Tit //4-200c, (eef.)       Steel         5       Stock       4       Vester, Tit //4-200c, (eef.)       Steel         5       Stock       2       Outring, 3/8 10 5 1/2 00 z 1/16 W. Al-6227-7       Storp end         72       Stock       2       Outring, 3/8 10 5 1/2 00 z 1/16 W. Al-6227-7       Storp end         72       Stock       2       Destring, Rootin Gear 1-68-3       Stock       Stock         0       &gt;51222       1       Stock       Stock       Stock       Stock         0       &gt;51222       3       Stock       Stock       Stock       Stock         1       Stock       9       Stock       Stock       Stock       Stock         1       Stock       9       Stock       Control       Stock       Stock         1       Stock       9       Stock       Control       Stock       Stock       Stock         1       Stock       9       Stock       Stock       Stock       Stock       Stock         1       Stock       9       Stock       Stock       Stock<td></td><td></td><td></td><td></td><td>1</td></td>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2         Stock         4         Strow, soc hd cap, //4-201C-2; s* 1g.         Steel           3         Stock         4         Values, file. / // a.cos. (sec.)         Steel           3         Stock         4         Values, file. / // a.cos. (sec.)         Steel           5         Stock         2         Derring, 3/8 10 7 1/2 00 x 1/16 V. Al-6227-7         Storpress           5         Stock         2         Derring, Notion Gear 1-68-3         Storpress           6         Stock         2         Derring, Notion Gear 1-68-3         Storpress           6         Stock         2         Derring, Notion Gear 1-68-3         Storpress           6         Stock         2         Derring, Storpress         Storpress           7         Stock         2         Storpress         Storpress           7         Storpress         Storpress         Storpress         Storpress           1         Storpress         Storpress                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2       Stock       4       Stroir, soc hd cap, //4-201C-2; s* 1p.       Steel         3       Stock       4       Vester, Tit //4-200c, (eef.)       Steel         5       Stock       4       Vester, Tit //4-200c, (eef.)       Steel         5       Stock       2       Outring, 3/8 10 5 1/2 00 z 1/16 W. Al-6227-7       Storp end         72       Stock       2       Outring, 3/8 10 5 1/2 00 z 1/16 W. Al-6227-7       Storp end         72       Stock       2       Destring, Rootin Gear 1-68-3       Stock       Stock         0       >51222       1       Stock       Stock       Stock       Stock         0       >51222       3       Stock       Stock       Stock       Stock         1       Stock       9       Stock       Stock       Stock       Stock         1       Stock       9       Stock       Control       Stock       Stock         1       Stock       9       Stock       Control       Stock       Stock       Stock         1       Stock       9       Stock       Stock       Stock       Stock       Stock         1       Stock       9       Stock       Stock       Stock <td></td> <td></td> <td></td> <td></td> <td>1</td>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |              |             |                                                                                                                                                                                                                                                                                                                                                                                                                          | 1                             |
| 3       3 took       4       Joban F. (Hat (Y & Dos. (sed.))       3 tool         5       3 took       4       Joban F. (Hat (Y & Dos. (sed.))       3 tool         5       3 took       2       Orring, 3/8 1D = (//2 0D = //16 W. AR-6227-7)       Boorree         5       3 took       2       Desring, Boston Gear HoG-2       Stail         5       3 took       2       Desring, Boston Gear HoG-2       Stail         6       -51222       3       Bidee       Stail       Beorree         1       5 took       9       Screen, F.H. mech - A-320C-2 x 5/8 1g.       Still         Electrice: Co., Bioston, Conn.         Electrice: Co., Bioston Gear Works, Quincy 71, Mass.         Besting: oil ispregnated bronze, Boston Gear Works, Quincy 71, Mass.         Besting: Convertige Material Bronze, Boston Gear Works, Quincy 71, Mass.         Besting: Classification         Classification         Classification         Classification         Classification         Classification         Classification         Classification         Classification         Classification </td <td>3         Stock         4         Washer, 1/s. n.e. (sec.)         Steel           3         Stock         4         Lockwater - 1/s.noc. (sec.)         Steel           3         Stock         4         Lockwater - 1/s.noc. (sec.)         Steel           3         Stock         2         Dering, Soton (ser 1-68-3         Steel         Steel           2         3         Stock         2         Dering, Soton (ser 1-68-3         Steel         Steel           3         Stock         2         Dering, Soton (ser 1-68-3         Steel         Steel         Steel           3         Stock         3         Steel         Steel         Steel         Steel           4         Stock         3         Steel         Steel         Steel         Steel           5         Stock         Steel         Steel         Steel         Steel         Steel           &lt;</td> <td>3       Stock       4       Washer, 1/s. no. (ee.)       Steel         5       Stock       4       Lockwater - 1/s. no. (ee.)       Steel         5       Stock       4       Lockwater - 1/s. no. (ee.)       Steel         5       Stock       2       Dering, 1/s 10, 11/5 10, 11/6 14, Al-6227-7       Steel         7       Stock       2       Dering, 1/s 10, 11/5 10, 11/6 14, Al-6227-7       Steer         7       Stock       2       Dering, 1/s 10, 11/5 10, Al-6227-7       Steer         7       Stock       2       Dering, 1/s 10, 11/5 10, Al-6227-7       Steer         7       Stock       2       Dering, 1/s 10, 11/5 10, Al-6227-7       Steer         7       Stock       3       Basing       Steer       Instance         1       Stock       9       Screen, F.H. sech - 40-320C-2 x 5/8 19.       337         Stock       9       Screen, F.H. sech - 40-320C-2 x 5/8 19.         Stock       9       Screen, F.H. sech - 40-320C-2 x 5/8 19.         Stock       9       Screen, F.H. sech - 40-320C-2 x 5/8 19.         Stock       9       Screen, F.H. sech - 40-320C-2 x 5/8 19.         Stock       Screen, F.H. sech - 40-320C-2 x 5/8 19.</td> <td></td> <td></td> <td></td> <td></td> <td></td>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 3         Stock         4         Washer, 1/s. n.e. (sec.)         Steel           3         Stock         4         Lockwater - 1/s.noc. (sec.)         Steel           3         Stock         4         Lockwater - 1/s.noc. (sec.)         Steel           3         Stock         2         Dering, Soton (ser 1-68-3         Steel         Steel           2         3         Stock         2         Dering, Soton (ser 1-68-3         Steel         Steel           3         Stock         2         Dering, Soton (ser 1-68-3         Steel         Steel         Steel           3         Stock         3         Steel         Steel         Steel         Steel           4         Stock         3         Steel         Steel         Steel         Steel           5         Stock         Steel         Steel         Steel         Steel         Steel           <                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 3       Stock       4       Washer, 1/s. no. (ee.)       Steel         5       Stock       4       Lockwater - 1/s. no. (ee.)       Steel         5       Stock       4       Lockwater - 1/s. no. (ee.)       Steel         5       Stock       2       Dering, 1/s 10, 11/5 10, 11/6 14, Al-6227-7       Steel         7       Stock       2       Dering, 1/s 10, 11/5 10, 11/6 14, Al-6227-7       Steer         7       Stock       2       Dering, 1/s 10, 11/5 10, Al-6227-7       Steer         7       Stock       2       Dering, 1/s 10, 11/5 10, Al-6227-7       Steer         7       Stock       2       Dering, 1/s 10, 11/5 10, Al-6227-7       Steer         7       Stock       3       Basing       Steer       Instance         1       Stock       9       Screen, F.H. sech - 40-320C-2 x 5/8 19.       337         Stock       9       Screen, F.H. sech - 40-320C-2 x 5/8 19.         Stock       9       Screen, F.H. sech - 40-320C-2 x 5/8 19.         Stock       9       Screen, F.H. sech - 40-320C-2 x 5/8 19.         Stock       9       Screen, F.H. sech - 40-320C-2 x 5/8 19.         Stock       Screen, F.H. sech - 40-320C-2 x 5/8 19.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |              |             |                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |
| 5       Stock       4       but, her (H - 200C-2       Steal         2       Stock       2       Dering, 3/8 10 2 (1/2 00 2 1/16 K. Al-6227-7)       Boorren         2       Stock       2       Dering, 3/8 10 2 (1/2 00 2 1/16 K. Al-6227-7)       Boorren         2       -51222       1       Shaft       Boorren                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 5         Stock         4         Nut, her //-2006-2         Steel           2         Stock         2         Dering, 3/8 10 x 1/2 00 x 1/16 V. AM-5227-7         Stopping           2         Stock         2         Dering, 3/8 10 x 1/2 00 x 1/16 V. AM-5227-7         Stopping           2         Stock         2         Dering, 3/8 10 x 1/2 00 x 1/16 V. AM-5227-7         Stopping           2         Stock         1         Shaft         Stock         2           4-51222         3         Bate         Stock         3           2         4-51222         3         Bate         311 837           3         Stock         9         Screw, F.H. mach - M-328C-2 x 5/8 1g.         337                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3         3 took         4         Net, New - //-2006-2         Step           3         3 took         2         0 - Fing, Boaton Gear 3-63-3         Step = 6           3         3 took         2         0 - Step = 7         Step = 6           3         3 took         2         0 - Step = 7         Step = 6           3         3 took         2         0 - Step = 7         Step = 6           4         3 took         3         Base         Step = 7           4         3 took         3         Base         Step = 7           4         3 took         3         Base         Step = 7           5         3 took         3         Base         Step = 7           4         3 took         3         Base         Step = 7           5         3 took         3         Step = 7         Step = 7           5         3 took         5         3         Step = 7           5         3 took         5         Step = 7         Step = 7           5         3 took         5         5         Step = 7           5         3         5         5         5         5           5         3 </td <td>3   1</td> <td>Stock</td> <td></td> <td>Washer, flat - 1/4 nom. (med.)</td> <td>Steel</td>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 3   1   | Stock        |             | Washer, flat - 1/4 nom. (med.)                                                                                                                                                                                                                                                                                                                                                                                           | Steel                         |
| 2         Stock         2         D-ring, 3/8 ID x 1/2 00 x 1/16 W. All-5227-7         Hearren<br>Hoarren<br>Boarnen, Boaton Gear B-68-3           3         D-51222         1         Shaft         Shaft         Hoarren<br>Hoarren<br>Boarnen         Hoarren<br>Hoarren<br>Boarnen         Hoarren<br>Hoarren<br>Boarnen         Hoarren<br>Hoarren<br>Boarnen         Hoarren<br>Hoarren<br>Hoarren<br>Boarnen         Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Hoarren<br>Ho                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2         Octing, 3/8 10x //2 00 x //16 W. All-6227-7         Beogram           2         Stock         2         Desting, Boton Gear B-68-3         Beogram           3         D-51222         1         Shaft         Beogram         Beogram           4         D-51222         3         Blade                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2         Oring, 3/8 10x //2 00 x //16 W. All-6227-7         Response           2         3         Basing, Boton Gear B-68-3         Response           2         3         Basing         Basing, Boton Gear B-68-3         Response           2         3         Basing         Basing         Retainer         Ret                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |              |             |                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |
| 2         Stock         2         Bearing, Botton Ger B-68-3         Broats         Broats <t< td=""><td>2         Stock         2         Bearing, Boston Gear 8-68-3         Fraze Estate           5-5122         1         Shafe         Fraze Estate         Fraze Estate         Fraze Estate           51022         3         Betainer         13         Stock         Stock</td><td>2         Stock         2         Bearing, Botton Gear 8-68-3         Frazes         Stock         Stock<!--</td--><td></td><td></td><td></td><td></td><td></td></td></t<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2         Stock         2         Bearing, Boston Gear 8-68-3         Fraze Estate           5-5122         1         Shafe         Fraze Estate         Fraze Estate         Fraze Estate           51022         3         Betainer         13         Stock                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2         Stock         2         Bearing, Botton Gear 8-68-3         Frazes         Stock         Stock </td <td></td> <td></td> <td></td> <td></td> <td></td>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |              |             |                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |
| 0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2         -5-1222         3         8 bilder         Bilder           1         Stock         9         Screw, F.H. such - #0-328(-2 x 5/8 1g.         33T           stock         9         Screw, F.H. such - #0-328(-2 x 5/8 1g.         33T           stock         9         Screw, F.H. such - #0-328(-2 x 5/8 1g.         33T           stock         9         Screw, F.H. such - #0-328(-2 x 5/8 1g.         33T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | a         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b         b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2       | Stock        |             | Bearing, Boston Gear B-68-3                                                                                                                                                                                                                                                                                                                                                                                              | Bronze                        |
| 0       0-5-51222       3       Retainer       316 B3T         1       Stock       9       Scrow, F.H. mach - #8-328C-2 x b/8 1g.       337         Stock       9       Scrow, F.H. mach - #8-328C-2 x b/8 1g.       337         Stock       9       Scrow, F.H. mach - #8-328C-2 x b/8 1g.       337         Stock       9       Scrow, F.H. mach - #8-328C-2 x b/8 1g.       337         Stock       Colspan="2">One-1000-10002, Tive: Superside         Electron: Co., BRUSTOL, Connt.         Bestings, oil ispregnated bronze, Boston Bear Works, Quincy 71, Mass.         Electron: Co., BRUSTOL, Connt.         Electron: Co., BRUSTOL, Connt.         Bestings, oil ispregnated bronze, Boston Bear Works, Quincy 71, Mass.         Electron: Control Contrege Control Contrege Control Control Contreg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0         0-51222         3         Retainer         916 BBT           1         Stock         9         Screw, F.H. much - Ad-328C-2 x 5/8 1g.         SBT           Search:         SID Shr Birtitak Morole, TYPE, X-1000-1004, THE SUPERIOR           Electrone Co., BRISTOL, CONH.           Beerings, oil impregnated bronze, Boston Gear Works, Quincy 71, Mass.           Reference Co., BRISTOL, CONH.           Beerings, oil impregnated bronze, Boston Gear Works, Quincy 71, Mass.           Control Contender Control Contender Control Control Contender C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |              | •           |                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |
| BERTISS<br>SIGNA BIFFLAR MOTOR, TYPE, X-1000-1002, THE SUPPOLOGE<br>ELECTRE Co., BRISTOL, CONN.<br>Bearings, oil impregnated bronze, Boston Gear Works, Quincy 71, Mass.<br>2" Feeder Volve - Def. Sh. # 2 D'SIZE<br>2" Feeder Volve - Def. Sh. # 2 D'SIZE<br>2" Feeder Volve - Def. Sh. # 7 D'SIZE<br>2" FEEDER VALVE<br>- ASSEMBLY<br>UNTON UNDER WINNER<br>OAK RODE NUTDONAL LADORATORY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Partic: Sicipa Braisae Morge, TYPE, X-1000-1002, The SUPERIOR ELECTOR Co., BRUSTOL, CONN. Berlings, oil impregnated bronze, Boston Gear Works, Quincy 71, Hass. $ 2"Feeder Valve - Def. Sh. * 2 D'St223 2"Feeder Valve - Def. Sh. * 1 D'St222 2"Feeder Valve - Def. Sh. * 1 D'St222 2"Feeder Valve - Def. Sh. * 1 D'St222 RETURNE DOWNED DWE NO. THORIUM U23 FUEL ROD FACILITY * 3019 2"FEEDER VALVE$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Electric Co., BRISTOL, CONN. Bestings, oil ispregnated bronze, Boston Best Works, Quincy 71, Mass.  E2" Freeder Volve - Def. 55. # 2 D'5/223  E2" Feeder Volve - Def. 55. # 2 D'5/223  E2" Feeder Volve - Def. 55. # 2 D'5/223  E2" Feeder Volve - Def. 55. # 2 D'5/223  E2" Feeder Volve - Def. 55. # 2 D'5/223  E2" Feeder Volve - Def. 55. # 2 D'5/223  E2" Feeder Volve - Def. 55. # 2 D'5/223  E2" Feeder Volve - Def. 55. # 2 D'5/223  E2" Feeder Volve - Def. 55. # 2 D'5/223  E2" Feeder Volve - Def. 55. # 2 D'5/223  E2" Feeder Volve - Def. 55. # 2 D'5/223  E2" Feeder Volve - Def. 55. # 2 D'5/223  E2" Feeder Volve - Def. 55. # 2 D'5/223  E2" Feeder Volve - Def. 55. # 2 D'5/223  E2" Feeder Volve - Def. 55. # 2 D'5/223  E2" Feeder Volve - Def. 55. # 2 D'5/223  E4 D'5/22  E4 D'5/22  E4 D'5/22  E4 D'5/22  E4 D'5/2  E4 D                                           |         |              | 3           | Retainer                                                                                                                                                                                                                                                                                                                                                                                                                 |                               |
| Sio-Syn Biffliam Morge, TYPE, X-1000-1002, Tive Supportant         Electron, Co., Binston, Conn.         Bestings, oil impregnated bronze, Boston Sear Works, Quincy 71, Hass.         Image: Classification of the sear Worke, Quincy 71, Hass.         Image: Classification of the sear Worke, Quincy 71, Hass.         Image: Classification of the sear Worke, Quincy 71, Hass.         Image: Classification of the sear Worke, Quincy 71, Hass.         Image: Classification of the sear Worke, Quincy 71, Hass.         Image: Classification of the sear Worke, Quincy 71, Hass.         Image: Classification of the sear Worke, Quincy 71, Hass.         Image: Classification of the sear Worke, Quincy 71, Hass.         Image: Classification of the sear Worke, Quincy 71, Hass.         Image: Classification of the sear Worke, Quincy 71, Hass.         Image: Classification of the sear Worke, Quincy 71, Hass.         Image: Classification of the sear Worke, Quincy 71, Hass.         Image: Classification of the sear Worke, Quincy 71, Hass.         Image: Classification of the sear Worke, Quincy 71, Hass.         Image: Classification of the sear Worke, Quincy 71, Hass.         Image: Classification of the sear Worke, Quincy 71, Hass.         Image: Classification of the sear Worke, Quincy 71, Hass.         Image: Classification of the sear Worke, Quincy 71, Hass.         Image: Classification of the sear Worke, Quincy 71, Hass.         Image:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Sile-Syn Br#ILAR Moroz, TYPE, X-1000-1002, The SUPERIOR Electron Co., BRUSTOL, CONN.         Bestings, cil impregnated bronze, Boston Geer Works, Quincy 71, Mass.         Bestings, cil impregnated bronze, Boston Geer Works, Quincy 71, Mass.         2"Feeder Volve - Def. Sch. # P. D'STR23<br>2"Feeder Volve - Def. Sch. # T. D'STR23<br>0WB NO.         CLASSIFICATION       2"FEEDER Volve - Def. Sch. # T. D'STR23<br>0WB NO.         CLASSIFICATION       2"FEEDER Volve - Def. Sch. # T. D'STR23<br>0WB NO.         Maintent Construction Of Market Laboratory<br>0WB NO.       0WB NO.         Maintent Construction Of Market Laboratory<br>0WB NO.       0WB NO.         Maintent Laboratory<br>0WB NO.       0WB NO.         Maintent Laboratory<br>0WB NO.       0WB NO.         Maintent Laboratory<br>0WB NO.       0WB NO.         Market Laboratory<br>0WB NO.       0WB NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Silo-Syn BURLIAR Morac, TYPE, X-1000-1002, The SUPERIOR         ELECTRIC, Co., BRUSTOL, CONN.         Bestings, oil impregnated bronze, Boston Gear Works, Quincy 71, Mass.         Bestings, oil impregnated bronze, Boston Gear Works, Quincy 71, Mass.         2"Feeder Volve - Def. Sh. # 2 D'SI223         2"Feeder Volve - Def. Sh. # 2 D'SI223         2"Feeder Volve - Def. Sh. # 1 D'SI223         2"Feeder Volve - Def. Sh. # 1 D'SI223         RETENSE DAMMAGE         DWA NO.         THORIUM U <sup>235</sup> FUEL ROD FACILITY TA SOIP         THORIUM U <sup>235</sup> FUEL ROD FACILITY TA SOIP         ON RODE INTONAL LABORTORY         UNION CAREDER UCLEAR COMPANY         DOWER D.         WINON CAREDER NUCLEAR COMPANY         DOWER D.         Mass 1         Mass 1         Mass 1         Mass 2         Mass 2         Mass 2         Mass 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |         | Stock        | 9           | Screw, F.H. mach - #8-32HC-2 x 5/8 lg.                                                                                                                                                                                                                                                                                                                                                                                   | SST                           |
| 2" Feeder Volve - Def. Sb. # 1     0:5182.       NEFERENCE DRAWINGS     DWG. HO       THORIUM U <sup>235</sup> FUEL ROD FACILITY     MAX. 301       THORIUM U <sup>235</sup> FUEL ROD FACILITY     MAX. 301       CLASSIFICATION     2" FEEDER VALVE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2" Feeder Volve - Det. 35. # 7     D:5/222       REFERENCE DRAWINGS       DWG. NO.       THOR!UM U <sup>235</sup> FUEL ROD FACILITY WAS 30/9       CLASSIFICATION       2" FEEDER VALVE       OAK ROGE NATIONAL LABORATORY       OTHER SECTION       CLASSIFICATION       2" FEEDER VALVE       OAK ROGE NATIONAL LABORATORY       OTHER SECTION       OAK ROGE COMPONING ON CAREDIDE NUCLEAR COMPANY       DOCUMENT IN COMPANY       DOCUMENT INFERENT       OUTON CAREDIDE NUCLEAR COMPANY       DOCUMENT INFERENT       OUTON CAREDIDE CONDATION       ON CARED CONDATION       ON CONTRIBUTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2" Feeder Volve - Det. 35. # 1     D:5/222       REFERENCE DRAWINGE       DWG. NO.       THORIUM U <sup>235</sup> FUEL ROD FACILITY WAS 30/9       CLASSIFICATION       2" FEEDER VALVE       OAK REDGE NULLEAR COMPANY       OF DETENDED UILLEAR       OAK REDGE NULLEAR COMPANY       DETENDE ±       UNION CARBIDE NUCLEAR COMPANY       DETENDE ±       DETENDE ±       OAK REDGE NULLEAR COMPANY       DETENDE **       UNION CARBIDE NUCLEAR COMPANY       DETENDE **       UNION CARBIDE OUFOORTON       OAK REDGE TO UNION CARBIDE OUFOORTON       OAK REDGE TO UNION CARBIDE OUFOORTON       UNION CARBIDE OUFOORTON       OAK REDGE TO UNION       OAK REDGE TO UNION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |              |             |                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |
| REFERENCE DRAWINGS         DWG_NO           THORIUM         U <sup>235</sup> FUEL ROD FACILITY         MAG. NO           CLASSIFICATION         2" FEEDER         VALVE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | REFERENCE DRAWINGS         DWG. NO.           THORIUM U <sup>235</sup> FUEL ROD FACILITY         Image 30/9           Image 30/9         2" FEEDER VALVE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | REFERENCE DRAWINGS         DWG. NO.           THORIUM U <sup>235</sup> FUEL ROD FACILITY         Image 3019           Image 3019         2" FEEDER VALVE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |         |              |             |                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |
| THORIUM U <sup>235</sup> FUEL ROD FACILITY     301       Image: Classification     2" FEEDER VALVE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | THORIUM U <sup>235</sup> FUEL ROD FACILITY INS. 3019       CLASSIFICATION       2" FEEDER VALVE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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  DECIMALE ±       MILING CURPONING       AND LY       OAK ROGE NATIONAL LABORATORY       OTHER BY OF UNION CARBIDE NUCLEAR COMPANY       DECIMALE ±       DECIMALE ±       AND LY       DECIMALE ±                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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Sh. # 2                                                                                                                                                                                                                                                                                                                                                                                           | D-5/225                       |
| CLASSIFICATION 2" FEEDER VALVE<br>— ASSEMBLY —<br>LINTS ON DIMENSION UNLEW OAK ROGE NATIONAL LABORATORY<br>OFENENE AFTORES<br>OFENENE AFTORES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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Sh. # 1                                                                                                                                                                                                                                                                                                                                                                                           | D-51222                       |
| ASSEMBLY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ASSEMBLY     ASSEMBLY     ASSEMBLY     ASSEMBLY     ONA ROBE NATIONAL LABORATORY     OTHERMENT     SPECTRUE     COMPANY     DEVIAULE     DEVIAULE     COMPANY     DEVIAULE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ASSEMBLY     ASSEMPLY     ASSEMBLY     ASSEMBLY     ASSEMBLY     ASSEMPLY                                                    |         |              |             | 2" Feeder Volve - Det. Sh. # 1<br>REFERENCE DRAWINGS                                                                                                                                                                                                                                                                                                                                                                     | D:51222<br>DWG. NO.           |
| LEATS ON ONEDWOONS UNLESS OAK ROCE NATIONAL LABORATORY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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Sh. # 1<br>REFERENCE DRAWINGS<br>THORIUM U <sup>235</sup> FUEL ROD FACILITY                                                                                                                                                                                                                                                                                                                       | D:51222<br>DWG. NO.           |
| the constructed second                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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Sh. # 1<br>REFERENCE DRAWINGS<br>THORIUM U <sup>235</sup> FUEL ROD FACILITY<br>2" FEEDER VALVE                                                                                                                                                                                                                                                                                                    | D:51222<br>DWG. NO.           |
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                                                                                                                                                                                                                                                      | DECIMALS 2 DIVISION OF UNION CANSIDE CORPORATION<br>OAK RUCK, TANKASSAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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St. # 1<br>REFERENCE DRAWINGS<br>THORIUM U <sup>233</sup> FUEL ROD FACILITY<br>2" FEEDER VALVE<br>— ASSEMBLY                                                                                                                                                                                                                                                                                      | D:51222<br>DWG. NO.           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         | SHITE ON DIA |             | 2" Feeder Volve - Det. Sb. # 1<br>NETENENCE DRAWINGS<br>THORIUM U <sup>235</sup> FUEL ROD FACILITY<br>2" FEEDER VALVE<br>— ASSEMBLY<br>UNILSW OAK RODE NATIONAL LABORATORY<br>ORBATION FY                                                                                                                                                                                                                                | D-51222<br>DWG. NO.           |
| DECIMALE: 2 DECIMALE: 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Chaminan Mamartine Revenue                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |         | SHITE ON DIA |             | 2" Feeder Volve - Det. SS. # 1<br>REFERENCE DRAWINGS<br>THORIUM U <sup>235</sup> FUEL ROD FACILITY<br>2" FEEDER VALVE<br>— ASSEMBLY<br>OAK RODE NATIONAL LABORATORY<br>UNION CARBIDE NUCLEAR COMPA                                                                                                                                                                                                                       | D-51222<br>DWG. NO.           |
| ANOLER ± ANOLET                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Victamina N'Lamartine Revenue                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         | SHITE ON DIA |             | 2" Feeder Volve - Det. Sb. # 1         REFERENCE DRAWINGS         THORIUM U <sup>235</sup> FUEL ROD FACILITY         N       2" FEEDER VALVE         — ASSEMBLY — UNION CABDO NATIONAL LABORATORY         UNION CARBIDE NATIONAL LABORATORY         UNION CARBIDE COPYDIATION         DIVION CARBIDE COPYDATION         OAK RODE NATIONAL LABORATORY         UNION CARBIDE COPYDATION         OMK RODE TRUELER COMPANIES | D-51222<br>DWG. NO.           |
| VIC Kamun N'LUMARTINA / MERIANIA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | AX 3424 ELDON                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         | SHITE ON DIA |             | 2" Feeder Volve - Def. Sb. # 1         REFERENCE DRAWINGS         THORIUM U <sup>235</sup> FUEL ROD FACILITY         2" FEEDER VALVE                                                                                                                                                                                                                                                                                     | D:51222<br>DHA NO.<br>M. 3019 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 10 parmin Vilamaitue 2010                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | •       | SHITS ON DIA |             | 2" Feeder Volve - Det. Sb. # 1         REFERENCE DRAWINGS         THORIUM U <sup>235</sup> FUEL ROD FACILITY         N       2" FEEDER VALVE         — ASSEMBLY — UNION CABDO NATIONAL LABORATORY         UNION CARBIDE NATIONAL LABORATORY         UNION CARBIDE COPYDIATION         DIVION CARBIDE COPYDATION         OAK RODE NATIONAL LABORATORY         UNION CARBIDE COPYDATION         OMK RODE TRUELER COMPANIES | D-51222<br>DWG. NO.           |



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| PARTS LIST  |                                                                |                     |  |  |  |
|-------------|----------------------------------------------------------------|---------------------|--|--|--|
| NO.<br>REQD | DESCRIPTION (NAME, SIZE, ETC.)                                 | MATERIAL            |  |  |  |
| I I         | Notor                                                          | Steel               |  |  |  |
| 4           | Screw, hex hd. mach. 3/8-16NC-2 x i i/4 ig.                    | Steel               |  |  |  |
| 4           | Washer, flat, 3/8 nom. (med.)                                  | Steel               |  |  |  |
| 4           | Nut, hex, 3/8-16MC-2                                           | Steel               |  |  |  |
| 4           | Lock washer - 3/8 nom. (med.)                                  | Steel               |  |  |  |
| 1<br>5      | Oldham coupling<br>Thrust bearing, 3/4 OD x .390 ID x 1/32 thk | Drill Rod<br>Bronze |  |  |  |
| i           | Hanger                                                         | Stee!               |  |  |  |
| 1           | Motor support bracket                                          | Steel               |  |  |  |
| 2           | Gasket retainer – #301883-15                                   | 55T                 |  |  |  |
| 2           | Coupling - #55381-18                                           | 55T                 |  |  |  |
| 2           | Gasket - #301885-1                                             | Rubber              |  |  |  |
| 2           | Flange                                                         | 316 SST             |  |  |  |
| 4           | Screw, soc hd cap, 1/4-20MC-2 x 2 3/4 1g.                      | Steel               |  |  |  |
| 4           | Washer, flat - 1/4 nom. (med.)                                 | Steel               |  |  |  |
| 4           | Lockwasher - 1/4 nom. (med.)                                   | Steel               |  |  |  |
| 4           | Nut, hex, 1/4-20NC-2                                           | Steel               |  |  |  |
| 2           | 0-ring, 3/8 ID x 1/2 OD x 1/16 W. AN-6227-7                    | Neoprene            |  |  |  |
| 1           | Shaft                                                          | 316 SST             |  |  |  |
| 2           | Bearing                                                        | Bronze              |  |  |  |
| 8           | Screw, F.H. meech - #8-32NC-2 x 5/16 lg.                       | SST                 |  |  |  |
| 2           | Bolt, carriage - 5/16-18MC-2 x 1 1/2 1g.                       | Steel               |  |  |  |
| 2           | Nut, wing - 5/16-18NC+2                                        | Steel               |  |  |  |
| 4           | Retainer                                                       | 816 SST             |  |  |  |
| 4           | 31 ade                                                         | Rubber              |  |  |  |
| 1           | Body                                                           | 316 35T             |  |  |  |

ADDREASES BIFILAR MOTOR, TYPE X-1000-1002, THE SUPERAR Electric Co, Bristol, Conn.

 Thrust bearing, oil impregnated bronze, #TB-612, Boston Gear Works, Quincy 71, Mass.

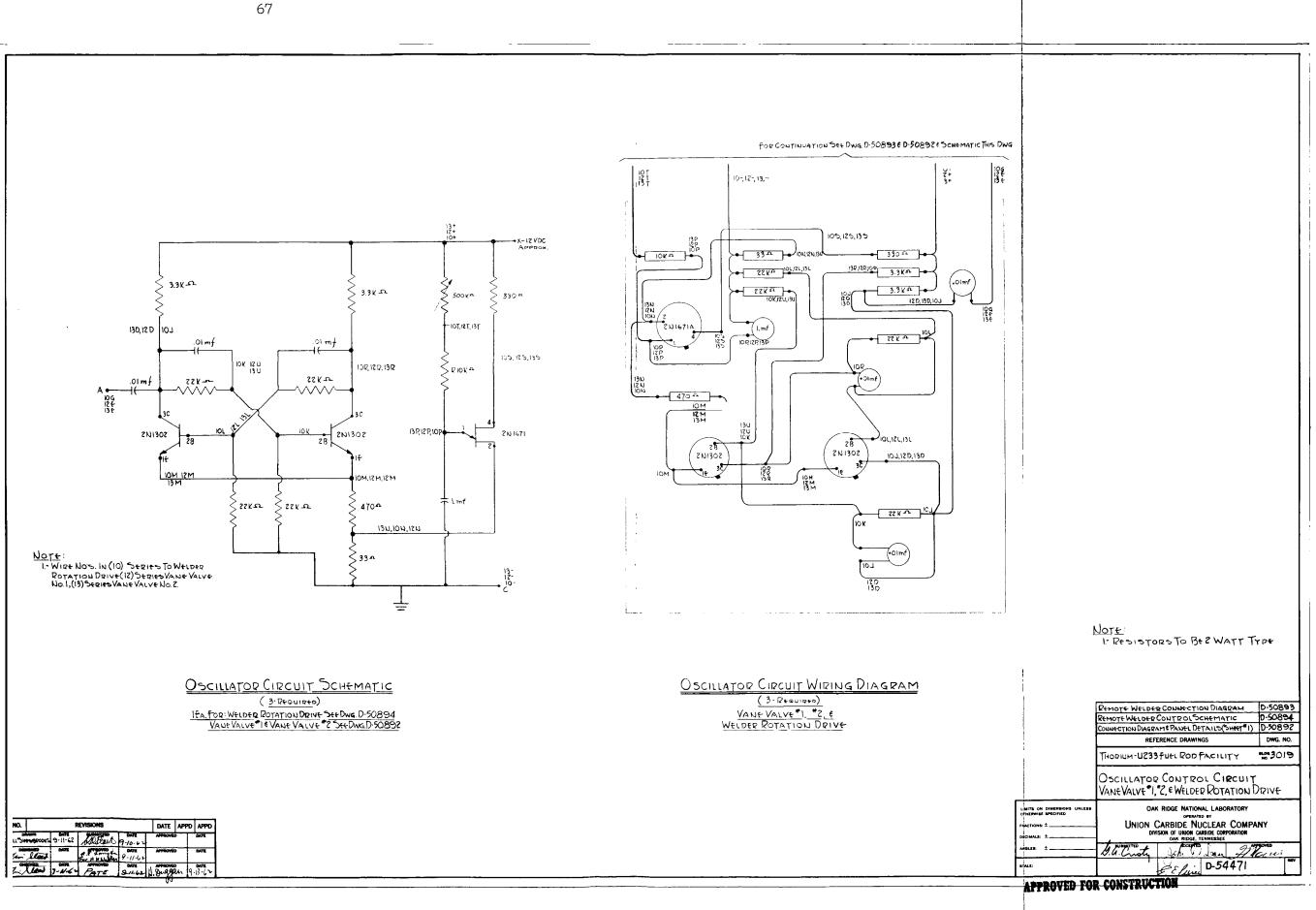
 Parts 12, 13, 14, and 26 are obtained from Flexmaster pipe joint #6500-1-288, Industrial Catalog No. 803, Aeroquip Marman Division, Los Angeles, Calif.

|        | UNION CARBIDE NUCLEAR COMPA                                      | NY       |
|--------|------------------------------------------------------------------|----------|
|        | OAK RIDGE NATIONAL LABORATORY                                    | -        |
| CATION | I' FEEDER VALVE<br>—ASSEMBLY—                                    |          |
|        | REFERENCE DRAWINGS<br>THORIUM U <sup>233</sup> FUEL ROD FACILITY | DWA. NO. |
|        | 1" Feeder Valve - Detail 35,*2<br>1" Feeder Valve - Detail 35,*1 | D-SROI   |

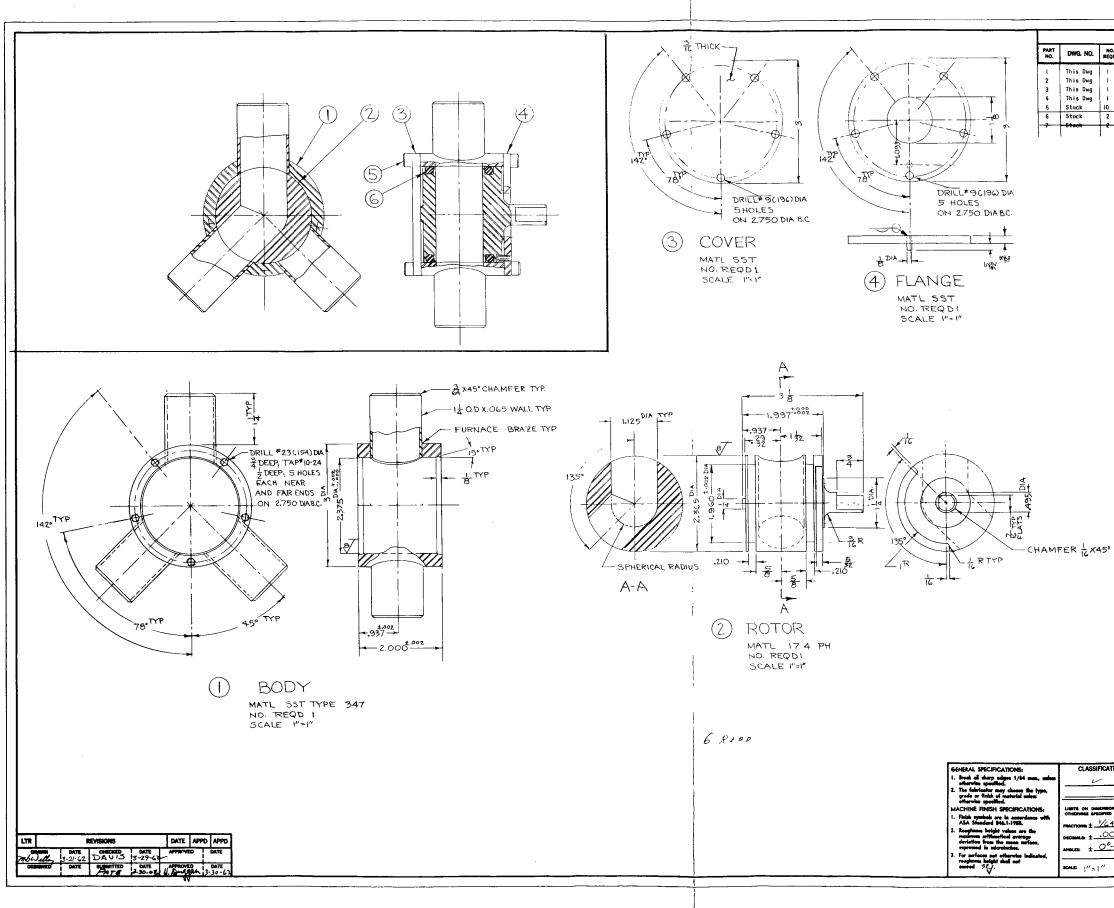


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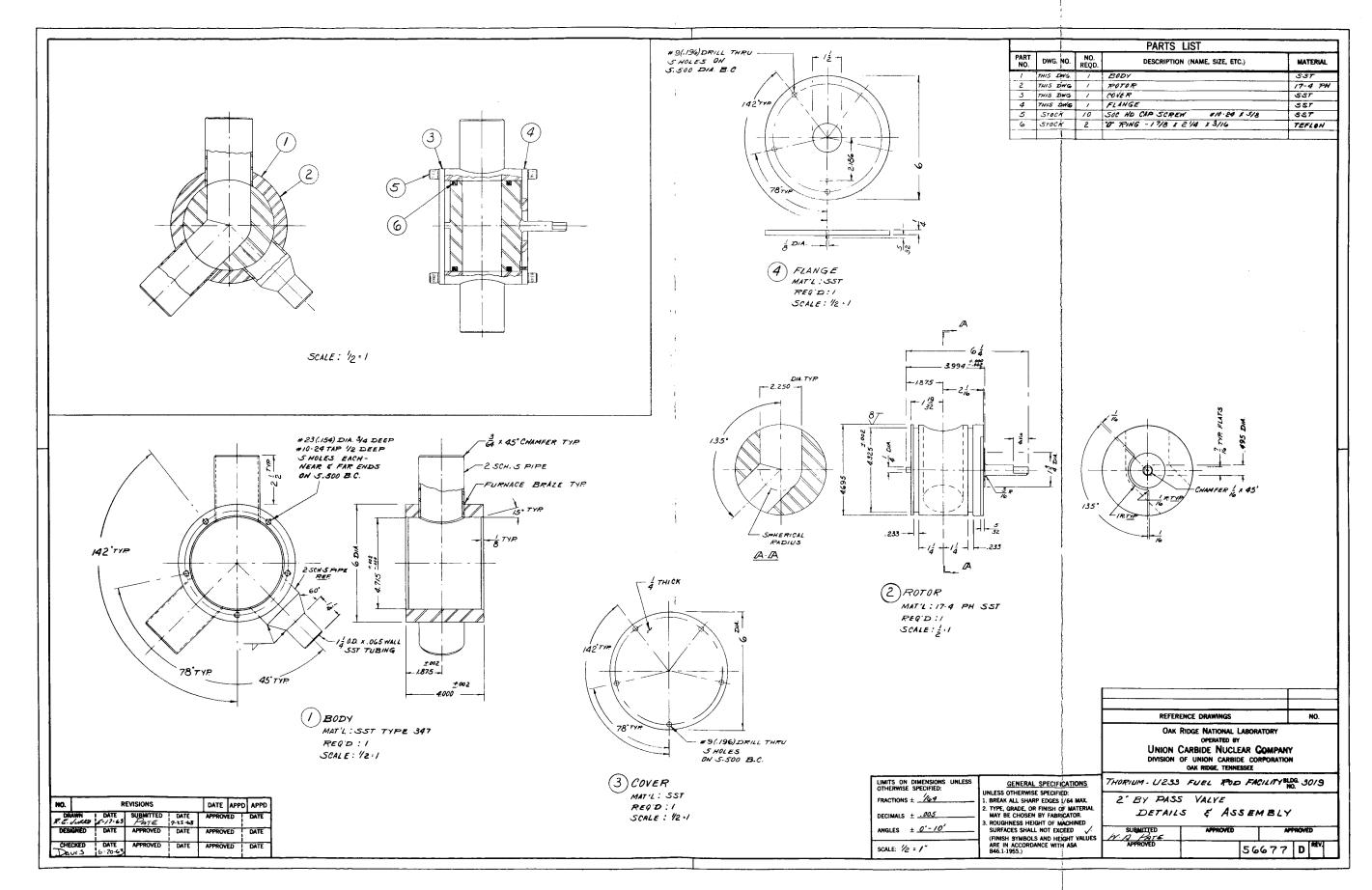


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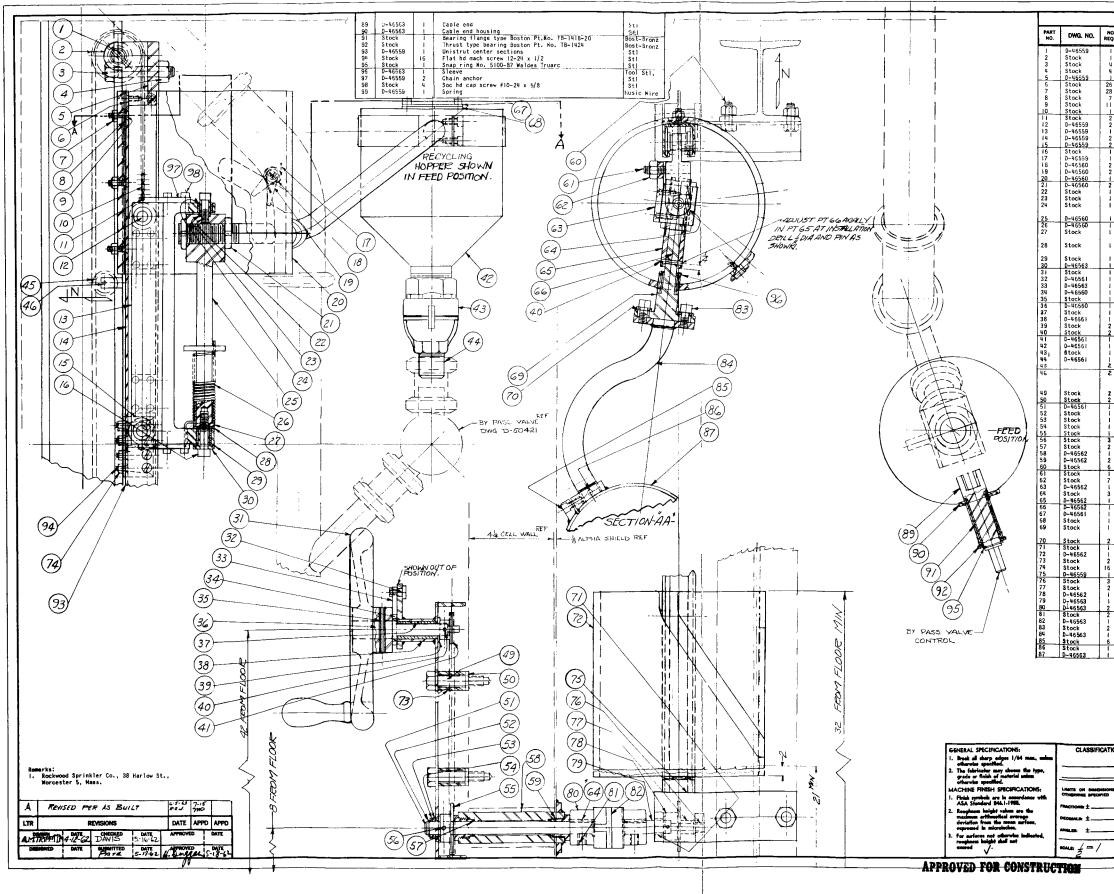


| PARTS LIST  |                                 |          |  |  |  |
|-------------|---------------------------------|----------|--|--|--|
| NO.<br>REQD | DESCRIPTION (NAME, SIZE, ETC.)  | MATERIAL |  |  |  |
| 1           | Body                            | SST      |  |  |  |
|             | Rotor                           | 17-4 PH  |  |  |  |
|             | Cover                           | SST      |  |  |  |
| 1           | Flange                          | SST      |  |  |  |
| 10          | Soc hd cap screw #10-24 x 5/8   | SST      |  |  |  |
| 2           | "0" ring - 1 7/8 x 2 1/4 x 3/16 | Neoprene |  |  |  |
| 12          | Gup point set screw #6-32 x 1/4 |          |  |  |  |

|              | REFERENCE DRAWINGS                                                                                                                            | DWG. N | 0. |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------|----|
|              | THORIUM-U233 FUEL ROD FACILITY                                                                                                                | 30     | 19 |
| FICATION     | BYPASS VALVE<br>DETAIL & ASSEMBLY                                                                                                             | ٢      |    |
| 1/64<br>.005 | OAK RIDGE NATIONAL LABORATORY<br>ordented by<br>UNION CARBIDE NUCLEAR COMPAI<br>dynamic carbide conformation<br>by under carbide conformation | NY     |    |
| 0°-10'       | Retamining Hassarduse III                                                                                                                     | aun    |    |
| "            | SEPiero D-504                                                                                                                                 | 21     |    |



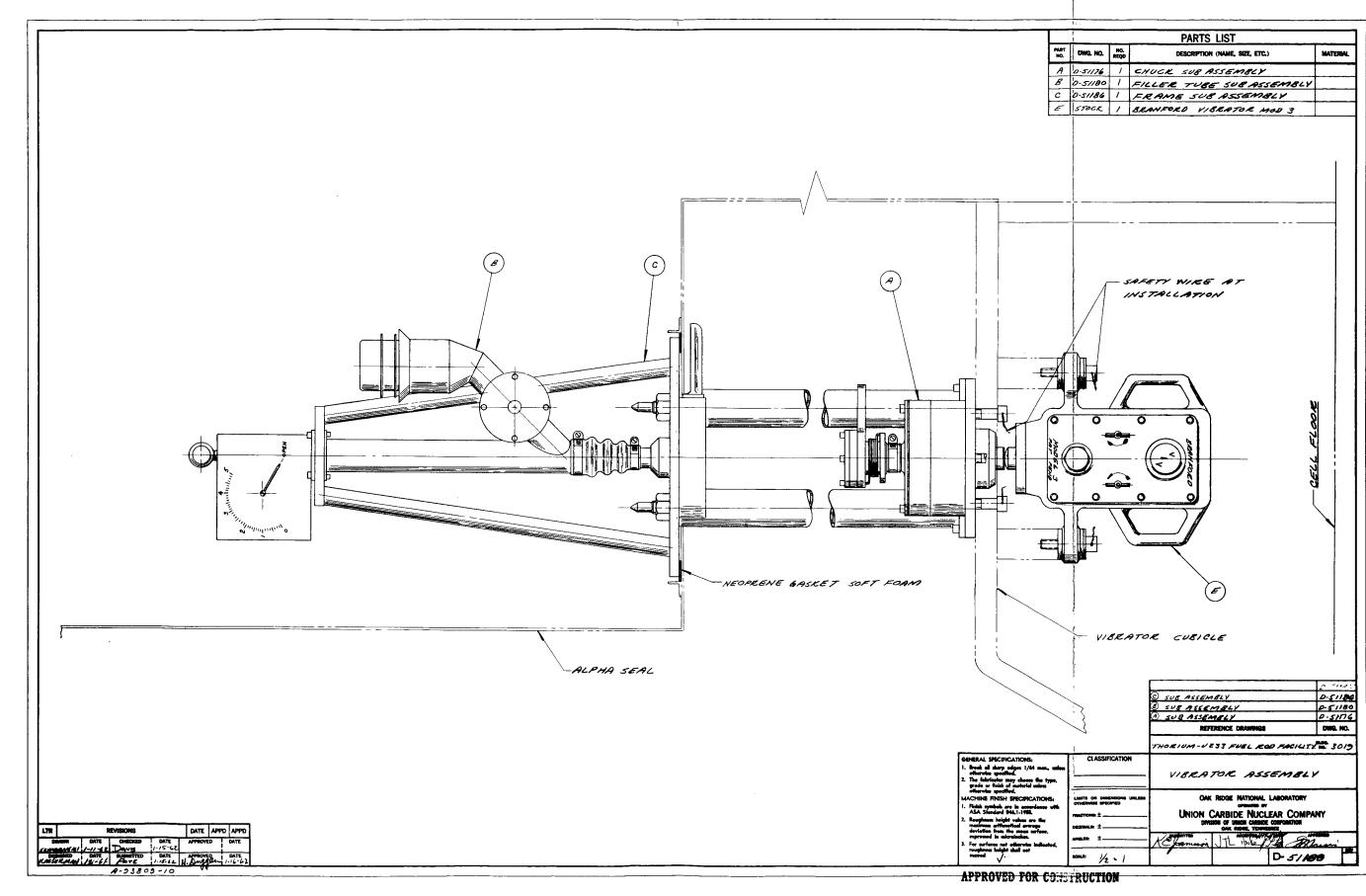
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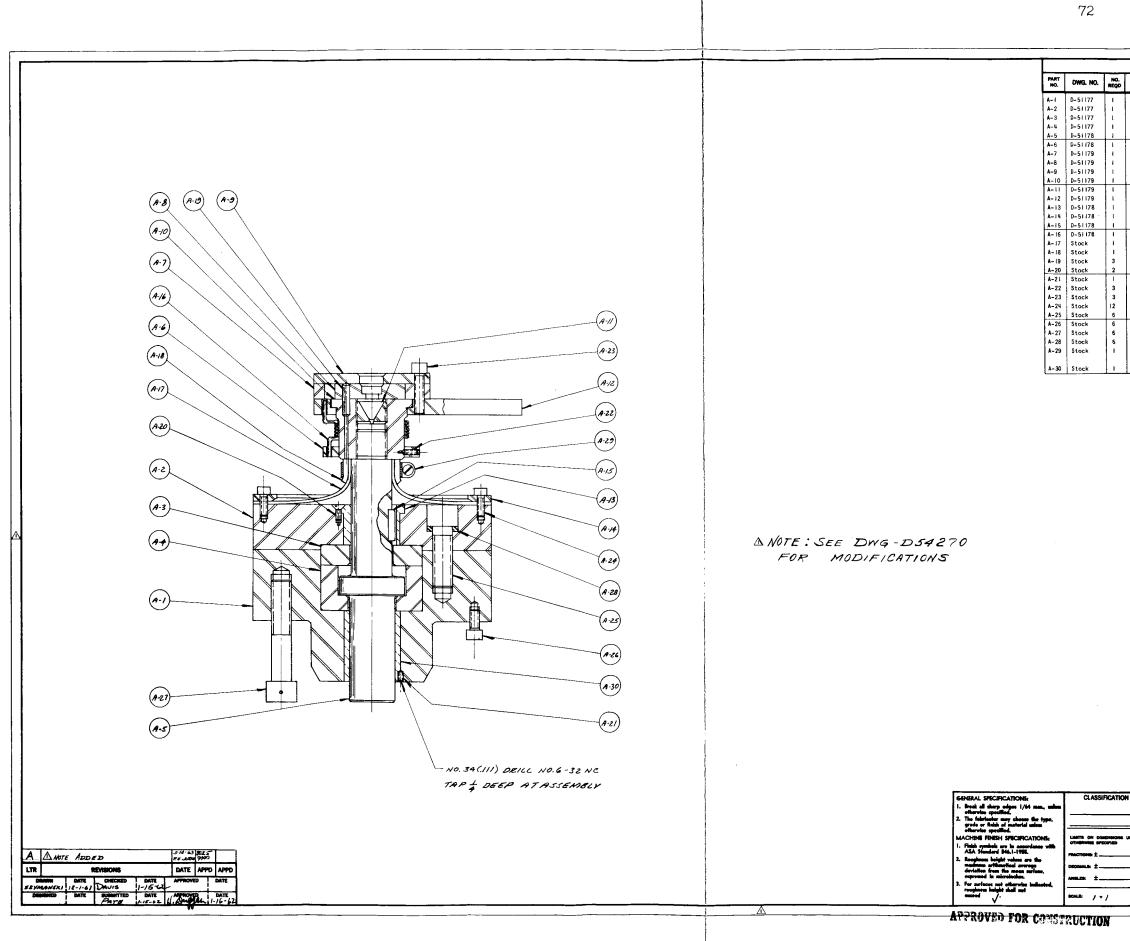
|          | PARTS LIST                                                                                                                                                                                                          |                                 |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
|          | DESCRIPTION (NAME, SIZE, ETC.)                                                                                                                                                                                      | MATERIAL                        |
|          | op shaft                                                                                                                                                                                                            | Drill Rod                       |
| H        | procket, Boston Cat. No. K2530, page 158<br>ex hd mach screw, 1/2-13 x 3<br>or not 1/2 12                                                                                                                           | St1<br>St1                      |
| S.       | xx nut, 1/2-13<br>rocket support<br>at hd mach screw, 1/4-20 x 5/8<br>x nut, 1/4-20<br>sher, 1/4<br>at hd mach screw, 1/4-20 x 1<br>ain, Boston 1/4 pitch Chain No, 25 43 ft.<br>32 rollpin, 1/2 long<br>olley Assy | Stl<br>Stl                      |
| F<br>N   | at hd mach screw, 1/4-20 x 5/8<br>x nut, 1/4-20                                                                                                                                                                     | St)<br>Stl                      |
| W.       | isher, 1/4<br>at hd mach screw. 1/4-20 x 1                                                                                                                                                                          | St1<br>St1                      |
| C 3      | ain, Boston 1/4 pitch Chain No. 25 43 ft.                                                                                                                                                                           | St1                             |
| Ť        | olley Assy<br>mriage                                                                                                                                                                                                |                                 |
| U        | istrut top and bottom                                                                                                                                                                                               | St1<br>St1                      |
| 1 5      | cket hd cap screw 3/8-16 x 1 3/4                                                                                                                                                                                    | Stl<br>Stl                      |
| l SI     | ning<br>oulder screw                                                                                                                                                                                                | Music Wire<br>Sti               |
| S<br>C   | ning dog<br>m, 8" Sch 40 pipe                                                                                                                                                                                       | stl<br>Stl                      |
|          | T Special                                                                                                                                                                                                           | Sti<br>Sti                      |
| S P      | c hd mach screw 5/16-18 x 1<br>ft stl bushing 5/16 1D x 1/2 0D x 3/4 Boston Cat.<br>ain cylindrical type .502 1D .753 0D x 1/2 (B812-4)                                                                             | Page 628                        |
| 1 01     | ston<br>aft                                                                                                                                                                                                         | Bronze                          |
| S        | ring<br>rdenad stl thrust washer 5/8 ID x i i/4 OD x 3/16                                                                                                                                                           | Sti<br>Music Wire               |
| 1 54     | ston page 629                                                                                                                                                                                                       |                                 |
| , ci     | sher thrust type .628 ID 1" OD x 1/8 Boston page 58<br>t. No. TBI019                                                                                                                                                | 2                               |
| 50       | t. No. TBIO19<br>shing flange type, Boston Cat. No. F8-1012-8 cut to<br>ft_stl_bushing                                                                                                                              | 7/8 LG.<br>\$t1<br>. <b>66.</b> |
|          | unter balanced wheel, Cat. No. WRS10, Reid Tool Sup<br>N                                                                                                                                                            | . 66.<br>Sti                    |
| Pa<br>Ra | n<br>1 i/4 thick, Grant Gear Works Boston 27<br>tchet, Part No. 593, Grant Gear Works, Boston 27, M<br>Ilpin, 3/16 dia x 2<br>aft<br>aft ain cyl type bearing. Cat. No. BiDi¥−16 Boston Boa                         | brats<br>858. Brass             |
| Re       | llpin, 3/16 dia x 2                                                                                                                                                                                                 | \$t]                            |
| PI       | ain cyl type bearing, Cat. No. B1014-16 Boston Bos                                                                                                                                                                  |                                 |
| Wa       | sher thrust type Pt. No. TR-1019 Rosten i                                                                                                                                                                           |                                 |
|          | rocket Cat. No. K2515 Boston                                                                                                                                                                                        | Stl.                            |
| V Ve     | pper<br>1ve 2* Rockwood Figure 🗰 Tefton Seals                                                                                                                                                                       | 347 SST<br>316 \$8T             |
| FE N     | DER SPECIAL<br>NER SPEROCKET BOSTON GEAR                                                                                                                                                                            | 316 <b>35</b> T<br>4rl          |
| 17       | RACKET (CHANNEL AS REQ'D)                                                                                                                                                                                           | STL.                            |
| Ne       | x he mach acrew 1/2-13 x 2 1/4                                                                                                                                                                                      | \$t]                            |
|          | x hd mach screw 1/2-13 x 2 1/4<br>sher, 1/2 Std. extra heavy, .162 thick<br>aft                                                                                                                                     | Stl.                            |
| Sr       | ap ring No. 5100-62 Waldes Truarc                                                                                                                                                                                   | Stl                             |
| Be       | aring flange type Cat. No. FB-1012-4 Boston Bo                                                                                                                                                                      | Sti<br>t-Bronz                  |
| RC       | Trocket Boston Cat. No. K2530 bore 5/8 hole<br>Tipin 3/16 dia x i 3/8<br>" ring 5/8 ID x 13/16 OD x 3/32 AN-6227-12                                                                                                 | <u>Sti</u><br>Sti<br>Neoprene   |
| #<       | using                                                                                                                                                                                                               | Neoprene<br>\$tl                |
| Bu       | shing<br>x hd mach screw 3/8-16 x l                                                                                                                                                                                 | 31)<br>81)                      |
| 1.16     | x nut 3/8–16                                                                                                                                                                                                        | Sti<br>Sti                      |
| St       | op strap<br>y, 1/8 x 1/8 x 1 Keystock                                                                                                                                                                               | \$t1<br>5+1                     |
| Ad       | justable guide                                                                                                                                                                                                      | St1<br>1045 St1                 |
| Ga<br>Ga | sket retainer<br>sket, 3" OD x I" ID x I/16 thick<br>pe DC needle bearing No. B-1212 Torrington, South                                                                                                              | Stl<br>Neoprene                 |
| Ty       | pe DC needle bearing No. B-1212 Torrington, South<br>nd 21, Ind.                                                                                                                                                    | HOUP! ONE                       |
| Th       | ust washer Boston 3/8 ID, 5/8 00 x 1/8 Harde<br>ange type bushing Boston Cat. No. FB-1012-4 Bost                                                                                                                    | ned atl<br>-Bronz               |
| Bo       | ttom cam 8" Sch 40 pipe                                                                                                                                                                                             | \$t1                            |
| Sp<br>He | acers 1/2 Sch 4/0pipe x   5/16 1g.<br>x nut  2-24                                                                                                                                                                   | St]<br>Stl                      |
|          |                                                                                                                                                                                                                     | Stl<br>-Bronz                   |
| Sp<br>Sp | ange type bushing Boston Cat. No. FB-68-4 Bost<br>acer bushing Boston 3/4 OD 5/8 ID x 1/2<br>rocket, Boston Cat. No. K2530 page 158 Alte                                                                            | Sti<br>red Sti                  |
| i su     | aft tham coupling ends                                                                                                                                                                                              | Sti                             |
| 1 50     | set screw 3/8-16 x   1/2                                                                                                                                                                                            | Stl<br>Stl                      |
| \$0      | hd cap screw 3/8-16 x 7/8                                                                                                                                                                                           | DILITE<br>Sti                   |
| So       | hd cap screw 1/4-20 x 5/8                                                                                                                                                                                           | \$t]<br>\$t]                    |
| st st    |                                                                                                                                                                                                                     | Stl<br>Stl                      |
|          | RECYCLING HOPPER DETS SHEET /                                                                                                                                                                                       | 0-46539                         |
|          | * '' 2                                                                                                                                                                                                              | D-46560                         |
|          | <u> </u>                                                                                                                                                                                                            | D-46561<br>D-46562              |
|          |                                                                                                                                                                                                                     | D-46563                         |
|          |                                                                                                                                                                                                                     | DWG. NO.                        |
|          |                                                                                                                                                                                                                     |                                 |
|          | THORIUM-U233 FUEL ROD FACILITY                                                                                                                                                                                      | 30/9                            |
| N        | RECYCLING HOPPER                                                                                                                                                                                                    |                                 |
|          | ASSEMBLY                                                                                                                                                                                                            |                                 |
|          |                                                                                                                                                                                                                     |                                 |
| UNLEN    | OAK RIDGE NATIONAL LABORATORY                                                                                                                                                                                       |                                 |
|          | UNION CARBIDE NUCLEAR COMPAN                                                                                                                                                                                        | IY .                            |
|          | DIVISION OF UNION CARBIDE CORPORATION<br>CAK RIDGE, TENNESSEE                                                                                                                                                       |                                 |
|          | ACCEPTED ACCEPTED                                                                                                                                                                                                   |                                 |
|          | Chamicon J.D. Jean The<br>D-46552                                                                                                                                                                                   |                                 |
|          |                                                                                                                                                                                                                     |                                 |



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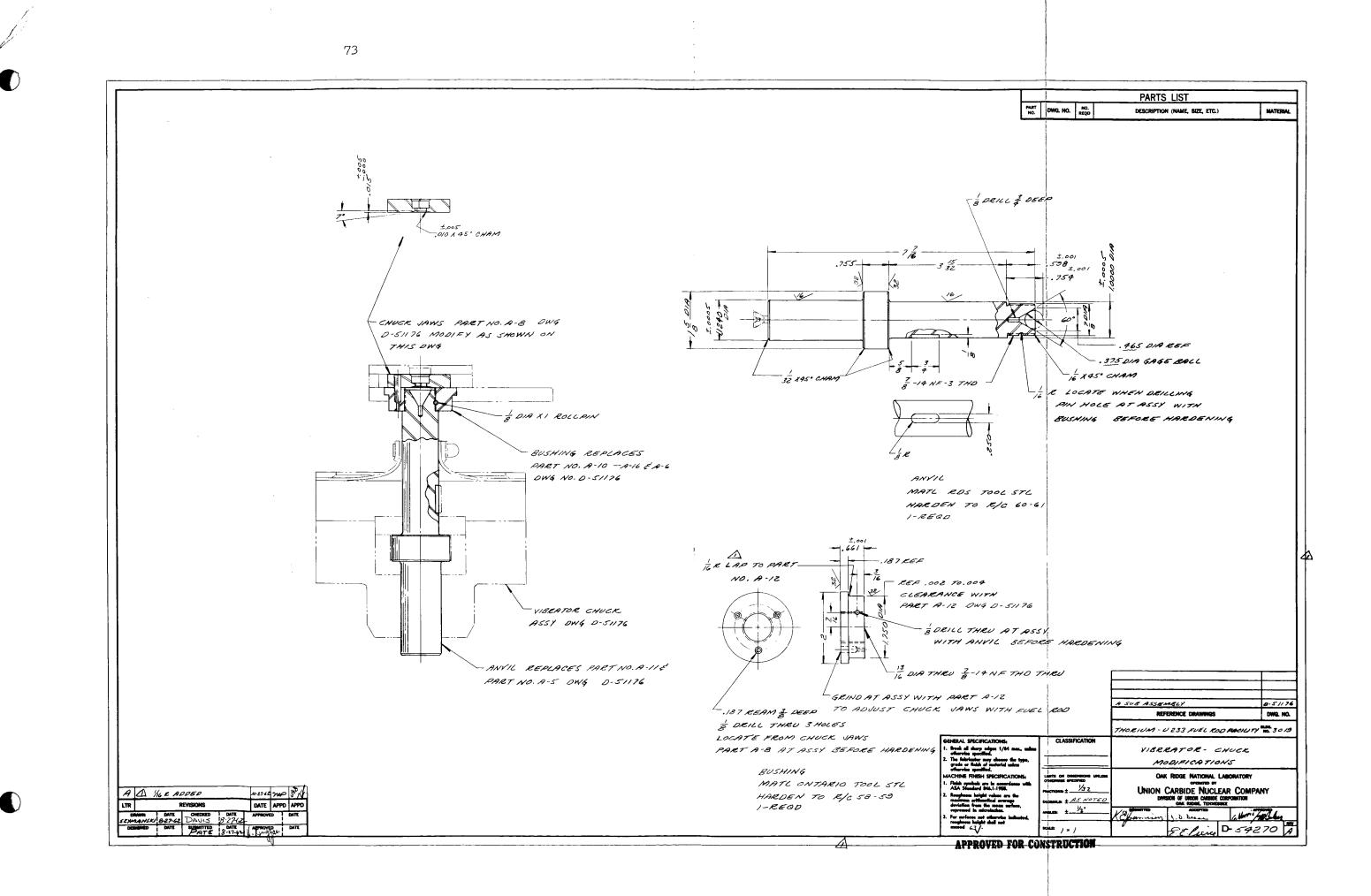


| NO.<br>Option         DESCRIPTION (NAME, SIZE, ETC.)         MATERNAL           Housing<br>Cover         Sti           Striker plate         RDS Tool Stl.           Retainer bushing         RDS Tool Stl.           Anvil         RDS Tool Stl.           I         Tension ring           Cam         OH Tool Stl.           I         Tension ring           Cam         OH Tool Stl.           I         Retainer plate           Bushing         RDS Tool Stl.           I         Bushing           I         Bushing           I         Chuck lever           Bushing foston gear No. FB-1622-8           Bushing foston gear No. FB-1622-8           Bushing foston gear No. FB-1622-8           I         Torsion spring           I         Torsion spring           Stl         Stl           I         Diabnegs I/4 ID x 5 7/8 0D x 1/16           I         Torsion spring           I         Stl           Soc set screw No. 6-32NC x 1/4           Stl         Stl           I         Soc set screw No. 6-32NC x 1/4           Stl         Stl           I         Soc head cap screw I/4-28NF x 1/2 <tr< th=""><th>_</th><th></th><th>PARTS</th><th>LIST</th><th></th><th></th><th></th></tr<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | _         |       | PARTS                                                                                             | LIST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                            |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Housing     Sti       Cover     Sti       Striker plate     RDS Tool Sti.       Retainer bushing     RDS Tool Sti.       Anvil     RDS Tool Sti.       Tension ring     Sti       Cam     OH Tool Sti.       Chuck jaws (set of 3)     OH Tool Sti.       Rushing     RDS Tool Sti.       Bushing     RDS Tool Sti.       Bushing     RDS Tool Sti.       Bushing Boston gear No. FB-1622-28     Bronze       Retaining ring     Sti       Key     Sti       Torsion spring     SST Spring Wire       Diabhragm 1/4 ID x 5 7/8 0D x 1/16     Neoprene       Torsion spring     SST Spring Wire       Dowel 3/16 dia. x 3/4     Sti       Soc set screw No. 6-32NC x 1/4     Sti       Soc set screw No. 6-32NC x 1/4     Sti       Soc had cap screw 1/4-22NF x 1     Sti       Soc had cap screw 1/4-22NF x 1     Sti       Soc had cap screw 1/4-22NF x 1 1/2     Sti       Soc had cap screw 1/4-22NF x 1 1/2     Sti       Soc had cap screw 1/4-20NF x 1/2     Sti       Soc had cap screw 1/4-20NF x 1/2     Sti       Soc had cap screw ross drilled 1/2-13NC x 2 1/2     Sti       Soc had cap screw ross drilled 1/2-13NC x 2 1/2     Sti       Soc had cap screw ross drilled 1/2-13NC x 2 1/2<                                                                                                                                                                                          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| Striker plate     RDS Tool Stl.       Retainer bushing     RDS Tool Stl.       Anvil     RDS Tool Stl.       Tension ring     Stl       Can     OH Tool Stl.       Chuck jaws (set of 3)     OH Tool Stl.       Retainer plate     OH Tool Stl.       Bushing     RDS Tool Stl.       Bushing     RDS Tool Stl.       Bushing     RDS Tool Stl.       Chuck lever     OH Tool Stl.       Bushing Boston gear No. FB-1622-8     Bronze       Retaining ring     Stl       Key     Stl       Torsion spring     Stl       Diaphragen I/4 ID x 5 7/8 0D x 1/16     Meoprene       Torsion spring     Stl       Soc set screw No. 6-32NC x 3/8     Stl       Soc set screw No. 6-32NC x 1/4     Stl       Soc head cap screw I/4-20NF x 1/2     Stl<                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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| Anvil         RDS Tool Sti.           I Tension ring         Sti           I Cam         OH Tool Sti.           Chuck jaws (set of 3)         OH Tool Sti.           Retainer plate         OH Tool Sti.           Bushing         RDS Tool Sti.           Bushing         RDS Tool Sti.           Bushing         RDS Tool Sti.           Chuck jaws (set of 3)         OH Tool Sti.           Bushing         RDS Tool Sti.           Bushing         RDS Tool Sti.           Bushing Boston gear No. FB-1622-8         Bronze           Retaining ring         Sti           I Torsion spring         SST Spring Wire           J Torsion spring         ISST Spring Wire           I Tousion spring         SST Spring Wire           J Dowel 3/16 dia. x 3/4         Sti           J Soc set screw No. 6-32NC x 1/4         Sti           J Soc set screw No. 6-32NC x 1/4         Sti           J Soc set screw No. 10-32NF x 1/2         Sti           Soc head cap screw 1/4-22NF x 1         Sti           J Soc head cap screw 1/2-20NF x 1/2         Sti           Soc head cap screw 1/2-20NF x 1/2         Sti           Soc head cap screw rorsa drilled 1/2-13NC x 2 1/2         Sti           Soc head cap scre                                                                                                                                                                                                                                                                                          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| Tension ring         St1           Cam         OH Tool St1.           Chuck jaws (set of 3)         OH Tool St1.           Retainer plate         DH Tool St1.           Bushing         RDS Tool St1.           Bushing         RDS Tool St1.           Chuck lever         RDS Tool St1.           Bushing Doston gear No. FB-1622-8         RDS Tool St1.           Bushing Doston gear No. FB-1622-8         Bronze           Retaining ring         St1           Torsion spring         St1           Diphragn 1/4 ID x 5 7/8 0D x 1/16         Neoprene           Tubing 1/8 ID x 5 7/8 0D x 1/2         Tygon           St1         Soc set screw No. 6-32NC x 3/8         St1           1         Soc set screw No. 6-32NC x 1/4         St1           3         Soc head cap screw No. 6-32NC x 1/4         St1           3         Soc head cap screw No. 6-32NF x 1         St1           4         Soc head cap screw No. 6-32NF x 1/2         St1           5         Soc head cap screw No. 10-32MF x 1/2         St1           6         Soc head cap screw No. 10-32MF x 1/2         St1           5         Soc head cap screw rorso scrilled 1/2-13MC x 2 1/2         St1           6         Soc head cap screw rorso fartiled 1/2-                                                                                                                                                         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| Chuck jaws (set of 3)<br>Retainer plate         OH Tool Stl.<br>H Tool Stl.<br>DH Tool Stl.<br>RDS Tool Stl.<br>DH Tool Stl.<br>RDS Tool Stl. |           |       |                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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| I         Retainer plate<br>Bushing         OH Tool Stl.<br>RDS Tool Stl.           I         Bushing         RDS Tool Stl.<br>OH Tool Stl.           I         Bushing Boston gear No. FB-1622-8         RDS Tool Stl.<br>OH Tool Stl.           I         Chuck lever         Bushing Boston gear No. FB-1622-8           I         Retaining ring         Stl           I         Torsion spring         Stl           I         Disphrage I/4 ID x 5 7/8 0D x 1/16         Neoprene           I         Disphrage I/4 ID x 5 7/8 0D x 1/16         Neoprene           I         Disphrage I/4 ID x 5 7/8 0D x 1/16         Neoprene           I         Jonel 3/16 dia. x 3/4         Stl           J         Flat head machine screw No. 6-32NC x 3/8         Stl           I         Soc set screw No. 6-32NC x 1/4         Stl           Soc head cap screw I/4-20NF x 1         Stl         Stl           Soc head cap screw I/4-20NF x 1/2         Stl           G         Soc head cap screw I/4-20NF x 1/2         Stl           Soc head cap screw I/4-20NF x 1/2         Stl           Soc head cap screw rorso scrilled 1/2-13MC x 2 1/2         Stl           G         Soc head cap screw rorso fartilled 1/2-13MC x 2 1/2         Stl           Soc head cap screw rorso fartilled 1/2-13MC x 2 1/2 </td <td>1</td> <td></td> <td>tinue least of 2)</td> <td></td> <td></td> <td></td> <td></td>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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| Bushing         RDS Tool \$t1.           Duck lever         0H Tool \$t1.           Bushing Boaton gear No. FB-1622-8         0H Tool \$t1.           Bushing Boaton gear No. FB-1622-8         Bronze           Retaining ring         St1           I Torsion spring         St1           Tubing 11/8 10 x 1 3/8 00 x 1/16         Neoprene           Tubing 11/8 10 x 1 3/8 00 x 1/2         St1           J Dowel 3/16 dia. x 3/4         St1           Soc set screw No. 6-32MC x 1/4         St1           Soc set screw No. 6-32MC x 1/4         St1           Soc set screw No. 6-32MC x 1/4         St1           Soc head cap screw 1/4-22MF x 1         St1           Soc head cap screw 1/2-20MF x 1/2         St1           Soc head cap screw rorsa drilled 1/2-13MC x 2 1/2         St1           Dockwasher for soc. head cap screw 1/2 dia. screw         St1           Pipe clamp 11/4 to 1 1/2 dia. Cet. No. 0.3-25-553         St1           American Industrial and Scientific Company <td>•</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   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| I.         Chuck lever         OH Tool Stl.           Bushing Boston gear No. FB-1622-8         OH Tool Stl.           Retaining ring         Stl           1         Torsion spring           1         Torsion spring           1         Disphrage 1/4 ID x 5 7/8 0D x 1/16           1         Disphrage 1/4 ID x 5 7/8 0D x 1/16           1         Dowel 3/16 dia. x 3/4           2         Flat head machine screw No. 6-32NC x 3/8           3         Dowel 3/16 dia. x 3/4           1         Soc set screw cone point No. 8-35NF x 3/8           3         Soc head cap screw 1/4-28NF x 1           2         Soc head cap screw 1/4-28NF x 1/2           3         Soc head cap screw 1/2-20NF x 1/2           5         Soc head cap screw 1/2-20NF x 1/2           6         Soc head cap screw 1/2-20NF x 1/2           5         Soc head cap screw 1/2-20NF x 1/2           5         Soc head cap screw 1/2-20NF x 1/2           5         S                                                                                                                                                                                              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| I         Retaining ring         St1           1         Key         St1           1         Torsion spring         St1           1         Torsion spring         St1           1         Diabhragm 1/4 1D x 5 7/8 0D x 1/16         Meoprene           1         Tubing 1 1/8 1D x 1 3/8 0D x 1/2         St1           2         Dowel 3/16 dia. x 3/4         Tygon           2         Flat head maching screw No. 6-32NC x 3/8         St1           1         Soc set screw No. 6-32NC x 1/4         St1           3         Soc head cap screw No. 6-32NF x 1/2         St1           3         Soc head cap screw I/2-20NF x 1         St1           2         Soc head cap screw I/2-20NF x 1 1/2         St1           5         Soc head cap screw I/2-20NF x 1/2         St1           6         Soc head cap screw I/2-20NF x 1/2         St1           6         Soc head cap screw ross drilled 1/2-13NC x 2 1/2         St1           6         Lockwasher for soc. head cap screw 1/2         St1           7         Pipe clamp 1 1/4 to 1 1/2 dia. Cet. No. 0.5-25-S3         St1           1         Pipe clamp 1 1/4 to 1 1/2 dia. Cet. No. 0.5-25-S3         St1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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| Key         St1           1         Torsion spring         St7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1         |       |                                                                                                   | 5. FB-1622-8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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| I         Diaphragm 1/4 1D x 5 7/8 0D x 1/16         Neoprene           I         Tubing 1 1/8 1D x 1 3/8 0D x 1/2         Tygon           J         Dowel 3/16 dia. x 3/4         Sti           2         Flat head machine screw No. 6-32NC x 3/8         Sti           1         Soc set screw No. 6-32NC x 1/4         Sti           3         Soc set screw No. 6-32NC x 1/4         Sti           3         Soc set screw No. 6-32NF x 1/4         Sti           3         Soc head cap screw I/4-28NF x 1         Sti           2         Soc head cap screw I/2-20NF x 1 1/2         Sti           5         Soc head cap screw I/2-20NF x 1 1/2         Sti           6         Soc head cap screw I/2-20NF x 1 1/2         Sti           5         Soc head cap screw ross drilled 1/2-13MC x 2 1/2         Sti           6         Lockwasher for soc. head cap screw /2 dia. screw         Sti           7         Pipe clamp 1 1/4 to 1 1/2 dia. Cat. No. 0.3-25-SS         American Industrial and Scientific Company         Sti                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             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| 1         Tubing         1 /8 1D x i 3/8 0D x i/2         Tygon           3         Dowel         3/16 dia. x 3/4         Stl           3         Dowel         3/16 dia. x 3/4         Stl           4         Flat head machine screw No. 6-32NC x 3/8         Stl           1         Soc set screw No. 6-32NC x 1/4         Stl           3         Soc set screw cone point No. 8-36NF x 3/8         Stl           3         Soc head cap screw I/4-28NF x i         Stl           2         Soc head cap screw I/2-28NF x i         Stl           5         Soc head cap screw I/2-28NF x i 1/2         Stl           6         Soc head cap screw I/2-20NF x i 1/2         Stl           6         Soc head cap screw i/4-20NF x i 1/2         Stl           6         Soc head cap screw i/4-20NF x i 2/2         Stl           7         Soc head cap screw i/4-20NF x i 2/2         Stl           6         Lockwasher for soc. head cap screw i/2 dia. screw         Stl           1         Pipe clamp i 1/4 to i 1/2 dia. Cat. No. 0.5-25-SS         American Industrial and Scientific Company         Stl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             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| 2         Flat head machine screw No. 6-32NC x 3/8         Stl           1         Soc set screw No. 6-32NC x 1/4         Stl           3         Soc set screw cone point No. 8-36NF x 3/8         Stl           3         Soc head cap screw 1/4-28NF x 1         Stl           2         Soc head cap screw 1/4-28NF x 1         Stl           3         Soc head cap screw No. 10-32NF x 1/2         Stl           6         Soc head cap screw 1/2-20NF x 1 1/2         Stl           6         Soc head cap screw 1/2-20NF x 1 1/2         Stl           6         Soc head cap screw 1/2-20NF x 1/2         Stl           7         Soc head cap screw cross drilled 1/2-13NC x 2 1/2         Stl           7         Lockwasher for soc. head cap screw 1/2 dia. screw         Stl           9         Pipe clamp 1 1/4 to 1 1/2 dia. Cet. No. 0.3-25-SS         American Industrial and Scientific Company         ST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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| I         Soc set screw No. 6-32NC x 1/4         Stl           3         Soc head cap screw I/4-28NF x i         Stl           2         Soc head cap screw I/4-28NF x i         Stl           2         Soc head cap screw No. 10-32NF x i/2         Stl           5         Soc head cap screw I/2-20NF x i 1/2         Stl           6         Soc head cap screw i/4-20NF x i 1/2         Stl           6         Soc head cap screw i/4-20NF x i/2         Stl           6         Soc head cap screw i/4-20NF x i/2         Stl           7         Soc head cap screw i/4-20NF x i/2         Stl           6         Soc head cap screw i/2-20NF x i/2         Stl           7         Soc head cap screw i/2-20NF x i/2         Stl           8         Soc head cap screw i/2-20NF x i/2         Stl           6         Lockwasher for soc. head cap screw i/2 dia. screw stl         Pipe clamp i i/4 to i i/2 dia. Cat. No. 0.3-25-SS           1         Pipe clamp i i/4 to i i/2 dia. Cat. No. 0.3-25-SS         Stl           7         American Industrial and Scientific Company         ST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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| 3         Soc head cap screw I/4-28NF x I         St1           2         Soc head cap screw No. IO-32NF x I/2         St1           6         Soc head cap screw I/2-20NF x I/2         St1           6         Soc head cap screw I/2-20NF x I/2         St1           6         Soc head cap screw I/4-20NF x I/2         St1           6         Soc head cap screw ross drilled I/2-13NC x 2 I/2         St1           6         Lockwasher for soc. head cap screw i/2 dia. screw         St1           7         Pipe clamp I I/4 to I I/2 dia. Cat. No. 0.5-25-53         American Industrial and Scientific Company                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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| 2         Soc head cap screw No. 10-32NF x 1/2         Sti           5         Soc head cap screw 1/2-20NF x 1 1/2         Sti           6         Soc head cap screw 1/2-20NF x 1/2         Sti           7         Soc head cap screw r/vass drilled 1/2-13NC x 2 1/2         Sti           6         Soc head cap screw cross drilled 1/2-13NC x 2 1/2         Sti           7         Lockwasher for soc. head cap screw r/2 dia. screw         Sti           1         Pipe clamp 1 1/4 to 1 1/2 dia. Cst. No. 0.5-25-53         American Industrial and Scientific Company         Sti                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             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| 6     Soc head cap screw I/4-20NF x 1/2     St1       6     Soc head cap screw cross drilled 1/2-13NC x 2 1/2     St1       5     Lockwasher for soc. head cap screw I/2 dia. screw     St1       1     Pipe clamp I I/4 to I //2 dia. 6at. No. 0.5-25-55     St1       American Industrial and Scientific Company     St3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           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| 6     Soc head cap screw cross drilled 1/2-13NC x 2 1/2     Sti       5     Lockwasher for soc. head cap screw 1/2 dia. screw     Sti       1     Pipe clamp 1 1/4 to 1 1/2 dia. Cat. No. 0.5-25-53     Sti       American Industrial and Scientific Company     Sti                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           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| DETAIL SNEET I D-SIIT.<br>MAIN ASSEMBLY D-SIIE<br>REFERENCE DRAWINGS DWG. NO.<br>THORIUM-JESS FUEL ROD FAGILITY.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   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| DETAIL SWEET         D-SIIT           MAIN ASSEMBLY         D-SIIT           REFERENCE DRAWINGS         DWG. 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C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | NUC                        | _      | D-51171<br>D-5117<br>D-51185<br>DWG. 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| DETAIL SNEET I     D-SIII       MOUN ASSEMBLY     D-SIIIE       REFERENCE DRAWINGS     DWG. NO.       THORE UNAPULIES S FUEL ROO FAGILITY.     MAR. SOIS       ATION     VIBRATOR - CNUCK       ASUB - ASSEMBLY       OAK RIDGE NATIONAL LABORATORY OF MICH BAT       UNION CARRIDE NUCLER COMPANY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           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                                     | ANCC<br>LABORA<br>EAR C    | TORY   | 0-51174<br>0-5117<br>0-5118<br>0-5118<br>DWB NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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| DETAIL SNEET / D-S1/7.<br>MAIN ASSEMBLY D-S1/7.<br>MAIN ASSEMBLY D-S1/89<br>REFERENCE DRAWINGS DWG. NO.<br>THORE IUMA-UESS FLUEL ROD FAGILITY, MASSOID<br>VIBRATOR - CAUCK<br>ASUB - ASSEMBLY<br>OUNCON CARBIDE NUCLEAR COMPANY<br>UNION CARBIDE NUCLEAR COMPANY<br>DISCON OF UNON CASED COMPANY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |           |       | DETAIL SHI<br>DETAIL SHE<br>MAIN ASSEA<br>RE<br>THORIUM-U<br>VIBRA:<br>(A) SUB<br>OM<br>UNION     | TET 2<br>TET 1<br>TET 1<br>TE | LABORA<br>EAR C<br>CONFORM |        | 0-5117<br>0-5117<br>0-5118<br>DWR NO.<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>1115<br>111 |
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                                                                                                                                                                                                                                                                                                                                                                                                                                                     |           |       | DETAIL SHI<br>DETAIL SHE<br>MAIN ASSEA<br>THORIUM-U<br>VIBRAS<br>(A) SUB<br>OM<br>UNION<br>DUNION | TET 2<br>TET 1<br>TET 1<br>TE | AND C                      |        | 0-5117<br>0-5117<br>0-5118<br>DWR NO.<br>DWR NO.<br>NY                                                                                                                                                                                                                                                                                                                              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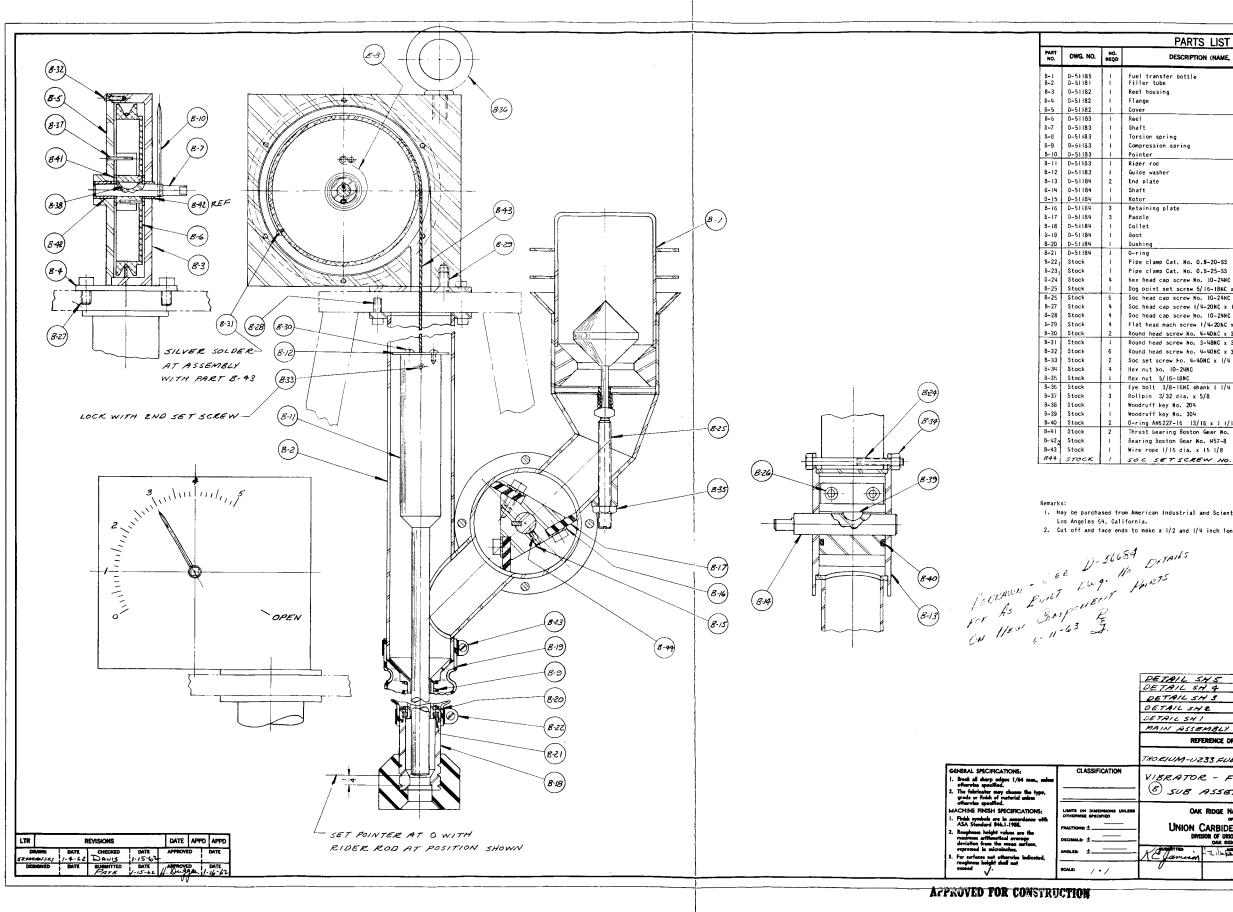


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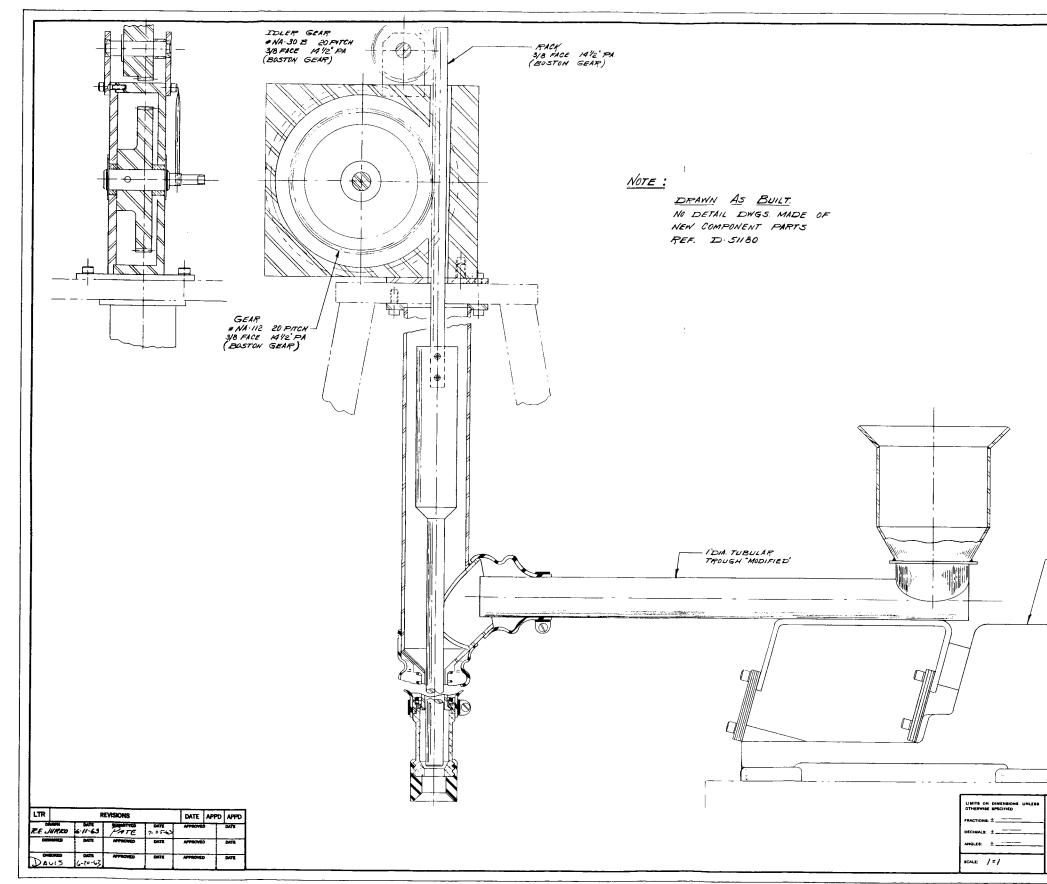
|            | PARTS LIST                                                        |         |                  |
|------------|-------------------------------------------------------------------|---------|------------------|
| NO.<br>EQD | DESCRIPTION (NAME, SIZE, ETC.)                                    |         | MATERIAL         |
|            | Fuel transfer bottle<br>Filler tube                               |         | As noted<br>SST  |
| 1          | Reel housing                                                      |         | St1              |
| Ł          | Flange                                                            |         | St1              |
| 1          | Cover                                                             |         | Stl              |
| 1          | Reel                                                              |         | Aluminum         |
| 1          | Shaft                                                             |         | Sti              |
| 1          | Torsion spring                                                    |         | Spring St        |
| 1          | Compression spring                                                |         | Spring Win       |
| 1          | Pointer                                                           |         | Drill Rod        |
| 1          | Rider rod                                                         | /ega T  | fool \$tl        |
| 1          | Guide washer                                                      | 1       | St1              |
| 2          | End plate                                                         |         | SST              |
| 1          | Shaft                                                             |         | Tool Stl         |
| 1          | Rotor                                                             |         | \$ST             |
| 3          | Retaining plate                                                   |         | \$\$T            |
| 3          |                                                                   | Bumper  | Rubber           |
| 1          | Collet                                                            | - 1     | As noted         |
| 1          | Boot                                                              |         | heoprene         |
| 1          | Bushing                                                           |         | Stl              |
| 1          | 0-ring                                                            |         | Teflon           |
| 1          | Pipe clamp Cat. No. 0.8-20-SS                                     |         | SST              |
| 1          | Pipe clamp Cat. No. 0.8-25-88                                     |         | SST              |
| 4          | liex head cap screw No. 10-24NC x 2 1/4                           |         | SST              |
| 1          | Dog point set screw 5/16-18NC x 2 3/4                             |         | SST              |
| 6          | Soc head cap screw No. 10-24NC x 1/2                              |         | SST              |
| 4          | Soc head cap screw I/4-20NC x I/2                                 |         | SST              |
| 4          | Soc head cap screw No. 10-24NC x 1/2                              |         | SST              |
| 4          | Flat head mach screw 1/4-20NC x 1/2                               |         | SST              |
| 2          | Round head screw No. 4-40NC x 3/16                                | -       | SST              |
| · 1        | Round head screw No. 3-48NC x 3/16                                |         | SST              |
| 6<br>2     | Round head screw No. 4-40NC x 3/8                                 |         | SST              |
| 2<br>U     | Soc set screw Ko. 4-40NC x 1/4<br>Hex nut No. 10-24NC             |         | SST              |
| 4          | Hex nut No. 10-24NC<br>Hex nut 5/16-18NC                          |         | SST              |
| +          | Ex nut 5/16-18MC<br>Eye bolt 3/8-16MC shank t 1/4 dia. eye        |         | SST              |
| 3          | Eye bolt 3/8-16NC shank [ ]/4 dia. eye<br>Rollpin 3/32 dia. x 5/8 |         | Stl              |
| 3          | Kollpin 3/32 dia, x 5/8<br>Woodruff key No, 204                   |         | St)              |
| ¦          | Woodruff key No. 204                                              |         | Stl<br>Stl       |
| 2          | 0-ring AN6227-16 13/16 x 1 1/16 x 1/8                             |         |                  |
| 2          | Thrust bearing Boston Gear No. TB-512                             |         | Neoprene         |
| í          | Bearing Boston Gear No. M57-8                                     |         | Bronze<br>Bronze |
| 1          | Wire rope 1/16 dia. x 15 1/8                                      |         | SST              |
| ;          | SOG SETSCREW NO.10-24NC-2X                                        | <u></u> | 551<br>557       |

Nay be purchased from American Industrial and Scientific Company, [1838 V. Pico Blvd., Los Angeles 54, California.
 Cut off and face ends to make a 1/2 and 1/4 inch long bushing.

|       | B SUB ASSEMBLY                                 |                    |
|-------|------------------------------------------------|--------------------|
| ATION | THORIUM-UZ33 FUEL ROD FAC<br>VIBRATOR - FILLER |                    |
|       | REFERENCE DRAWINGS                             | DWG. NO.           |
|       | MAIN ASSEMBLY                                  | D-51189            |
|       | DETAIL SHE<br>DETAIL SHI                       | D-51182            |
|       | DETAIL SH 3                                    | D-51183            |
|       | DETAIL SHS<br>DETAIL SH 4                      | D-51185<br>D-51189 |

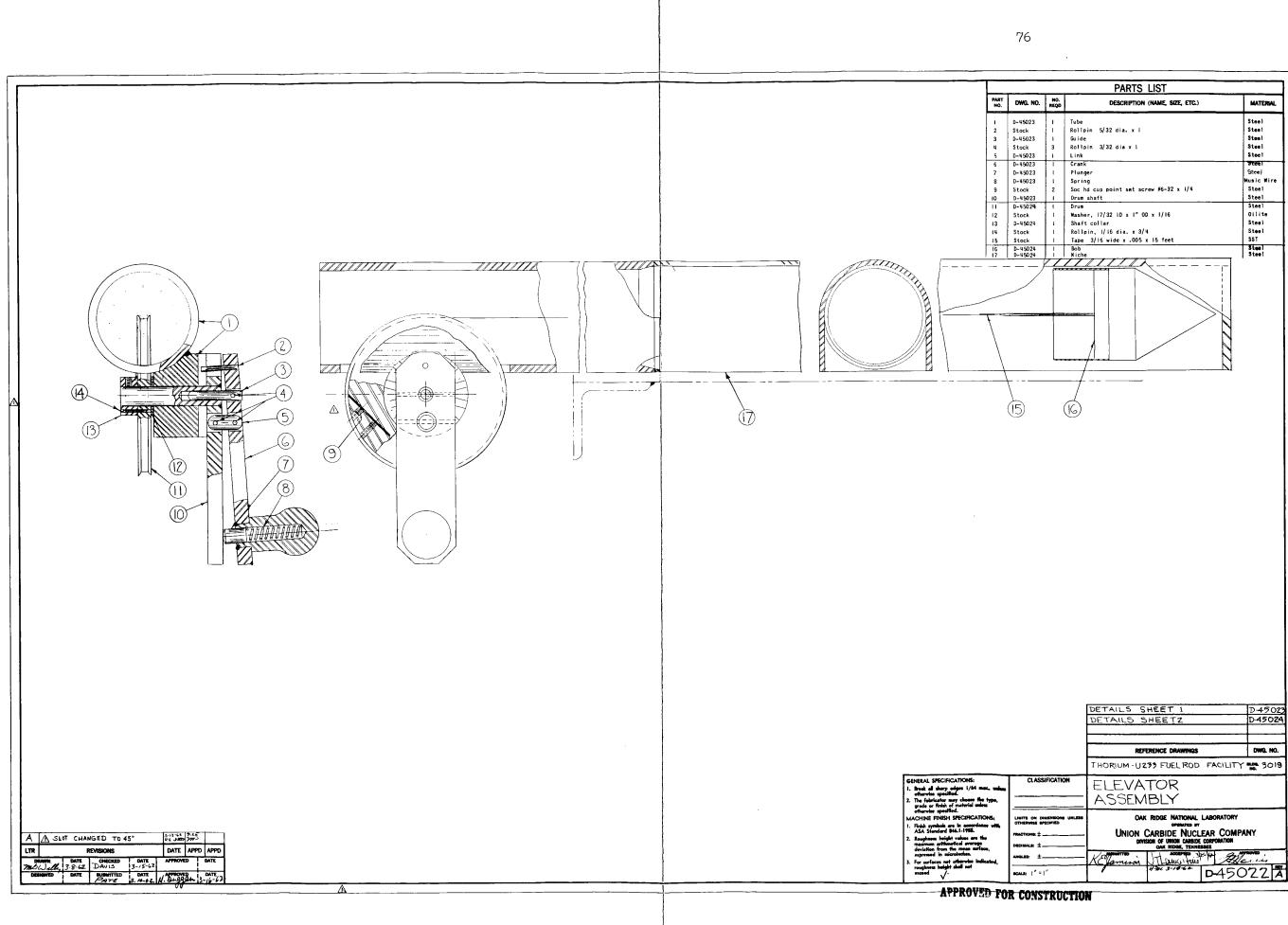




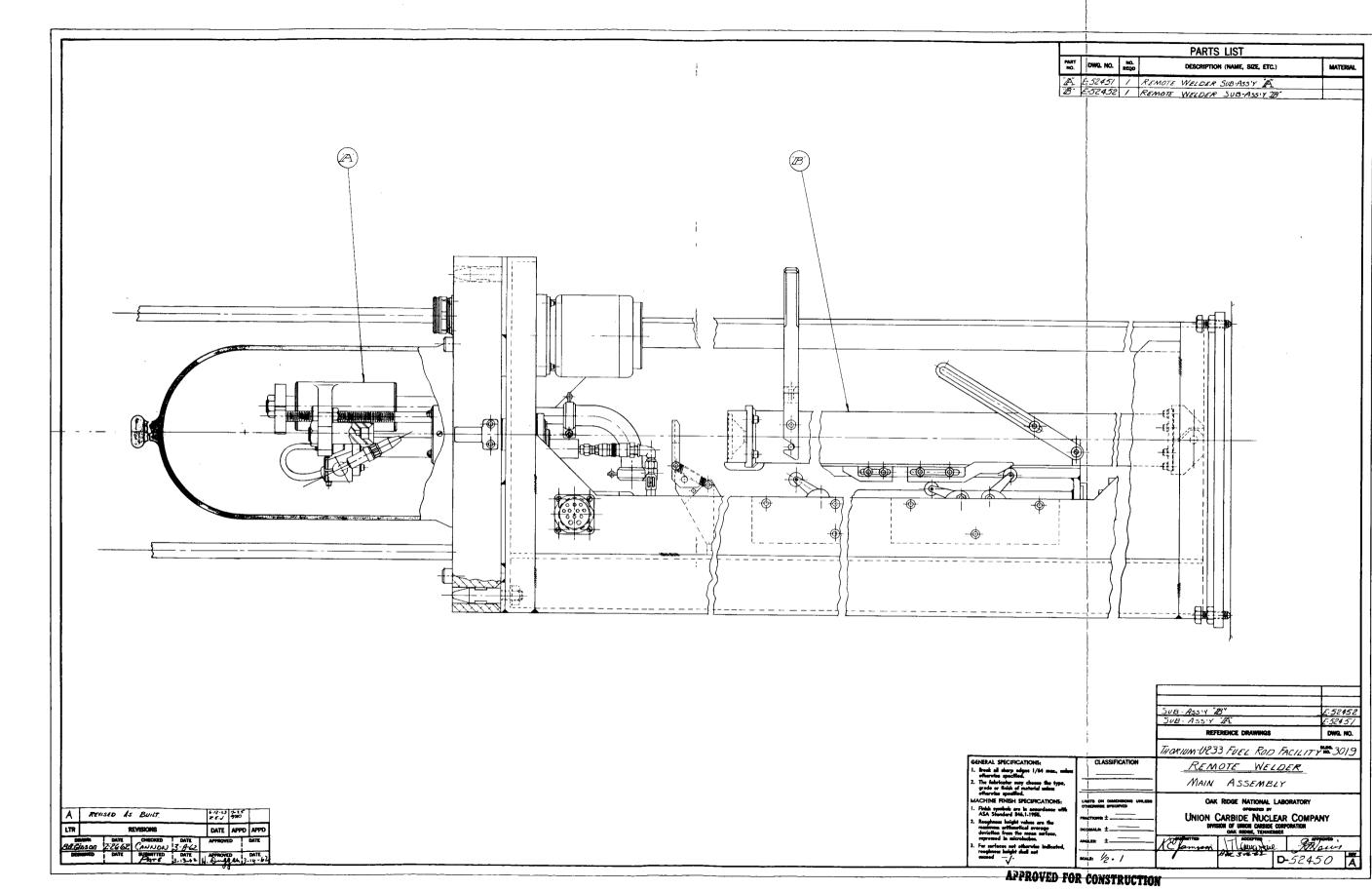


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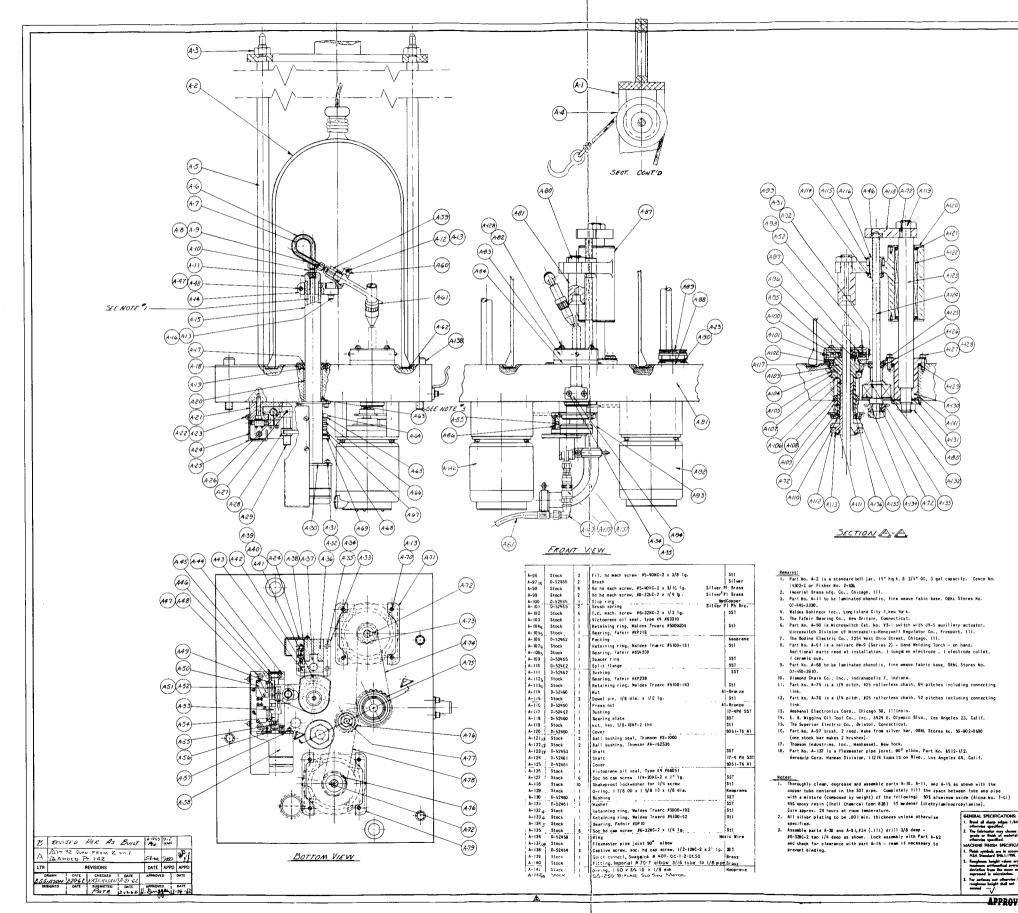
|                                                        |                              |                | PARTS LIST                                                     |          |
|--------------------------------------------------------|------------------------------|----------------|----------------------------------------------------------------|----------|
| PART<br>HO.                                            | DWG. NO.                     | NO.<br>REQD    | DESCRIPTION (NAME, SIZE, ETC.)                                 | MATERIAL |
| ╺━━┻┤                                                  |                              |                |                                                                | <u> </u> |
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| SYNTR                                                  | DER<br>VII                   | SRATO          | ŔŶ                                                             |          |
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| Y                                                      | Th.                          |                |                                                                |          |
| ŀ                                                      | $\mathcal{A}$                |                |                                                                |          |
| 1.                                                     | $\sim$                       |                | REFERENCE DRAWINGS                                             |          |
| - AL                                                   | ~                            |                |                                                                | DWG. NO. |
|                                                        |                              |                |                                                                | 30/9     |
| 7                                                      | ``                           |                | VIBRATOR - FILLER TUBE                                         |          |
|                                                        |                              |                | SUB ASSEMBLY                                                   |          |
| GENERAL<br>Unless Otherwie                             | SPECIFICA                    | TIONS          | OAK RIDGE NATIONAL LABORATORY                                  |          |
| Unless Otherwis<br>1. Break all sha<br>2. Type, grade, |                              |                | Union Carbide Nuclear Compan                                   | γ        |
| may be chose<br>3. Roughness he<br>surfaces shall      | en by fabric<br>eight of mac | stor.<br>hined | DIVISION OF LINION CARBIDE CORPORATION<br>OAK RIDGE, TENNESSEE |          |
| (Finish symb                                           | ols and hei                  | ight value     | SUBMITTED ACCEPTED APPR                                        |          |
| are in accord<br>B46.1-1955;)                          | dance with                   | ASA            | D-56684                                                        | REV      |
| <u>`</u>                                               |                              | <u> </u>       |                                                                |          |







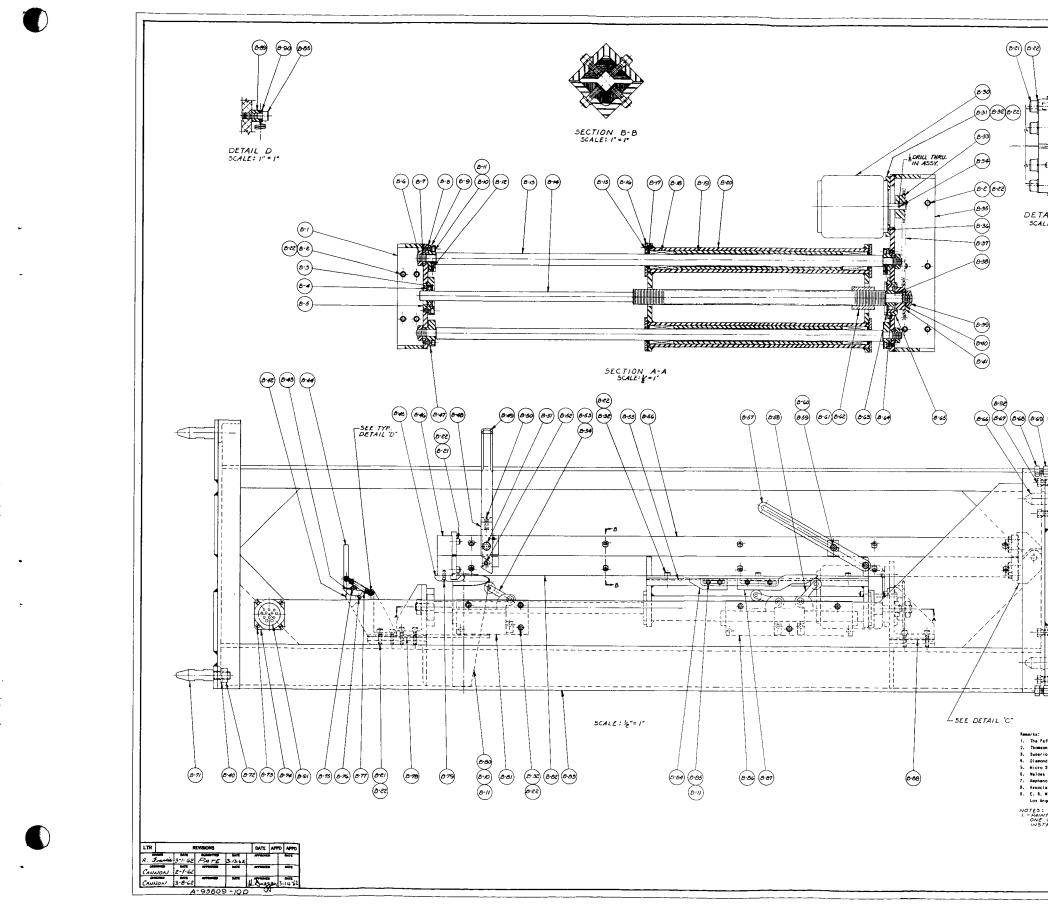
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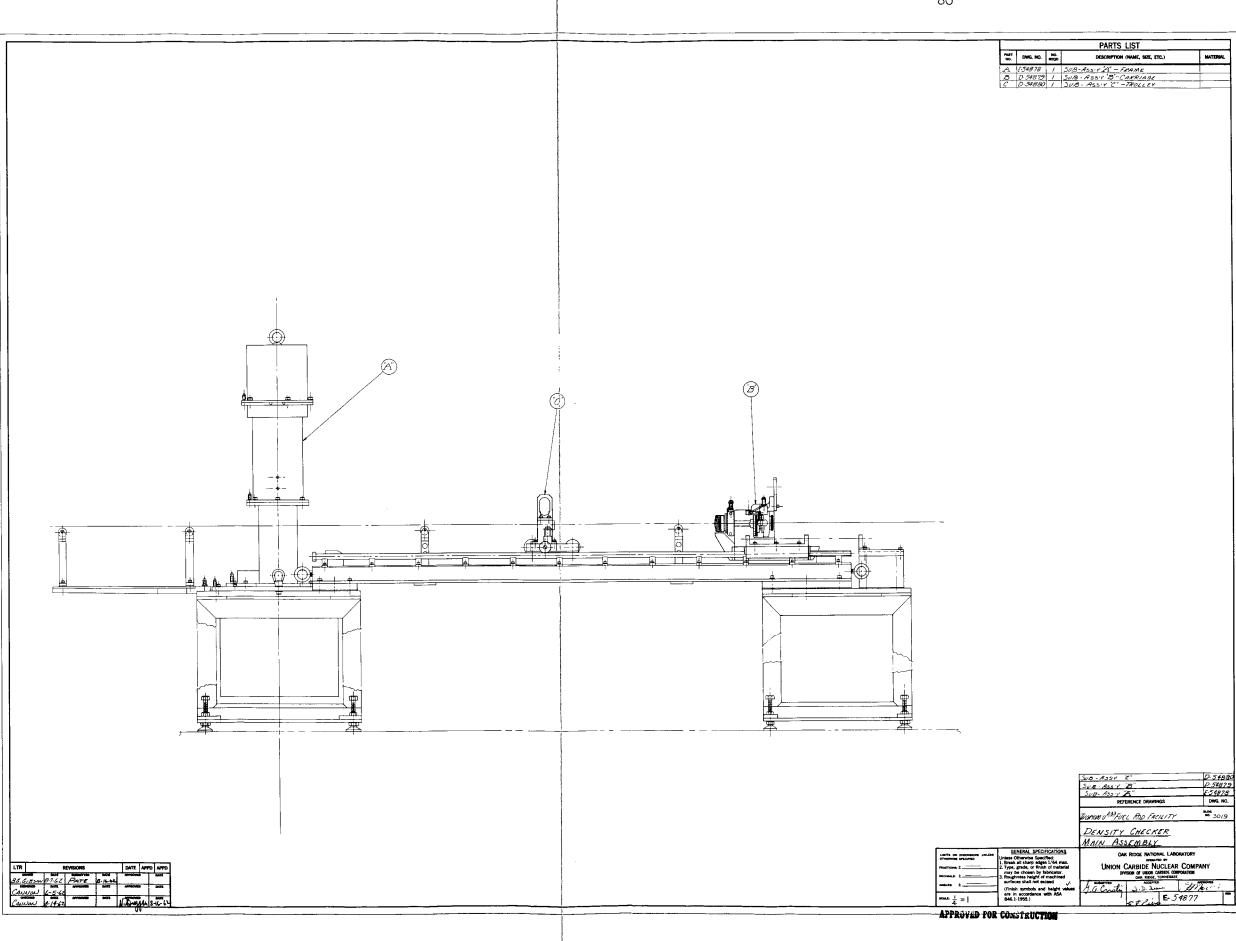
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| PART<br>NO.                              |                                               |                  | PARTS LIST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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|                                          | DWG. NO.                                      | NO.<br>REQD      | DESCRIPTION (NAME, SIZE, ETC.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | MATERIAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 7-1                                      | 0-52464                                       | +                | Bell jar clamp                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 6061-16 AT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| A-21 ;<br>A-3                            | Stock<br>Stock                                | 4.               | Bell jar<br>Aut, hex, 1/2-13KC-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | G1 ass<br>SST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| A-4                                      | Stock                                         | e i E            | 3 PULLEY WITH HOOK & POPE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ১গ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| A-5 :<br>A-6 :                           | D-52464<br>Stock                              | as regd          | Tie rod<br>Tubing, 3/8 OP x 1/4 ID x 1/16 wall                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | S\$T<br>Tygon                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| A-7                                      | Stock                                         | 'as regd         | Tubing, 3/16 0D x .030 wall                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Copper                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| A~82 :<br>A-92 :                         | Stock<br>Stock                                |                  | Nut, Imperial brass £Cl−F for 3/16 tube                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Brass<br>Brass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| A- 10                                    | 0-52456                                       | . I.;            | Connector                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| A-113<br>A-12                            | D-5245t<br>Stock                              |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Phenol ic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| A-13                                     | Stock                                         | й,               | Soc hd cap screн, #10-24kC-2 x 1* 1g.<br>Shakeproot lockwasher for £10 screw                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Stl<br>Stl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| A 14<br>A 15                             | D-52456                                       | 1.               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0061-16 AI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| A-15<br>A-16                             | D-52456<br>Stock                              | - 1/2 -          | Column<br>Soc hd cap screw \$10-246C-2 x 3/4 1g                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | SST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| A- 17                                    | D-52461                                       | 1 1              | Cover                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 60 61 - T6 A1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 8 - 18<br>61 - A                         | Stock<br>Stock                                | 1                | F.H. mach screw #6-328C-2 x 3/8 lg.<br>Victoprene bil seal, type K4 #66245                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | \$\$T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                          | Stock<br>D-52454                              |                  | bost-Bronz bearing, #B1620-18                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| A-21<br>A-22                             |                                               | 1 4              | Horizontal guide<br>Rd hd mach screw #6-32hC-2 x 1/4 1g.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2024-T4 AI<br>Stl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| A-23                                     | Stock                                         | 8                | Lockwasher for #C screw                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Sti                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| A-24                                     | Stock                                         |                  | fish paper                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| A-25<br>A-25                             | D-52459<br>D-52454                            |                  | Horizontal motor cover<br>Nut                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ligo-Hil4 Al<br>Al-bronze                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| A- 27                                    | Stock                                         | +                | Rol) pin, 3/32 dia. x   1/4  g.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | St1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| A-26<br>A-29                             | C-52455<br>D-52455                            |                  | beshing<br>Pin                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Nylon<br>SST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| A-30                                     | D-52457                                       | <u></u>          | Million 1 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 551<br>6051-15 Al                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| A-31<br>A-32                             | Stock                                         | 6                | Nut, hex, #8-32hC-2<br>Shakeproof lockwasher for #8 screw                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Stl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| A-32<br>A-33                             | Stock<br>D-52457                              | . 6<br>  j       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Sti<br>60 CI-TG A1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| A-34                                     | Stock                                         | , 6              | Soc hd cap screw #10-24KC-2 x 1/2 1g.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Stl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| A-35<br>A-35                             | Stock<br>D-52457                              | 1 6              | Lockwasher for #10 screw<br>Vertical guide                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Stl<br>2024-T4 A)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| A-37                                     | D-52458                                       | 1                | Hut                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Al-Bronze                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| A-38                                     | 0-52459                                       | . + <sup>1</sup> | Vertical motor cover                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1 100-H 14 AT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| A-39<br>A-40                             | C-52458<br>Stock                              | 2                | Pad<br>Soc set screw - flat pt #10-32KF-2 x #/2 lg.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Nylon<br>Stl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| A-41                                     | Stock                                         |                  | Regular hex jam nut #10-32kF-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Sti                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| A-42<br>A-43                             | D-52458<br>D-52458                            |                  | Can<br>Can                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 60.61-TC AL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| A-44,                                    | Stock                                         | 2                | Retaining ring, Waldes Truarc #5003-87                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | COGI-TE A1<br>Stl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| A-45u                                    | Stock                                         | 2                | Retaining ring, Waldes Truarc #5:00-37                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Stl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| A-465<br>A-47                            | Stock<br>Stock                                | 3                | Bearing, Fafnir #KPGA<br>Soc hd cap screw, 1/4-20NC-2 x I 1/4 lg.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Sti                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| A~48                                     | Stock                                         | 3                | Lock washer for 1/4 screw                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Sti                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| A-49<br>A-505                            | C-52454<br>Stock                              | 1 1 1            | Cam<br>Micro switch                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 6061-76 AI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| A-51                                     | Stock                                         | 8                | Soc hd cap screw, #5-40#C-2 x 5/8 1g.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | \$t1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| A-52<br>A-53                             | Stock<br>D~52454                              | 12 :             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Stl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| A- 54                                    | D-52454<br>D-52455                            | 2                | Screw                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 6061-16 A1<br>17-4 PH SST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| A-55                                     | Stock                                         | 2                | Soc set screw - cup pt. #6-325.C-2 x i/8 lq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Stl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| A-56<br>A-57                             | Stock<br>D-52454                              | 12               | F.H. mach screw #8-32kC-2 x 3/8 lg.<br>Motor mount                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | St1<br>6061-T6 A1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| A-587                                    | Stock                                         | 2                | Bodine motor, Cat. #B8192E-900H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| A-59<br>A-60                             | D-52459<br>D-52458                            |                  | Torch handle<br>Torch holder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 60 C I- TE A I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| A-618                                    | Stock                                         |                  | Torch                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ្រមបា- សេ Al                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| A-62                                     | Stock                                         | 1 1              | Gasket, 9 3/4 0D x 8 1/8 10 x 1/15 thk                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Neoprene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Å-63<br>A-64                             | Stock<br>D-52455                              |                  | Swt                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | StI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| A-65                                     | D-52455                                       |                  | Washer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 511                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| A-66<br>A-67                             | D-52455<br>D-52455                            |                  | Clutch spring                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | SST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| A-68g                                    | Stock                                         |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Phenolic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 4-69                                     | D-52456                                       |                  | Hub                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 5001+T6 A1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| A-70<br>A-71                             | Stock<br>D-52464                              | 8                | Soc hd cap screw #10-244C-2 x 3" ig.<br>Motor base                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | St1<br>6061-TC AI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| A-72                                     | Stock                                         | 5                | 1/8 sq. key x 7/16 1g.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Sti                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| A-73 <sub>10</sub><br>A-74 <sub>11</sub> | Stock<br>Stock                                |                  | 1/4 aitch #25 rollerless chain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Stl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| A-7510                                   | D-52462                                       |                  | Sprocket - Diagond #25330 Do not sub.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | \$t1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| A-7610                                   | Stock<br>Stock                                | 2                | Sprocket, Blamond #25818 4/2 bore-kwy<br>Nut, hex 7/16-20NF-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | St1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| A-7812                                   | Stock                                         |                  | Nut, Nex 7/16-2018-2<br>1/4 pitch #25 rollerless chain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| A-79                                     | D-52464                                       | 2                | Notor base                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 6051-T6 A1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| A-80<br>A-81                             | Stock<br>D-52460                              | 2                | Kut, hex, 3/4-15kF-2<br>Press head                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Stl<br>17-4PH SST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| A-82                                     | Stock                                         | 4                | Fill hd mach screw J_4-20NC-2 x 1 1/8 lg. Silver                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Pl Brass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| A-83<br>A-84                             | D-52465<br>D-52461                            |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 6061-TC A1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                          | Stock                                         | 2                | Sec ant recent - dec pt #10-2680-2 x 1/8 lp.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Stl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| A-85<br>A-86<br>A-87                     | D-52456                                       | 1 ! !            | Spring seat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Brass<br>Stl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| A-87 ·                                   | D-52450<br>Stock                              |                  | Bousing<br>Amphenol box receptacle MAS3102A-28-11P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| A-89  4                                  | Stock<br>Stock                                |                  | Wiggins quick connect adapter #QDR-28                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| A-90<br>A-91                             | Stock<br>D-52463<br>Stock                     | 4.               | Filhd mach screw #6-324C-2 x 3/8 lg.<br>Hounting plate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Sti<br>6061-T6 A1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| A-92                                     |                                               |                  | Slo-Syn motor, type SS250-Pl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| A-93<br>A-94                             | Stock<br>D-52469                              |                  | 1/2 IPS Sched 40 pipe, 4* lg. (thd one end)<br>Cable hook                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | SST<br>1100 H-14 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| A-94<br>A-95                             | D-52468<br>D-52465                            |                  | Garter spring                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | SST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| · · · · ·                                |                                               |                  | SUB- ASSY A DETAIL SHEET "13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | D-5246                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                          |                                               |                  | SUB-ASSY A DETAIL SHEET #12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | D-5246.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                          |                                               |                  | SUB-ASSY A DETAIL SHEET "II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | D-52463                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                          |                                               |                  | SUB-ASSY AN DETAIL SHEET 49                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | D-52462<br>D-52461                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                          |                                               |                  | SUB-ASSIY A. DETAIL SHEET 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | D.52460                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                          |                                               |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                          |                                               |                  | SUB-ASSY AN DETAIL SHEEL TY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | D.5645                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                          |                                               |                  | SUB-ASSY AN DETAIL SHEEL TY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | D-52450                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                          |                                               |                  | SUB-ASSY AN DETAIL SHEEL TY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | D-52452<br>D-5245                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                          |                                               |                  | SUB-ASSY A. DETAIL SHEET "G<br>SUB-ASSY A. DETAIL SHEET "G<br>SUB-ASSY A. DETAIL SHEET "5<br>SUB-ASSY A. DETAIL SHEET "4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | D-52450<br>D-52450<br>D-52456                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                          |                                               |                  | 505-4555 (#. DETAIL 5HELT ")<br>505-4559 (#. DETAIL 5HELT ")<br>505-4559 (#. DETAIL 5HELT ")<br>508-4559 (#. DETAIL 5HELT ")<br>508-4559 (#. DETAIL 5HELT ")<br>508-4559 (#. DETAIL 5HELT ")                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | D-52450<br>D-52450<br>D-52456<br>D-52459<br>D-52459                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                          |                                               |                  | 2018-1855 Y A. DETAIL SHEET "<br>2018-1855 Y A. DETAIL SHEET "                                                                                                                                                                                                                                                                                                                                                                                                                            | D-52450<br>D-52450<br>D-52450<br>D-52450<br>D-52454<br>D-52454                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                          |                                               |                  | DUB-ASSY A. DETAIL SHEET "<br>SUB-ASSY A. ADDITAIL SHEET "                                                                                                                                                                                                                                                                                                                                                                                   | D-52450<br>D-52450<br>D-52450<br>D-52450<br>D-52454<br>D-52454<br>D-52454<br>D-52453                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                          |                                               |                  | 2012-ASSY #. DETAIL SHELT "0<br>5012-ASSY #. DETAIL SHELT "6<br>5012-ASSY #. DETAIL SHELT "6<br>5012-ASSY #. DETAIL SHELT "4<br>5012-ASSY #. DETAIL SHELT "4<br>5012-ASSY #. DETAIL SHELT "1<br>5012-ASSY #. DETAIL SHELT "1<br>FORTE VIELDER MAIN ASSY<br>REFERENCE DOWINGS                                                                                                                                                                                                                                                                                                                                                                                   | D-52452<br>D-5245<br>D-52452<br>D-52454<br>D-52454<br>D-52454<br>D-52454<br>D-52453<br>D-52450<br>D-52450                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                          |                                               |                  | 2012-ASSY #. DETAIL SHELT "0<br>5012-ASSY #. DETAIL SHELT "6<br>5012-ASSY #. DETAIL SHELT "6<br>5012-ASSY #. DETAIL SHELT "4<br>5012-ASSY #. DETAIL SHELT "4<br>5012-ASSY #. DETAIL SHELT "1<br>5012-ASSY #. DETAIL SHELT "1<br>FORTE VIELDER MAIN ASSY<br>REFERENCE DOWINGS                                                                                                                                                                                                                                                                                                                                                                                   | D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52454<br>D-52454<br>D-52454<br>D-52453<br>D-52450<br>D-52450                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 1                                        | CLASS                                         | SIFICATION       | DUB-ASSY A. DETAIL SHEET "<br>SUB-ASSY A. ADDITAIL SHEET "                                                                                                                                                                                                                                                                                                                                                                                   | D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52454<br>D-52454<br>D-52454<br>D-52453<br>D-52450<br>D-52450                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                          | CLASS                                         | FICATION         | 2012-ASSY #. DETAIL SHELT "0<br>5012-ASSY #. DETAIL SHELT "6<br>5012-ASSY #. DETAIL SHELT "6<br>5012-ASSY #. DETAIL SHELT "4<br>5012-ASSY #. DETAIL SHELT "4<br>5012-ASSY #. DETAIL SHELT "1<br>5012-ASSY #. DETAIL SHELT "1<br>FORTE VIELDER MAIN ASSY<br>REFERENCE DOWINGS                                                                                                                                                                                                                                                                                                                                                                                   | D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52454<br>D-52454<br>D-52454<br>D-52453<br>D-52453<br>D-52450<br>DWG.NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                          | CLASS                                         | SIFICATION       | DUB-ASSY A. DETAIL SHELT "<br>SUB-ASSY A. UDTAIL SHELT "<br>REFERENCE DAMINGS<br>THORIUM UZ33 IGEL ROD FACILITY<br>REMOTE WELDER | D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52454<br>D-52454<br>D-52454<br>D-52453<br>D-52453<br>D-52450<br>DWG.NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| r                                        |                                               |                  | DUB-ASSY A. DETAIL SHELT "<br>SUB-ASSY A. W. DETAIL SHELT "<br>SUB-ASSY A. W. DETAIL SHELT "<br>SUB-ASSY A. W. DETAIL SHELT "<br>REMOTE WELDER MAIN ASSY<br>REFERENCE DAMMINGS<br>THORIUM V233 THEL. ROD FACILITY<br>REMOTE WELDER<br>SUB-ASSEMBLY A                                                                                                                                                                                                                                                     | D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52454<br>D-52454<br>D-52454<br>D-52453<br>D-52453<br>D-52450<br>DWG.NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                          | CLASS                                         |                  | DER-ASSY #. DETAIL SHELT *           SUE-ASSY #. DETAIL SHELT *           REMOTE VILLOER MAIN ASSY           REFERENCE NOWNINGS           THORIUM V233 THEL ROD FACILITY           REMOTE WELDER           SUB-ASSY BALEN AND ASSY           MOTE WELDER           MOTE WELDER           SUB-ASSY BALEN AND ASSY                                                                            | D-5245<br>D-5245<br>D-5245<br>D-52454<br>D-52454<br>D-52454<br>D-52454<br>D-52456<br>D-52456<br>D-52456<br>D-52456                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| NS:<br>with                              | UNITE ON DO<br>OTHERWISE P                    |                  | DUB-ASSY A. DETAIL SHELT ".<br>SUB-ASSY A. DETAIL SHELT ".<br>REMOTE VICLOR MAIN ASSY<br>REFERENCE DRAWINGS<br>THORIUM UZ33 RUEL ROD FACILITY<br>REFORMOTE WELDER<br>SUB-ASSEMBLU                                                                                                                                                                                                                                                                                    | D-52450<br>D-52450<br>D-52450<br>D-52450<br>D-52450<br>D-52450<br>D-52450<br>D-52450<br>D-52450<br>D-52450<br>D-52450<br>D-52450                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| NS:<br>• with                            | UNITE ON DI<br>OTHERWISE SP<br>FRACTIONS: ± . |                  | DUB-ASSY A. DETAIL SHELT "<br>SUB-ASSY A. UB DETAIL SHELT "<br>REMOTE WELDER MAIN ASSY<br>REFERENCE DRAWINGS<br>THORIUM UZ33 FUEL ROD FACILITY<br>REMOTE WELDER<br>SUB-ASSEMBLY<br>OUX ROBE NOTANL LIBONTORY<br>UNION CAREDOE NUCLEAR COMPA                                                                                                                                                           | D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52454<br>D-52454<br>D-52454<br>D-52454<br>D-52454<br>D-52454<br>D-52454<br>D-52454<br>D-52454<br>D-52454<br>D-52454<br>D-52454<br>D-52454<br>D-52454<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-52452<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252<br>D-5252 |
|                                          | UNITE ON DO<br>OTHERWISE P                    |                  | DUB-ASSY A. DETAIL SHELT "<br>SUB-ASSY A. UDTAIL SHELT "<br>SUB-ASSY A. UDTAIL SHELT "<br>REMOTE WELDER MAIN ASSY<br>REFERENCE DRAWINGS<br>THORIUM UZ33 FUEL ROD FACILITY<br>REMOTE WELDER<br>SUB-ASSEMBLY A<br>UNION CAREDER NUCLEAR COMPANY<br>A DIREON OF WOOL SHORTORY<br>A DIREON OF WOOL SHORTORY                                                                              | NY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

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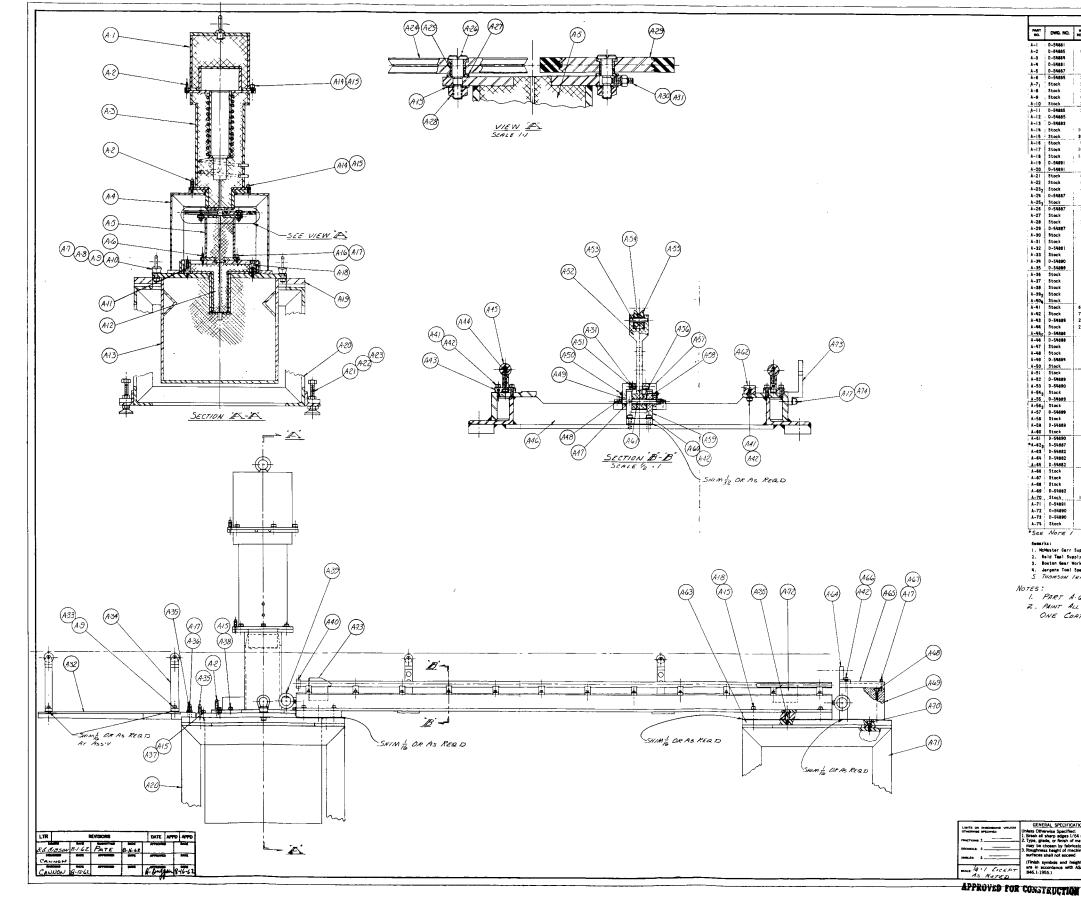


|                                            |                                                        |                                      |                                                       |                    | PARTS LIST                                                                                        |                        |
|--------------------------------------------|--------------------------------------------------------|--------------------------------------|-------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------|------------------------|
| (B-22) (B-23                               | 6-24 6-26                                              | NAT NO.                              | DWG. NO.                                              | NO.<br>REQD        | DESCRIPTION (NAME, SIZE, ETC.)                                                                    | MATERIAL               |
| TT                                         | TT                                                     | 81<br>82                             | D-52467<br>Stock                                      | 1<br>10            | Upper bracket<br>Soc hd cap screw 1/4-20hC-2 x i ig.                                              | Steel<br>Steel         |
|                                            |                                                        | 8-36<br>8-4,                         | Stock<br>Stock                                        | 1                  | Retaining ring - Truarc #5000-137<br>Bearing - Fatnir - #XP10A                                    | Steel                  |
| 1                                          |                                                        | 8-5<br>8-6                           | 0-52467<br>Stock                                      | i<br>+             | Bearing housing<br>Hex jam nut 7/16-20WF-2                                                        | Steel<br>SST           |
| HER                                        |                                                        | 87<br>88                             | Stock<br>Stock                                        | 2                  | Lock washer - 7/16 std<br>Shim, 1 3/4 00 x 25/32 10 x thickness as read                           | SST<br>Steel           |
|                                            | 6-26                                                   | 8-9<br>8-10                          | D-52466<br>Stock                                      | 2                  | Adjustable bushing<br>Soc hd cap acrew, #10-24MC-2 x 1/2 1g.                                      | Steel<br>Steel         |
|                                            | Hite Starter                                           | 8-11<br>8-12                         | Stock<br>Stock                                        | 24<br>6            | Lock washer - #10 std.<br>Soc set screw (cone point) #10-32NF-2 x 1/2 lg.                         | Steel<br>Steel         |
|                                            | (D-ET)                                                 | 8-132<br>8-14                        | 0-52453<br>0-52467                                    | 2                  | Shaft<br>Screw                                                                                    | 440C SST<br>17-7PH SST |
|                                            |                                                        | 8-15                                 | Stock<br>D-52468                                      | 16                 | Flat hó mach screw #8-32Ni-2 x 1/2 1g.<br>Retainer                                                | Steel<br>5061-16 A1    |
|                                            |                                                        | 8-172<br>8-182                       | Stock<br>Stock                                        | :                  | Ball bushing seal – Thomeson ∦S-750<br>Ball bushing – Thomeson ∦A-122026                          |                        |
|                                            | (8:CB)                                                 | B-19<br>B-20                         | D-52472<br>D-52468                                    | 2                  | Spacer<br>Ball bushing housing                                                                    | 6051-T6 Å1<br>Steel    |
| LLX                                        | 6-29                                                   | 8-21<br>8-22                         | Stock<br>Stock                                        | 14                 | Soc hd cap screw - 1/4-2080-2 x 3/4 lg.<br>Lock washer - 1/4 std                                  | Steel<br>Steel         |
|                                            | $\bigcirc$                                             | B23<br>624                           | Stoc K<br>D-52469                                     | 1                  | Shìm - 1/32 thick size as reqd.<br>Clip                                                           | Steel<br>Steel         |
| DETAIL<br>SCALE : I                        |                                                        | 8-25                                 | D-52469<br>D-52469                                    | +                  | Hìnge<br>Pin                                                                                      | 6051-T6 A1<br>SST      |
|                                            |                                                        | 8-27<br>B-28                         | Stock<br>Stock                                        | 1 2                | Rollpin 3/32 dia.x 5/8 lg.<br>Rollpin I/16 dia.x 3/8 lg.                                          | Steel<br>Steel         |
|                                            |                                                        | B-29<br>B-303                        | D-52469<br>Stock                                      | 1                  | Hinge support<br>Synchronous motor - Superior Type SS250                                          | 6061-T6 A1             |
|                                            |                                                        | B-31<br>B-32                         | D-52466<br>Stock                                      | 16                 | Notor plate<br>Soc hd cap screw 1/4-20NC-2 x 5/8 lg.                                              | Steel<br>Steel         |
|                                            |                                                        | B-33,<br>B-34                        | Stock<br>Stock                                        | i                  | Sprocket - Diamond ≢25825<br>Rollpin - 1/8 dia. x 1 1/2 lg.                                       | Steel<br>Steel         |
|                                            |                                                        | B-35<br>8-36                         | 0-52466<br>Stock                                      | 3                  | Lower brackst<br>Flat hd mach screw #10-32KF-2 x 3/8 lg.                                          | Steel<br>Steel         |
|                                            |                                                        | 1                                    | Stock                                                 | 11                 | Sprocket chain, Diamond ≸25 x 78 pitches lg.<br>(includes one conn. link)                         | Steel                  |
|                                            |                                                        | Å8−38<br>8−39                        | Stock<br>Stock                                        |                    | Key, 3/16 square x 1/2 lg.<br>Nex jama nut, 1/2-20NF-2                                            | Steel<br>SST           |
|                                            |                                                        | 8-40<br>8-414                        | Stock<br>D-52467                                      | 3                  | Lock washer - 1/2 std<br>Sprocket - Diamond #25832 (modified)                                     | SST<br>Steel           |
|                                            |                                                        | B-42<br>B-43                         | D-52467<br>Stock                                      |                    | Fork support<br>Rollain - 1/i6 dia. x 5/8 lg.                                                     | 6061-76 Al             |
|                                            |                                                        | B-44<br>B-45                         | D-52467<br>D-52471                                    |                    | Fork<br>Cam                                                                                       | SOGI-TS A1<br>Teflon   |
|                                            |                                                        | 8-46<br>8-47                         | D-52470<br>D-52456                                    | 1 2                | Bearing guide<br>Bushing                                                                          | 6051-TG AI<br>Steel    |
|                                            |                                                        | 8-48<br>8-49                         | 0-5247 I<br>0-5247 I                                  | 1                  | Yoke<br>Handle                                                                                    | 6061-T6 A1             |
|                                            |                                                        | B-50<br>B-51                         | Stock<br>Stock                                        | 3                  | Flat hd mech screw - 1/4-20%C-2 x 3/4 ig.<br>Soc hd shoulder screw - 3/8 dia x 3/8 ig shid.,      | Steel                  |
|                                            |                                                        | 8-52                                 | Stock                                                 | 2                  | 5/16-18UNC-3A thd<br>Dowel, 1/4 dia. x 1° 1g.                                                     | Steel<br>Steel         |
| 8 (0-69 (0-70)                             |                                                        | 8-535<br>8-54                        | Stock<br>Stock                                        | 2                  | Nicro switch #BZLN2-LN<br>Soc hd cap screw, 1/4-20NC-2 x 1/2 lg.                                  | Steel                  |
| ίττ                                        |                                                        | 8-55                                 | Stoc K<br>0-52471                                     | +                  | Shim, 14 7/8 x 3 1/4 x 1/32 thick<br>Novable clamp                                                | Steel<br>As noted      |
| $\backslash \backslash  _{-}$              | i                                                      | 8-57<br>8-58 <sub>5</sub>            | D-52470<br>Stock                                      | 2                  | Support<br>Nicro awitch - #BZLN2-RH                                                               | 5061-T6 A1             |
| $\langle \langle \langle \rangle \rangle $ |                                                        | 8-59                                 | Stock                                                 | 4                  | Soc hd shid.screw \$/16 die x 3/8 lg shid.<br>1/4-20UMC-34 thd                                    | Steel                  |
| r∕∎∎⊧⊧                                     |                                                        | 8-60                                 | Stock<br>D-52468                                      | 4                  | Washer - 1/2 OD x .328 ID x .046 thick<br>Nut                                                     | Steel<br>Al Bronze     |
|                                            |                                                        | 8-62                                 | Stock                                                 | 2                  | Soc hd shid screw i/4 dia x 3/8 ig shid<br>≢i0-240xC-3A thd                                       | Steel                  |
|                                            | -                                                      | 8-636<br>8-64∣                       | Stock<br>Stock                                        |                    | Retaining ring - Truarc #5000-193<br>Bearing - Fafnir #XP10                                       | Steel                  |
|                                            |                                                        | 8-65                                 | D-52466<br>D-5247 I                                   | 1                  | Bearing housing<br>Dowet                                                                          | Steel<br>Steel         |
|                                            |                                                        | 8-67                                 | 3tock<br>0-52469                                      | 8                  | Nex hd much screw - $5/16-18NC-2 \times 1^{2}$ )g.<br>Nex hd much screw $3/8-16NC-2 \times 2$ )g. | Steel<br>Steel         |
|                                            |                                                        | 8-69<br>8-70                         | Stock<br>D-52472                                      | 4                  | Nex nut - 3/8-16MC-2<br>Base plate                                                                | Steel<br>Steel         |
|                                            |                                                        | 8-71<br>6-72                         | D-52470<br>Stock                                      | 2                  | Dowe1<br>Hex nut - 1/2-13NC-2                                                                     | Steel<br>Steel         |
| [ 딱]                                       |                                                        | 8-73<br>8-747                        | Stock<br>Stock                                        | 4                  | Rd hd mach acrew #6-328C-2 x S#16 1g.<br>Box receptecie – Amphanol #NS3102A-28-8P                 | Steel                  |
|                                            |                                                        | B-75                                 | D-52457<br>Stock                                      | 1                  | Pin<br>Dowel - 3/16 dia. x 7/8 łg.                                                                | SST<br>Steel           |
|                                            |                                                        | 8-77 <sub>8</sub><br>8-78            | Stock<br>Stock                                        | 1                  | Spring - Associated #E360-041-150<br>Shim - 7 x 2 x thickness as regd                             | SST<br>Steel           |
|                                            |                                                        | 8-80                                 | Stock<br>D-52468                                      | 2                  | Flat hd mach screw - #10-24mC-2 x 5/8 lg.<br>Funnel                                               | Steel<br>SST           |
|                                            |                                                        | 8-82                                 | D-52469<br>D-52470                                    | 1                  | Switch plate<br>Clamp                                                                             | 6051-T6 AF<br>As noted |
| -                                          |                                                        | 8-83<br>8-84                         | D- 5247 2<br>D- 52468                                 | :                  | Frame<br>Upper cam                                                                                | Steel<br>6062-TS A1    |
|                                            |                                                        | 8-85<br>8-86                         | Stock<br>D-52469                                      | 6<br>1             | Soc hd cap screw #10-24%C-2 x 5/8 1g.<br>Switch plate                                             | Steel<br>6061-T6 A1    |
|                                            |                                                        | 8-87<br>3-88                         | D-52468<br>Stock                                      | i.                 | Lower cam<br>S <i>hirm</i> - thickness and size as read                                           | 5061-T6 Al<br>Steel    |
| N~H₽                                       | ~*                                                     | 8-89<br>8-90                         | D-52467<br>Stock                                      | 2<br>2             | Spacer<br>Washer - 3/8 00 x .203 ID x 1/16 thick                                                  | \$\$T<br>\$\$7         |
|                                            |                                                        | 8-919<br>8-92                        | Stock<br>Stock                                        | 1<br>8             | Wiggen quick connect nipple \$QOR-28<br>Lockwasher 5/16 std                                       | Sti                    |
| ╶╴╝╇╡╌╞┩                                   | -                                                      |                                      |                                                       |                    |                                                                                                   |                        |
|                                            | ]                                                      |                                      |                                                       |                    | SUB-ASSY. B DETAIL SH. # 8                                                                        | D-52472                |
|                                            | ł                                                      |                                      |                                                       |                    | SUB-ASSY. B DETAIL SH. # 7<br>SUB-ASSY. B DETAIL SH. # 6                                          | D-52471<br>D-52470     |
| lemerks:<br>L. The Fafnir Bag              | ring Co., New Britain, Co                              |                                      |                                                       |                    | SUB-ASSY. B DETAIL SH. # 5                                                                        | D-52469                |
| <ol> <li>Thomson Indust</li> </ol>         | ries, Inc., Manhasset, K.<br>ric Co., Bristol, Conn.   | ۲.                                   |                                                       |                    | SUB-ASSY. B DETAIL SH. # 4<br>SUB-ASSY. B DETAIL SH. # 3<br>SUB-ASSY. B DETAIL SH. # 2            | D-52468<br>D-52467     |
| . Dismond Chain                            | Co., Indianapolis 7, Ind.<br>Division of Hinneapolis H |                                      | freeport                                              | ı.                 | SUB-ASSY. A & B DETAIL SH. # 1                                                                    | D-52466<br>D-52453     |
| i. Weldes Kohinoo                          | r Inc., Long Island City<br>ronics Corp., Chicago 50,  | I. W. Y.                             |                                                       |                    | SUB-ASSEMBLY "A"<br>REMOTE WELDER-MAIN ASSY.                                                      | E-52451<br>D-52450     |
| . Associated Spr                           | ing Corp., Bristol, Conn.<br>011 Tool Corp., 3424 East | 1                                    | 144                                                   |                    | REFERENCE DRAWINGS                                                                                | DWG. NO.               |
| Los Angeles 23                             | , Calif.                                               |                                      |                                                       |                    | THORIUM-UZ33 FUEL ROD FACILIT                                                                     | 30/9                   |
| NOTES:<br>1 PAINT ALL<br>ONE COAT          | NON-WORKING ST.<br>OF PRIMER ACCORD                    | EL SUR                               | FACES WI                                              | TH                 | REMOTE WELDER                                                                                     |                        |
| INSTRUCTI                                  | ovs.                                                   | 1                                    |                                                       |                    | SUB-ASSEMBLY "B"                                                                                  |                        |
|                                            | LIMITE ON DIMENSIONS UNLESS<br>OTHERWISE SPECIFIED     | Univer Other                         | WISE SPECIFIC                                         | -                  | OAK RIDGE NATIONAL LABORATORY                                                                     |                        |
|                                            | PRACTIONS: 2                                           | 1. Break all 1<br>2. Type, stat      | tharp edges 1/<br>ie. or finish of                    | 64 max.<br>materia | UNION CARBIDE NUCLEAR COMPA                                                                       | NY                     |
|                                            | ANOLES: 2                                              |                                      | hosen by fabrie<br>s height of mai<br>hall not exceed |                    | DIVISION OF UNION CAREIDE CONFORMIDON<br>OAN MOOL TENNESSEE                                       | NONE .                 |
|                                            | MALAS NOTED                                            | (Finish sy<br>are in ac<br>B46.1-195 | mbols and he<br>cordance with<br>i5.)                 | ASA                | E- 52452                                                                                          | •••••                  |
|                                            |                                                        | <u> </u>                             |                                                       | TAN                |                                                                                                   | <b>i</b>               |
|                                            | APPROVED P                                             | UK CUS                               | IJUXICI                                               | IUN                |                                                                                                   |                        |

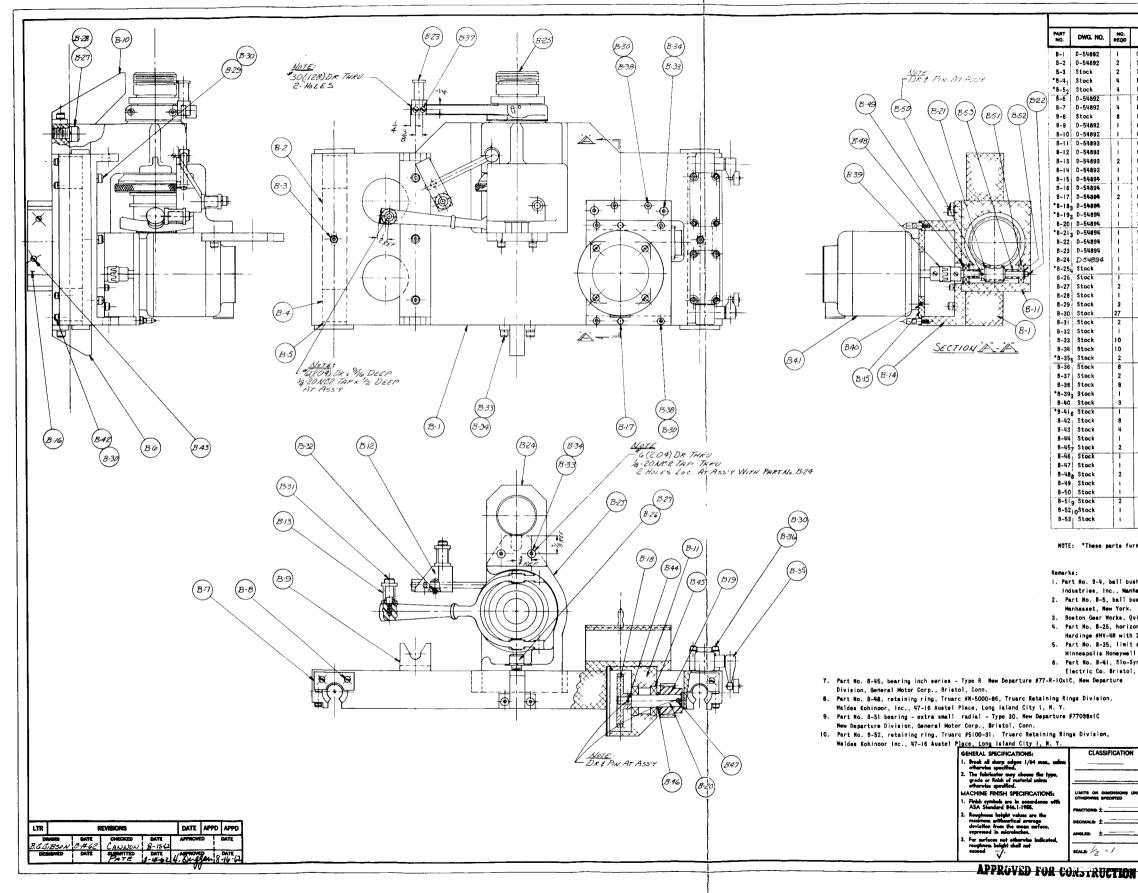


| TS LIST                 |          |
|-------------------------|----------|
| TION (NAME, SIZE, ETC.) | MATERIAL |
| - FRAME                 |          |
| -CARRIAGE               |          |
| C" -TROLLEY             |          |





|   | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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|   | Supply<br>aply Co.<br>forks. (<br>Special<br>(ADUS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0. 400 Hest Labs Street, Chicago 8, Itilinois.<br>192 West Baina Awe., Newagan Mighta, Minigan<br>Unior 71, Nas.<br>19 Do., 712 E. Itara St., Cleveland 10, Ohio.<br>Trics, INC. MARMASSET, New York<br>FURNISHED BY DRNL<br>WHISHED STEEL SURFACES A<br>DE A RUST PREVENTIVE PRIMA<br>INFORMATION PREVENTIVE PRIMA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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(<br>Special<br>(ADUS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 12 Wast Baland Ave., Newboom Nights, Nichigan<br>vigr 71, Nas.<br>17 Bo., TZ E. IBIR St., Claveland ID, Dhio.<br>TRICS, INC. MARKARSSET, New YORK<br>FURNISHED BY ORNL<br>WANNERED BY ORNL<br>WANNERED STREEL SURFACES N<br>DETAIL SN. "IN<br>DETAIL SN." D<br>DETAIL SN." D<br>DETAIL SN." S<br>DETAIL SN                                   | 0.5469.<br>D.5469.<br>D.5458<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|   | Supply<br>aply Co.<br>forks. (<br>Special<br>(ADUS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | . 12 Wast Baland Ave., Newsgon Nights, Nichigan<br>vig 71, Nas.<br>17 Bo., TIZ E. IBI'R St., Claveland ID, Dhio.<br>TRICS, INC. MARKARSET, NEW YORK<br>FURNISHED BY DRNL<br>NATURSHED STEEL SURFACES IN<br>DETAIL SH."///<br>DETAIL SH."//<br>DETAIL SH."//<br>DETAIL SH."/<br>DETAIL SH."/<br>DETAIL SH."<br>DETAIL SH." | 0-3489<br>D-5489<br>D-5485<br>D-5485<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-548888<br>D-548888<br>D-54888<br>D-54888<br>D-548888<br>D-548888<br>D-548888<br>D-5488                   |
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S<br>DETAIL SN                                   | 0-3489<br>D-5489<br>D-5485<br>D-5485<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5489<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-548888<br>D-548888<br>D-54888<br>D-54888<br>D-548888<br>D-548888<br>D-548888<br>D-5488                   |
|   | Supply<br>aply Co.<br>forks. (<br>Special<br>(ADUS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 12 WAL GAING AVE, MARGON HIGHT, MICHIGH<br>WIGY TI, MAR.<br>Y DO, TIZE L. IBI'R SL., Cloveland ID, DNIO.<br>TRIES, INC. MARKASSET, NEW YORK<br>FUNISHED BY DRNL<br>WATHSHED STEEL SURFACES IN<br>DETAIL SK."III<br>DETAIL SK."IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 0.5489<br>0.5489<br>0.5485<br>0.5485<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5488<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.55888<br>0.55888<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588  |
|   | Supply<br>aply Co.<br>forks. (<br>Special<br>(ADUS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | . 12 WAL GAING AVE, MARGON HIGHT, MICHIGH<br>WINT, N. M.<br>Y GO, TIZE . IEI'R SL., Cloveland IO, ONIO.<br>TRICS, INC. MARKASSET, NEW YORK<br>FURNISHED BY ORNL<br>WINTOKED STEEL SURFACES N<br>DETAIL SN."III<br>DETAIL SN."IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.5489<br>0.5489<br>0.5485<br>0.5485<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5488<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5489<br>0.5488<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.55888<br>0.55888<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588<br>0.5588  |
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M.<br>Y GO, TIZE . IBI'S S., Cleveland IO, DNO.<br>TRES, INC. 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|   | Supply Co.<br>Jorka (<br><i>ADD)</i><br><i>CCL C</i><br><i>ATTONS</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 12 WAL GAING AVE., MANAGEN HIGHT, MICHIGH<br>WINT, N. M.<br>Y GO, TIZE. I ISTA SL., Claveland ID, Dhio.<br>TRES, INC. MANAGES CT, NEW YORK<br>FURNISHED BY ORNL<br>FURNISHED STEEL SURFACES IN<br>OF A RUST PREVENTIVE PRIMA<br>DETAIL SU, TO<br>DETAIL                                   | 0.5489<br>D.5489<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.54888<br>D.54888<br>D.54888<br>D.5488<br>D.5488<br>D.5488<br>D.54888<br>D.54880<br>D.54888<br>D.5 |
|   | ATTONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 12 WAL GAING AVE, MARAGEN RIGHT, MICHIGH<br>11977, Nas.<br>17 GO, TIZE. I IBI'R SL., Claveland IO, DNIO.<br>17 GO, TIZE. I IBI'R SL., Claveland IO, DNIO.<br>17 CONTROL OF AN ANALYSIC STATES<br>THENISHED BY DRNL<br>WANNERED STREEL SURFACES IN<br>DETAIL SN."III<br>DETAIL SN."IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0-5489<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-5488<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-54888<br>D-548888<br>D-548888<br>D-54888<br>D-5488             |
|   | ATIONS<br>5:<br>164 max<br>1. C.2.<br>1. C.2.                    | 12 WAL GAING AVE, MARAGEN RICHT, MICHIGH WIGHT, MAN<br>17 GO, TILE LIBYE SL., Cleveland IO, DNIO.<br>17 GO, TILE LIBYE SL., Cleveland IO, DNIO.<br>17 CONTROL OF THE SL. CLEVELAND OF THE SLAW AND SET OF THE SLAW AND STREEL SURFACES IN<br>THE SLAW STREEVEN TIME PRIMA<br>DETAIL SN."III<br>DETAIL SN."IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.5489<br>D.5489<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.5488<br>D.54888<br>D.54888<br>D.54888<br>D.5488<br>D.5488<br>D.5488<br>D.54888<br>D.54880<br>D.54888<br>D.5 |



| NO.<br>REQD                                                                                                               | PARTS LIST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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| 2<br>2                                                                                                                    | Spacer<br>Soc set screw (dog point) I/4-20NC-2 x I/2 lg.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   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| 4<br>4                                                                                                                    | Ball bushing<br>Ball bushing seal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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| 10                                                                                                                        | Sochd cap screw 1/4-20MC-2 x 3/4" 1g.<br>Lockwasher for 1/4 screw                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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| 1<br>3                                                                                                                    | Multi-jaw coupling, Boston Gear #FA75<br>Flat hd screw #H0-32NF-2 x 5/8 lg.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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| 2                                                                                                                         | Bearing, N.D. #77R-10x1C<br>Spacer, 11/16 1D x 13/16 0D x .125 thk                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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| 2                                                                                                                         | Retaining ring, Truarc #N5000-86<br>Spacer, 21/64 ID x 1/2 0D x .500 lg.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   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| 1                                                                                                                         | Spacer, 21/64 ID x 1/2 00 x .688 1g.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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| rts ti                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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| ., Mar<br>ball i<br>York<br>crks, (<br>hori:<br>h with<br>limi<br>neywe                                                   | Juincy 71, Mass.<br>contal-vertical collet index fixture (right hand mounti<br>1 24-hole plate , Hardinge Brothers, Inc., Elmira, N. Y<br>t switch, Nicro-switch #1LS1. Micro-Switch Division of<br>11 Regulator Co., Freeport, 1111nois.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | nc.,<br>ng)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| all bu<br>ball i<br>Yorks<br>orks, (<br>horiz<br>Neviti<br>limi<br>oneywe<br>Slo=3<br>Sristo                              | shasset, New York.<br>Jushing seal, Thomson #OPM-3-750, Thomson Industries, I<br>Juincy 71, Nass.<br>contal-vertical collet index fixture (right hand mounti)<br>i 24-hole plate, Hardinge Brothers, Inc., Elmirs, N. Y<br>switch, Micro-switch #ILSI. Micro-Switch Division of<br>Il Regulator Co., Freeport, Illinois.<br>Syn synchroneus motor, Bifilar Type #35250-1002. Super<br>I, Cong                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | nc.,<br>ng)<br>tor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| all bu<br>Mar<br>ball i<br>York.<br>trks. (<br>horiz<br>H with<br>limi<br>snoywe<br>Slo-1<br>sristo                       | stasset, New York.<br>Sushing seal, Thomson #OPM-3-750, Thomson Industries, I<br>Juincy 71, Mass.<br>Contai-vertical collet index fixture (right hand mounti<br>3 24-hole plate., Hardinge Brothers, Inc., Elmira, N. Y<br>t switch, Micro-switch #ILSI. Micro-Switch Division of<br>11 Regulator Co., Freeport, Illinois.<br>Syn synchronous motor, Bifilar Type #S3250-1002. Super<br>, Con                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | nc.,<br>ng)<br>ier<br><u>E-54877</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| all bu<br>Mar<br>ball i<br>York.<br>trks. (<br>horiz<br>H with<br>limi<br>snoywe<br>Slo-1<br>sristo                       | <pre>shasset, New York.<br/>wahing seal, Thomson #OPM-S-750, Thomson industries, I<br/>wincy 71, Ness.<br/>contal-vertical collet index fixture (right hand mounti<br/>32-hole plate, Hardinge Brothers, Inc., Elmira, N. Y<br/>t switch, Nicro-switch #ILSI. Micro-Switch Division of<br/>11 Regulator Co., Freeport, Illinois.<br/>Syn synchronous motor, Bifilar Type #32560-1002. Super<br/>1, Cong.<br/>MAIN Assiv<br/>SUB-Assiv "B" Detract SM "3<br/>SUB-Assiv "B" Detract SM. "22<br/>SUB-Assiv "B" Detract S</pre>                         | nc.,<br>ng)<br>ior<br><i>E-54877</i><br><i>D-5489</i><br><i>D-5489</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| all bu<br>Mar<br>ball i<br>York.<br>trks. (<br>horiz<br>H with<br>limi<br>snoywe<br>Slo-1<br>sristo                       | <pre>shasset, New York.<br/>wushing seal, Thomson #OPM-3-750, Thomson Industries, I<br/>wuncy 71, Ness.<br/>tontal-vertical collet index fixture (right hand mountil<br/>32-hole plate, Hardinge Brothers, Inc., Elmira, N. Y<br/>t switch, Nicro-switch #ILSI. Micro-Switch Division of<br/>11 Regulator Co., Freeport, Illinois.<br/>Syn synchronous motor, Bifilar Type #33250-1002. Super<br/>1, Cong.<br/>Main Assiv. "B" Detraic SM "33<br/>Super Assiv." B" Detraic SM. "22<br/>SUPE Assiv." B" Detraic SM. "22<br/>SUPE Assiv." B" Detraic SM. "10<br/>SUPE Assiv." B" Detraic SM. "11<br/>SUPE Assiv." Detraic SM. "11<br/>SUPE Assiv." B" Detraice SM. "11<br/>SUPE Assiv." B" Detraice SM." "11<br/>SUPE Assiv." "11<br/>SUPE Assiv." "12<br/>SUPE Assiv." B" Detraice SM." "12<br/>SUPE Assiv." "13<br/>SUPE Assiv." "13<br/>SU</pre> | nc.,<br>ng)<br><i>Isr</i><br><i>I</i> .54877<br><i>D</i> .54893<br><i>D</i> .54893<br><i>D</i> .54892                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| all bu<br>Mar<br>ball i<br>York.<br>trks. (<br>horiz<br>H with<br>limi<br>snoywe<br>Slo-1<br>sristo                       | <pre>shasset, New York.<br/>ushing seal, Thomson #OPM-S-750, Thomson Industries, I<br/>uincy 71, Ness.<br/>contal-vertical collet index fixture (right hand mounti<br/>32-hole plate, Hardinge Brothers, Inc., Elmira, N. Y<br/>t switch, Nicro-switch #ILSI. Micro-Switch Division of<br/>11 Regulator Co., Freeport, Illinois.<br/>Syn synchronous motor, Bifilar Type #32560-1002. Super<br/>1, Cong.<br/>MAIN Assiv<br/>SUB-Assiv "B" Detract SM "3<br/>SUB-Assiv "B" Detract SM. "22<br/>SUB-Assiv "B" Detract S</pre>                         | nc.,<br>ng)<br>ior<br><i>E-54877</i><br><i>D-5489</i><br><i>D-5489</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| all bo<br>., Mar<br>kshi i York.<br>krks, (<br>Hwiti<br>imi<br>Slo=<br>kristo<br>ure                                      | <pre>httpset, Hew York.<br/>ushing seal, Thomson #OPH-S-750, Thomson Industries, I<br/>uincy 71, Ness.<br/>contal-vertical collet index fixture (right hand mountil<br/>24-hole plate , Hardinge Brothers, Inc., Elmira, N. Y<br/>t awitch, Hicro-awitch #ILSI. Hicro-Switch Division of<br/>Il Regulator Co., Freeport, Illinois.<br/>Sin synchronous motor, Elmirar Yappe \$35250-1002. Super<br/>Sins - Arssiv, "B" Detrait Sw. "S<br/>Sins - Arssiv, "B" Detrait Sw. "S<br/>Thorium U<sup>233</sup> Fuel Rorp Facility</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | nc.,<br>ng)<br><i>Isr</i><br><i>I</i> .54877<br><i>D</i> .54893<br><i>D</i> .54893<br><i>D</i> .54892                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| wall bo<br>ball i York.<br>vrks. (<br>H with<br>Sisto<br>Sisto<br>ure                                                     | <pre>shasset, New York.<br/>wahing seal, Thomson #OPM-S-750, Thomson Industries, I<br/>wincy 71, Ness.<br/>tontal-vertical collet index fixture (right hand mountil<br/>32-hole plate, Hardinge Brothers, Inc., Elmira, N. Y<br/>t switch, Nicro-switch #ILSI. Micro-Switch Division of<br/>11 Regulator Co., Freeport, Illinois.<br/>Syn synchronous motor, Bifilar Type #33250-1002. Super<br/>1, Cong.<br/>MAIN Assiv. "B" Derraic Sw "3<br/>Super Assiv." "B" Derraic Sw. "4<br/>Super Assiv." "B" Derraic Sw. "4<br/>REFERENCE DRAWINGS<br/>THORNUM U<sup>233</sup> FUEL ROTD FACILITY<br/>Noted Sciences Sciences</pre>                                                                                                                                                           | nc.,<br>ng)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| all bo<br>., Mar<br>kshi i York.<br>krks, (<br>Hwiti<br>imi<br>Slo=<br>kristo<br>ure                                      | <pre>https://www.intersection.com/withing/actional action and action act</pre>                                                                                                                                                                                                                      | nc.,<br>ng)<br><i>E-548717</i><br><i>D-54893</i><br><i>D-54893</i><br><i>D-54892</i><br>DWG. NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| sall bi<br>i, Mari<br>ball i<br>York, (<br>horiz<br>Miwiti<br>Sio-<br>Sio-<br>Sio-<br>Sio-<br>Sio-<br>Sio-<br>Sio-<br>Sio | <pre>htsset, Hew York.<br/>wahing seal, Thomson #OPH-S-750, Thomson Industries, I<br/>wincy 71, Nase.<br/>contal-vertical collet index fixture (right hand mountil<br/>Sub-Nole plate, Hardinge Brothers, Inc., Elmira, N. Y<br/>t awitch, Hicro-awitch #IISI. Micro-Switch Division of<br/>Il Regulator Co., Freeport, Illinois.<br/>syn synchronous motor, Bifilar Type #S3250-1002. Super<br/>I, Cong</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | nc.,<br>ng)<br><i>E-548717</i><br><i>D-54893</i><br><i>D-54893</i><br><i>D-54892</i><br>DWG. NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| sall bi<br>ball i<br>y York.<br>horis, (i<br>horis, filo-<br>bristo<br>sristo<br>sristo<br>sristo<br>sristo               | <pre>shasest, Hen York.<br/>bushing seal, Thomson \$0PH-3-750, Thomson Industries, I<br/>vuincy 71, Nase.<br/>contal-vertical collet index fixture (right hand mounti<br/>24-hole plate , Mardinge Brothers, Inc., Elmira, N. Y<br/>t awitch, Micro-awitch \$1181, Micro-Switch Division of<br/>11 Regulator Co., Freeport, 1111nois.<br/>Syn synchroneus motor, Bifilar Type \$3250-1002. Super<br/>1, Con</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | nc.,<br>ng)<br>ior<br>[-54877<br>[-54893<br>[-54893<br>[-54893<br>[-54893<br>[-54893<br>[-54893]<br>[-54893<br>[-54893]<br>[-54893<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54897]<br>[-54897]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548] |
| sall bi<br>ball i<br>y York.<br>horis, (i<br>horis, filo-<br>bristo<br>sristo<br>sristo<br>sristo<br>sristo               | <pre>ihasset, New York. ushing seal, Thomson #OPM-S-750, Thomson Industries, I uincy 71, Ness. Contal-vertical collet index fixture (right hand mountil to 24-hole plate, hardinge Brothers, Inc., Elmira, N. Y t switch, Nicro-switch #ILSI. Nicro-Switch Division of Il Regulator Co., Freeport, Illinois. Syn synchronous motor, Bifilar Type #35250-1002. Super J, Conn. MAIN Ass'Y SUB-Ass'Y 'B'' Detrait Sw '4 REFERENCE DRAWINGS THORIUM U<sup>233</sup>FUEL Roth Facility N DENSITY CHECKER SUB - Assembly 'B''CART OAK RDGE NATIONAL LABORATORY ONLOS OAK RDGE NATIONAL LABORATORY ONLOS </pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | nc.,<br>ng)<br>ior<br>[-54877<br>[-54893<br>[-54893<br>[-54893<br>[-54893<br>[-54893<br>[-54893]<br>[-54893<br>[-54893]<br>[-54893<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54897]<br>[-54897]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5487]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548] |
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Super<br/>1, Cong</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | nc.,<br>ng)<br>ior<br>[-54897]<br>[-54893<br>[-54893]<br>D:54893<br>[                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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MAIN Ass'Y SUB-Ass'Y 'B'' Detrait Sw '4 REFERENCE DRAWINGS THORIUM U<sup>233</sup>FUEL Roth Facility N DENSITY CHECKER SUB - Assembly 'B''CART OAK RDGE NATIONAL LABORATORY ONLOS OAK RDGE NATIONAL LABORATORY ONLOS </pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | nc.,<br>ng)<br>ior<br>[-54877<br>[-54893<br>[-54893<br>[-54893<br>[-54893<br>[-54893<br>[-54893]<br>[-54893<br>[-54893]<br>[-54893<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-54893]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-5489]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548]<br>[-548                                    |



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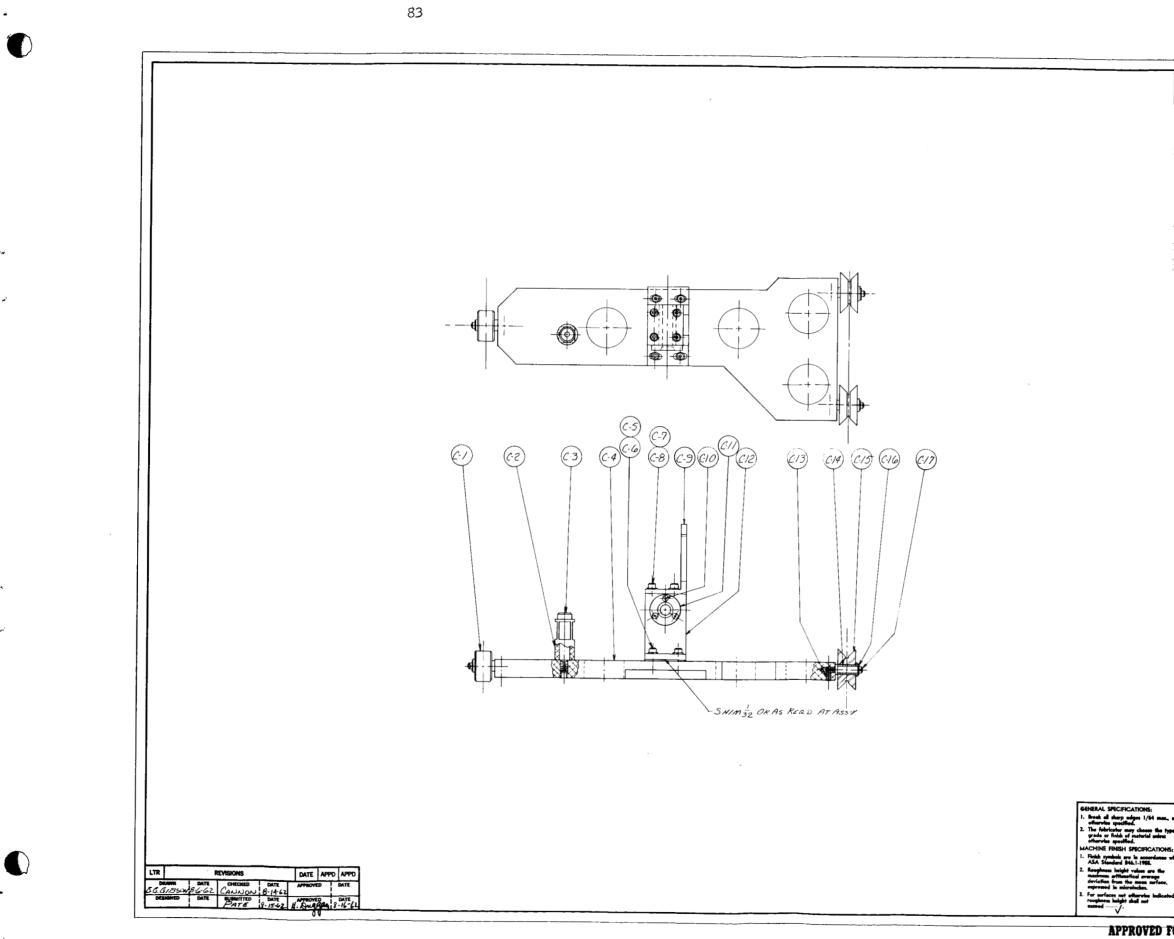
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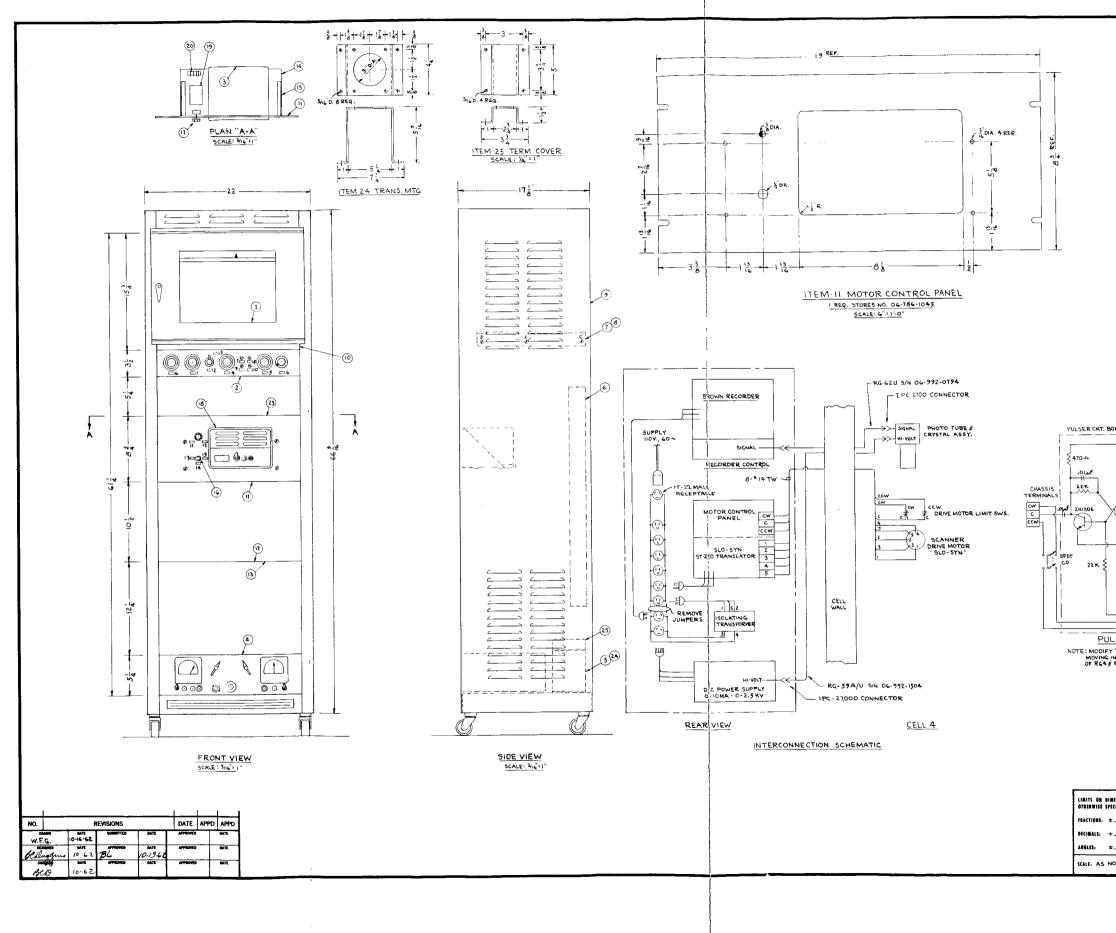


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| Inc.         DWG. NO.         N                                                                 | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                  |             | PARTS LIST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| -2         D-54895         1         Handle         ADSi-TE J           -3         Stock         1         1/2 dia soc hd shoulder screw x 2" lg.         Sti           -4         D-54895         1         Trolley         Godi-TE J         Godi-TE J           -5         Stock         4         Soc hd cap screw 1/4-20MC-2 x 1 1/4 lg.         Sti         Godi-TE J           -5         Stock         4         Soc hd cap screw 1/4-20MC-2 x 1 1/4 lg.         Sti         Sti           -7         Stock         4         Lockwasher for 1/4 screw         Sti         Sti           -8         Stock         4         Lockwasher for #10 acrew 5/8-20MC-2 x 1/2 lg.         Sti         Sti           -9         D-54895         1         Gage         Vega Tool Sti         Sti         Sti           -10         Stock         3         Flat hd screw #5-40MC-2 x 1/2 lg.         Sti         Sti           -11         D-54895         1         Gage block         Sti         Sti         Sti           -12         D-54895         1         Gage block         Sti         Sti         Sti           -15         D-54895         2         Meel         Sti         Sti           -                                                              | NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | DWG. NO.                                         | NO.<br>REQD | DESCRIPTION (NAME, SIZE, ETC.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | MATERIA                                                                 |
| -3       Stock       1       1/2 dia soc hd shoulder screw x 2* 1g.       Sti         -4       D-54895       i       Trolley       6061-T6 J         -5       Stock       4       Soc hd cap screw 1/4-20MC-2 x 1 1/4 1g.       Sti         -6       Stock       4       Soc hd cap screw 1/4-20MC-2 x 1 1/4 1g.       Sti         -7       Stock       4       Soc hd cap screw 1/4-20MC-2 x 5/8 1g.       Sti         -8       Stock       4       Lockwasher for 1/4 screw       Sti         -8       Stock       4       Lockwasher for 3/0 acrew       Sti         -9       D-54895       1       Eye       Sti         -10       Stock       3       Flat hd screw #5-40MC-2 x 1/2 1g.       Sti         -11       D-54895       1       Gage       Vega Tool Sti         -12       D-54895       1       Gage block       Soci = 45 crew #10-24MC-2 x 1/2 1g.       Sti         -13       Stock       3       Soci = est screw #10-24MC-2 x 1/2 1g.       Sti       Sti         -14       Stock       3       Bearing, Soton Gear #FD-86-8       Meel       Sti         -15       D-54895       3       Retaining ring, Truarc #5100-37       Sti <td< td=""><td>C-1</td><td>D-54895</td><td></td><td></td><td></td></td<>                                       | C-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | D-54895                                          |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                         |
| -4         D-54895         i         Trolley         COSi-TE J           -5         Stock 4         Soc hd cap screw 1/4-20NC-2 x 1 1/4 1g.         Sti           -6         Stock 4         Lockwasher for 1/4 screw         Sti           -7         Stock 4         Soc hd cap screw #10-24NC-2 x 5/8 1g.         Sti           -8         Stock 4         Lockwasher for #10 screw         Sti           -9         0-54895         I         Eye         GOGI-TE J           -10         Stock 3         Flat hd screw #50-24NC-2 x 1/2 1g.         Sti         Stock 3           -10         Stock 3         Flat hd screw #50-24NC-2 x 1/2 1g.         Sti         GOGI-TE J           -12         D-54895         I         Gage         Soc set screw #50-24NC-2 x 1/2 1g.         Sti           -13         Stock 3         Soc ast screw #50-24NC-2 x 1/2 1g.         Sti         Sti           -13         Stock 3         Bearing, Goston Gear #FB-68-8         Sti         Sti           -15         0-54895         2         Mheel         Sti         Sti           -162         Stock 3         Retaining ring, Truarc #5100-37         Sti         Sti           -162         Stock 3         Screw         Sti         Sti<                         | C-2<br>C-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                  |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                         |
| -5         Stock         4         Lockmasher for i/4 screw         Stil           -7         Stock         4         Soc hd cap screw         \$10-24K-2 x 5/8 1g.         Stil           -7         Stock         4         Lockmasher for #10-24K-2 x 5/8 1g.         Stil           -8         Stock         4         Lockmasher for #10 screw         \$6061-76 #           -9         0-54895         1         Eye         \$6061-76 #           -10         Stock         3         Flat hd screw         #5-40K-2 x 1/2 1g.         \$11           -10         54995         1         Gage         Boge         Yegs Tool \$til         \$061-76 #           -11         D-54995         1         Gage block         \$061-76 #         \$061-76 #         \$061-76 #           -13         Stock         3         Socten Gear #FD-24KC-2 x 1/2 1g.         \$11         \$0-5495 #         \$11         \$0-5495 #         \$11         \$100-37         \$11         \$11         \$11         \$11         \$11         \$11         \$11         \$11         \$11         \$11         \$11         \$11         \$11         \$11         \$11         \$11         \$11         \$11         \$11         \$11         \$11         \$11         \$ | -4  <br>1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | D-54895                                          | ίi.         | Trolley                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 6061-T6 A                                                               |
| -7     Stock     4     Soc hd cap screw #10-24KC-2 x 5/8 lg.     St1       -8     Stock     4     Lockwasher for #10 Acrew     St1       -9     D-54895     1     Eye     St0       -10     Stock     3     Flat hd screw     #5-40MC-2 x 1/2 lg.     St1       -10     Stock     3     Flat hd screw     #5-40MC-2 x 1/2 lg.     St1       -10     D-54895     1     Gage block     St1     St1       -12     D-54895     1     Gage block     St1     St1       -13     Stock     3     Soc set screw #10-24KC-2 x 1/2 lg.     St1       -14     Stock     3     Bearing, Soston Gear #FB-68-8     St1       -15     D-54895     2     Wheel     St7       -16     St857     Screw     St7       -17     D-54895     3     Screw       St7     St8495     3     Screw       Beston Gear Works, Quincy 71, Mass.     Tryarc #5100-37     St7       Tryarc Retaining Rings Div., Waldes Kohinoor, Inc., 47-16 Austel Place.     Tryarc #1                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                  | 4           | Soc hd cap screw 1/4-20NC-2 x 1 1/4 1g.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                         |
| -8         Stock         4         Lockwasher for \$10 screw         St1           -9         D-54895         I         Eye         6051-76 #           -10         Stock         3         Flat hd screw \$5-40MC-2 x 1/2 lg.         St1           -11         D-54895         I         Gage block         Yega Tool St1           -12         D-54895         I         Gage block         6061-76 #           -13         Stock         3         Sco set screw \$10-24MC-2 x 1/2 lg.         St1           -13         Stock         3         Bearing, Boston Gear \$FB-68-8         St1           -15         D-54895         2         Wheel         St7           -15         D-54895         3         Screw         St7           -15         D-54895         3         Screw         St7           -15         D-54895         3         Screw         St7           -17         D-54895         3         Screw         St7                                                                                                                         | -7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Stock                                            | 4           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                  |             | Lockwasher for #10 screw                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | St1                                                                     |
| II         D-54895         II         Gage         Vega Tool Sti           12         D-54895         I         Gage block         6061-76 Å           -13         Stock         3         Soc set screw fi0-24MC-2 x 1/2 1g.         Sti           -14         Stock         3         Bearing, Soston Gear #FB-58-8         Sti           -15         D-54895         2         Wheel         Sti           -162         Stock         3         Retaining ring, Truarc #5100-37         Sti           -17         D-54895         3         Screw         Sti           arrks:         Beatong charter         Beatong charter         Sti           Joston Gear Works, Quincy 71, Mass.         Truarc #100-71, More charter         Sti                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | D-24882                                          | - I i       | tye<br>Flat hd screw ≸5-щ∩жс_2 x 1/2 le                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                         |
| 1-12     D-54895     1     Gage block     6061-76 A       1-31     Stock 3     Soc set screw \$10-2480-2 x 1/2 1g.     \$11       1-41     Stock 3     Bearing, Soton Gear #FB-68-8     \$11       1-52     D-54895     2     Wheel     \$35       1-62     Stock 3     Retaining ring. Truerc #5100-37     \$35       1-7     D-54895     3     Screw     \$37       1-7     D-54895     3     Screw     \$35                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0-54895                                          |             | Gage Yega                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                         |
| -14 Stock 3 Bearing, Boston Gear #F8-68-8 53T<br>15 D-54895 2 Wheel 53T<br>162 Stock 3 Retaining ring, Truarc #5100-37 53T<br>177 D-54895 3 Screw 53T<br>Baston Gear Works, Quincy 71, Mass.<br>Truarc Retaining Rings Div., Waldes Kohinoor, Inc., 47-16 Austel Place.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                  |             | Gage block                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6061-T6 A                                                               |
| 1-15     D=54895     2     Wheel     331       1-152     Stock     3     Retaining ring, Truarc #5100-37     331       1-17     D-54895     3     Screw     331       marks:     Beston Gear Works, Quincy 71, Mass.     Truarc Retaining Rings Div., Waldes Kohinoor, Inc., W7-16 Austel Place.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                  | 3           | Bearing, Soston Gear #FB-68-8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Stl                                                                     |
| marks:<br>Boston Gear Works, Quincy 71, Mass.<br>Trywarc Retaining Rings Div., Waldes Kohinoor, Inc., 47-16 Austel Place.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | B FRAAF                                          |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | \$\$T                                                                   |
| marks:<br>Boston Gear Works, Quincy 71, Mass.<br>Truarc Retaining Rings Div., Waldes Kohinoor, Inc., 47-16 Austel Place.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -162                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Stock<br>D-54895                                 | 3           | Retaining ring, Truarc \$5100-37<br>Screw                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                         |
| narks:<br>Béston Gear Works, Quincy 71, Mass.<br>Truarc Retaining Rings Div., Waldes Kohinoor, Inc., W7-16 Austel Place.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                  |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 221                                                                     |
| Boston Gear Works, Quincy 71, Maas.<br>Truarc Retaining Rings Div., Maldes Kohinoor, Inc., 47-16 Austel Place.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                  |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                         |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | and the second                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                  |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | and the second |                                                  |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                  |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                         |
| MAIN ASS'Y E-5487                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | and the second |                                                  |             | MAIN ASSY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | £.54877                                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | реннийми числинием об'йшлэр, тэх бий усланынынын ний и                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                  |             | MAIN ASSY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | D-5489<br>5-54877<br>DWQ. NO.                                           |
| MAIN ASSY ESTABT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2010-1004 (2012) 2017 (2017) 201 (2017) 2017 (2017)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                  |             | MAIN ASSY<br>REFERENCE DRAWINGS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | £-54877<br>DWG. NO.                                                     |
| MAIN ASSIY FS4877<br>REFERENCE DRAWINGS DWG. NO.<br>THORNUM U <sup>233</sup> THEL ROD FACILITY MASJONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | CLASSIFIC                                        | ATION       | MAIN ASSY<br>REFERENCE DRAMMOS<br>THORIUMU <sup>233</sup> TUEL ROD FALLITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | £-54877<br>DWG. NO.                                                     |
| MAIN ASSIY FISTERTY<br>REFERENCE DRAWINGS DWG. NO.<br>THORIUMU <sup>233</sup> IDEL ROD FACILITY MAG<br>DENSITY CHECKER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | CLASSIFIC                                        | ATION       | MAIN ASSY<br>REFERENCE DRAMMOS<br>THORIUMU <sup>233</sup> FUEL ROD FALLLITY<br>DENSITY CHECKER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | E-54877<br>DWG. NO.                                                     |
| MAIN ASSIY FISTER<br>REFERENCE DRAWINGS DWG NO.<br>THORNUM U 233 FUEL ROD FALLUTY MO.<br>CLASSIFICATION<br>DENSITY CHECKER<br>SUB - ASSEMBLY "C" TROLLEY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                  |             | MAIN ASSY<br>REFERENCE DRAWINGS<br>THORYUMU 233 THEL ROD FACILITY<br>DENSITY CHECKER<br>SUB - ASSEMBLY "C" TROP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | E-54877<br>DWG. NO.                                                     |
| MAIN ASSIY FISTER<br>REFERENCE DRAWINGS DWG. NO.<br>THORNIUM U <sup>233</sup> THEL ROD FACILITY MASSIS<br>CLASSIFICATION<br>DENSITY CHECKER<br>SUB - ASSEMBLY C" TROLLEY<br>UNITS OF DIMONSION UNLESS<br>OAK ROGE NATIONAL LABORATORY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                  |             | MAIN ASSY<br>REFERENCE DRAWINGS<br>THORIUMU <sup>233</sup> TUEL ROD FACILITY<br>DENSITY CHECKER<br>SUB - ASSEMBLY C"TROL<br>OKK RIDGE NATIONAL LABORATORY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | E-54877<br>DWG. NO.                                                     |
| MAIN ASSIY FISTER<br>MAIN ASSIY FISTER<br>REFERENCE DRAWINGS DWG. NO.<br>THORNUMU CONTRACT TO THE CASSIFICATION<br>DENSITY CHECKER<br>DENSITY CHECKER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | MITS ON DIMENT                                   |             | MAIN ASSY<br>REFERENCE DRAWINGS<br>THORIUMU <sup>233</sup> TUEL ROD FACILITY<br>DENSITY CHECKER<br>SUB - ASSEMBLY C"TROL<br>ONK RIDGE NATIONAL LABORATORY<br>COMMITTE AD COMPAN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2-54877<br>DWG. NO.<br>10003.00/9                                       |
| MAIN ASSIY FISTER<br>MAIN ASSIY FISTER<br>REFERENCE DRAWINGS DWG. NO.<br>THORNUMU CONTRACT TO THE CASSIFICATION<br>DENSITY CHECKER<br>DENSITY CHECKER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | MITS ON DIMENT<br>THERMISE SPECIFIC<br>ACTIONS 1 |             | MAIN ASSY<br>REFERENCE DRAWINGS<br>THORIUMU <sup>233</sup> TUEL ROD FACILITY<br>DENSITY CHECKER<br>SUB - ASSEMBLY C"TROL<br>ONK RIDGE NATIONAL LABORATORY<br>COMMITTE AD COMPAN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2-54877<br>DWG. NO.<br>1033-30/9                                        |
| MAIN ASS:Y     F:54871       REFERENCE DRAWINGS     DWB. NO.       TORNUM U     233 TUEL Rob FALLETY       BASSIFICATION     DENSITY CHECKER       SUB - ASSEMBLY C'' TROLLEY       Units on Dimension Unless       ORK RIDGE NATIONAL LABORATORY       UNION CARBIDE OUTCLEAR COMPANY       DENSITY       UNION CARBIDE OUTCLEAR COMPANY       DOWNA ±                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | MITS ON DIMENT<br>THERMISE SPECIFIC<br>ACTIONS 1 |             | MAIN ASSY<br>REFERENCE DRAWINGS<br>THORIUMU <sup>233</sup> TUEL ROD FHEILITY<br>DENSITY CHECKER<br>SUB - ASSEMBLY "C" TROD<br>OAK RIDGE NATIONAL LABORATORY<br>OWSON OF UNION CARBIDE COMPANIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2-54877<br>DWG NO.<br>DWG NO.<br>12-54<br>12-54<br>12-54<br>12-54<br>NY |
| MAIN ASSIY     F:34871       REFERENCE DRAWINGS     DWQ. NO.       THORNUMU     233 TUEL ROD FACILITY       DENSITY     CHECKER       DENSITY     CHECKER       SUB - ASSEMBLY     C"TROLLEY       UMITS ON DIADOROME UNLESS     OAK ROGE NATIONAL LABORATORY<br>OWNERS FOORD       DENDORONE UNLESS     OAK ROGE NATIONAL LABORATORY<br>OWNERS FOORD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ACTIONE 1                                        |             | MAIN ASSY<br>REFERENCE DRAWINGS<br>THORIUMU <sup>233</sup> FUEL ROD FUELLITY<br>DENSITY CHECKER<br>SUB - ASSEMBLY C" TROL<br>ONK RIDGE NATIONAL LABORATORY<br>OWNERD BY<br>UNION CARBIDE NUCLEAR COMPA<br>DISSIN OF UNION CARBOD CONTONION<br>DISSIN OF UNION CARBOD CONTONION<br>MICHTIME DI UNION CARBOD CONTONIONION<br>MICHTIME DI UNION CARBOD CONTONION<br>MICHTIME DI UNION CARBOD CONTONIONIONE<br>MICHTIME DI UNION CARBOD CONTONIONE<br>MICHTIME DI UNION CARBOD CONTONIONIONIONE<br>MICHTIME DI UNION CARBOD CONTONIONIONIONIONIONIONIONIONIONIONIONIONIO | 12EY                                                                    |

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APPROVED FOR CONSTRUCTION



|                | 17. REQ.                                               |                                         | DESCRIPTI                                                                                                                                              | R (ADJ, SI                                                                                                                                        |                                  | STOR  | 2E 5 NO.             |
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|                | 2 1                                                    |                                         | ER CONTR                                                                                                                                               |                                                                                                                                                   |                                  | · · · |                      |
|                | 3 1                                                    | SLO-SYI                                 |                                                                                                                                                        |                                                                                                                                                   |                                  |       |                      |
|                | 5 1                                                    | ISOLATI                                 | 06.9                                                                                                                                                   | 82-3560                                                                                                                                           |                                  |       |                      |
|                | 6 1                                                    |                                         | ACLE STR                                                                                                                                               |                                                                                                                                                   | 196-1979                         |       |                      |
|                | 2 7                                                    |                                         | BRACKET-                                                                                                                                               | <b>_</b>                                                                                                                                          | 12-0612                          |       |                      |
|                | 82                                                     | MOUNTI                                  | NG BOLT -                                                                                                                                              |                                                                                                                                                   | 88-0780                          |       |                      |
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|                | 14 1                                                   | CHASSI                                  |                                                                                                                                                        | -                                                                                                                                                 | 174-0713                         |       |                      |
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|                | 16 1                                                   |                                         | SWITCH                                                                                                                                                 | DPDT-0                                                                                                                                            | ENTEROFF                         |       | 74-1726              |
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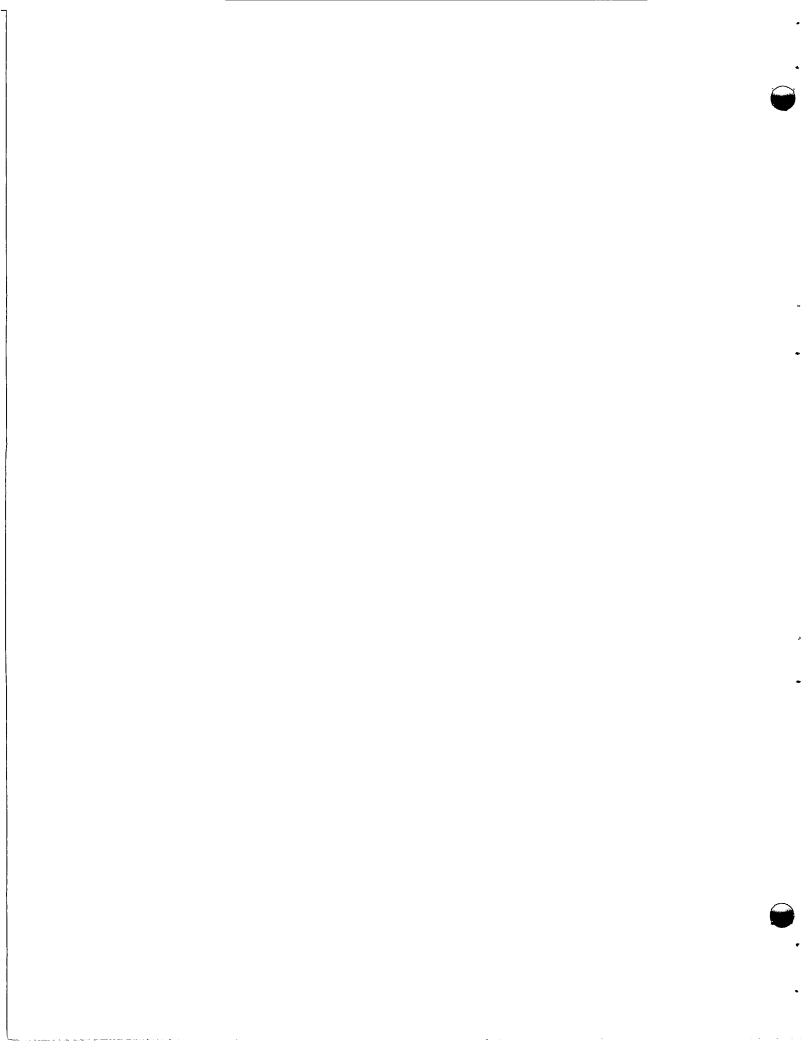
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# APPENDIX D

Equipment Purchase Specifications

Technical Specifications for Remote Weigher

Remotely Operated Ultrasonic Cleaner



## TECHNICAL SPECIFICATIONS FOR REMOTE WEIGHER

I. SCOPE

This specification covers the design, fabrication, and testing of a remotely controlled automatic weighing machine.

II. REFERENCES

None.

# III. REQUIREMENTS

- A. General Description
  - The machine will be a part of a remotely controlled processing line. It will be used to weigh and batch three different quantities of three different powders preparatory to blending.
  - 2. The machine shall include:
    - <u>a</u>. Three electrically or mechanically controlled feed mechanisms.
    - <u>b</u>. A single scale assembly capable of weighing, in sequence, three predetermined quantities within ±1% accuracy. Changeover may be either automatic or accomplished manually with the aid of manipulators.
    - <u>c</u>. A dump system. Fill and dump controls shall permit fully automatic operation, nonautomatic operation, or any combination of automatic and nonautomatic fill and dump.
    - <u>d</u>. A visual indicator which shall be legible at a distance of 10 ft. Readout may be either at the machine itself or on a remote indicator. The scale of the indicator shall be calibrated in grams and half grams.
  - 3. Supply and discharge hoppers will be supplied by the Company.
  - 4. The materials to be weighed and batched are:
    - a. Powder No. 1 522 g of -6 +16 mesh powder.
    - b. Powder No. 2 130.5 g of -50 +140 mesh powder.
    - <u>c</u>. Powder No. 3 217.5 g of -200 mesh powder. Powders Nos. 1 and 2 are very dry and abrasive and flow like dry sand. Powder No. 3 flows like dry talc. Sample powders cannot be supplied by the Company.

- B. Materials and Equipment
  - All operations shall be electrically or mechanically controlled. Hydraulic or pneumatic operators or controls shall not be used for any part of the system.
  - 2. The maximum permissible voltage at any control or instrument with which the operator comes in contact shall be 110 v ac.
  - 3. The maximum size of the machine, not including hoppers furnished by the Company, shall be 3 ft by 3 ft by 3 ft.
  - 4. The machine shall be fitted with a lifting eye located approximately over the center of gravity to permit handling with a 1/2-ton crane. The machine shall hang reasonably level from the crane hook.
  - 5. Materials: All parts which will come in contact with the powders being weighed shall be made from any 300 series stainless steel. Flat surfaces shall have a 2B sheet finish or equivalent. Welds, if required, shall be ground smooth.
  - All other materials, insofar as practicable, shall be any 300 series stainless steel.
- C. Manufacturer's Data
  - 1. The Seller shall furnish the following information with the bids:
    - <u>a</u>. Sketch or photographs of the proposed equipment showing principal dimensions and accessory components.
    - b. Complete description and sequence of operations.
    - c. Complete description of proposed remote controls and operators.
  - 2. The Seller shall furnish the following information with the equipment on delivery:
    - a. Three copies of complete operation and servicing instructions.
- D. Acceptance and Tests
  - The Seller shall demonstrate the ability of the equipment to be furnished to meet the requirements of this specification prior to shipment. Tests shall be performed at the Seller's site and shall be at the Seller's expense.

- 2. The Seller shall notify the Company at least 10 days in advance of such tests.
- 3. Acceptance shall be at the Seller's site upon satisfactory completion of the tests specified above.
- E. Packaging and Shipping
  - The equipment shall be securely crated and/or skidded to prevent damage or contamination of the working surfaces during handling and shipping.
  - 2. The Seller shall include a complete set of installation, operating, and service instructions with the equipment upon shipment.

### TECHNICAL SPECIFICATIONS FOR ULTRASONIC CLEANER

I. SCOPE

This specification covers the design, fabrication, and test of a remotely operated ultrasonic cleaning system.

II. REFERENCES

None.

## III. REQUIREMENTS

#### A. General Description

The system will be part of a processing line and will be used for cleaning zirconium rods 1/2-in.-diam by 48 in. long. The cleaning medium will be water. The system shall include:

- 1. A carriage to support and rotate the rod during the following operations. The carriage shall be capable of being raised above the level of the tank to permit the rod to be placed and removed by a remotely operated manipulator.
- A complete ultrasonic cleaning system, including provisions for remotely controlled filling and draining of the tank. The tank shall drain completely.
- 3. A water spray system to rinse the rod after the cleaning operation and to thoroughly wash down the interior of the tank after each cleaning operation.
- 4. A warm air drying system to dry the rod after final rinse.
- 5. The tank and attached components shall have a lifting eye or lug, located approximately over the center of gravity, for handling with a crane.

B. Equipment

The tank shall be made from any 300 series stainless steel and shall be all welded construction. The interior surfaces shall have a 2B sheet finish or equivalent. All welds shall be ground smooth.

The maximum tank width and length shall be 15 in. and 60 in., respectively. The height of the rod in loading position (carriage raised) shall be 40 in. from the floor.

The carriage assembly shall be made of any 300 series stainless steel. It shall be equipped with powered rollers or other device to rotate the work piece during the cleaning, rinsing, and drying operations. The mechanism for raising and lowering the carriage shall be operated either electrically or mechanically. Hydraulic or pneumatic systems shall not be used. The work piece shall be held in a horizontal position at all times. The tank shall be fitted with a splash-tight cover to seal the tank during cleaning and rinsing operations. The tank cover may be opened and closed in conjunction with the carriage raising mechanism.

The spray rinse assembly shall spray water in a manner that the work piece, the carriage, and the interior of the tank are thoroughly rinsed.

The warm air dryer shall be capable of thoroughly drying the work piece in less than 5 min.

Controls and operators shall be either electrical or mechanical. No hydraulic or pneumatic controls or operators shall be used. All operations shall be remotely controlled from a console located at least 30 ft from the processing line. Mechanical controls shall be operable by means of nonarticulated manipulators (supplied by the Company). The maximum permissible voltage on any control or instrument at the console shall be 110 v ac.

The power supply and ultrasonic generator shall be located at least 30 ft from the processing line. The ultrasonic generator shall have an output of approximately 500 w at 25 kc.

The transducers shall be lead zirconate.

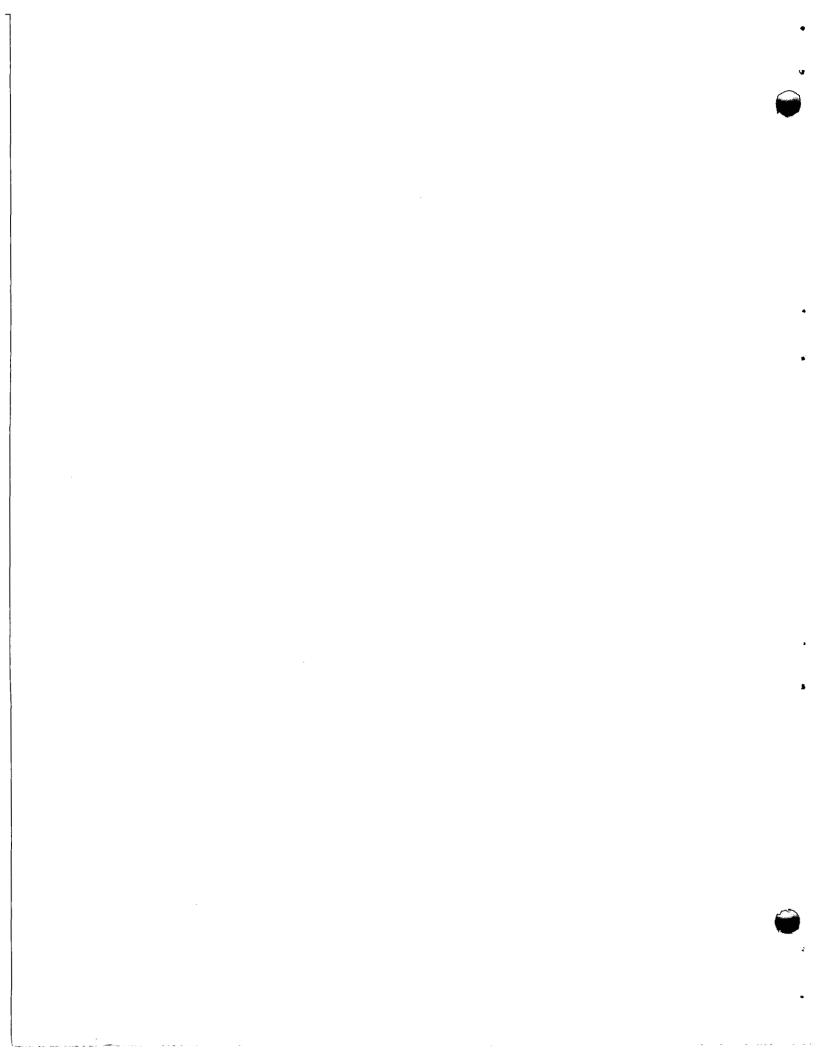
This equipment shall comply with applicable requirements of the Federal Communications Commission.

C. Operations Sequence

1. Raise carriage, place rod on carriage (by manipulators).

- 2. Lower carriage into cleaning water (tank may be filled either before or after raising the carriage to receive rod).
- 3. Cleansing cycle.
- 4. Drain.
- 5. Rinse and drain.
- 6. Dry (5 min maximum).
- 7. Raise carriage, remove rod.
- D. Manufacturer's Data
  - 1. The Seller shall furnish the following information with the bid:
    - <u>a</u>. Sketch or sketches of the proposed equipment showing principal dimensions and accessory components.
    - b. Complete description and sequence of operation.
    - c. Complete description of proposed remote controls and operators.
  - 2. The Seller shall furnish the following information for approval prior to the start of fabrication:
    - a. Assembly drawings.
    - b. Mill test reports or certifications for all materials to be in contact with work piece or ultrasonic cleaning medium.
  - 3. The Seller shall furnish the following information with the equipment on delivery:
    - <u>a</u>. Three copies of complete operation and servicing instructions.
- E. Tests and Acceptance
  - 1. The Seller shall demonstrate the ability of the equipment to meet the requirements of this specification by means of operating tests to be performed at the Seller's site and at the Seller's expense.
  - 2. The Seller shall notify the Company at least 10 days in advance of such tests.
  - 3. The Seller shall furnish a certified report of such tests.

- 4. Acceptance shall be at the Seller's site upon satisfactory demonstration that the equipment furnished meets the requirements of this specification.
- F. Packaging and Shipping
  - 1. The equipment shall be securely crated and/or skidded to prevent damage or contamination of the working surfaces during handling and shipping.
  - 2. The Seller shall include a complete set of installation, operating, and service instructions with the equipment during shipment.



APPENDIX E

Drawing Index

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|                    | CH. EQUIP IST & 2ND. FL.                                                 |                    | EQUIP IST. & 2ND. FL. (Con                                              |                    | MECH. EQUIP 3 RD. FL.                                                                                     |                    | STRUCTURAL                                                                    |
|--------------------|--------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------|
| DWG. No.           | TITLE                                                                    | DWG. No.           | TITLE                                                                   | DWG. No.           | TITLE                                                                                                     | DWG. No.           | TITLE                                                                         |
| D-45015            | Castle Manipulators Sheet 1                                              | D-51225<br>D-51226 | Blender Assembly<br>Blender Details                                     | E-42986<br>D-42987 | Tray Dumper Assembly                                                                                      | D-50475<br>D-50476 | Concrete Floor Plan                                                           |
| D-45016<br>D-45017 | Castle Manipulators Sheet 2<br>Castle Manipulators Details               | D-51226            | Blender Details                                                         | D-42987<br>D-42988 | Tray Dumper Details<br>Tray Dumper Details                                                                | D-50476            | Concrete Floor Plan Section<br>Floor Liner                                    |
| D-45018            | Castle Manipulators Details                                              | D-51228            | Blender Details                                                         | D-42989            | Tray Dumper Details                                                                                       | D-50478            | First Floor Gamma Shield                                                      |
| D-45019            | Castle Manipulators Details                                              | D-51229            | Blender Details<br>Blender Details                                      | D-42990            | Tray Dumper Details                                                                                       | D-50479            | First Floor Alpha Seal                                                        |
| D-45020<br>D-45021 | Castle Manipulators Details<br>Lead Plug for Glove Ports                 | D-51230<br>D-51234 | lielium Leak Test                                                       | D-42991<br>D-42992 | Tray Dumper Details<br>Tray Dumper Details                                                                | D-50480<br>D-50481 | Details first Floor Area<br>First Floor Armor Plates                          |
| D-45022            | Elevator Assembly                                                        | D-51235            | Helium Leak Test Details                                                | D-51237            | Work Table Truck Assembly and Details                                                                     | D-50482            | Second Floor Plan                                                             |
| D-45023            | Elevator Details                                                         | D-51236            | Relium Leak Test Details                                                | D-51238            | Work Table Truck Details                                                                                  | D-50483            | Equipment Shaft Elevation                                                     |
| D-45024<br>D-46558 | Elevator Details<br>Recycling Hopper Assembly                            | D-52450<br>E-52451 | Remote Welder Assembly<br>Remote Welder Sub Assembly A                  | D-51239<br>D-51240 | Work Table - Table Assembly<br>Work Table - Table Details                                                 | D-50484<br>D-50485 | Vertical Section, Stair and Platform Det<br>Second Floor Alpha Seal Plan      |
| D-46559            | Recycling Hopper Details Sheet (                                         | E-52452            | Remote Welder Sub Assembly B                                            | D-51240            | Work Table Assembly                                                                                       | D-50485            | Second Floor Alpha Seal Sections                                              |
| D-46560            | Recycling Hopper Details Sheet 2                                         | D-52453            | Remote Welder Details                                                   | D-51242            | Calciner Track Assembly                                                                                   | D-50487            | Second Floor Alpha Seal Sections                                              |
| D-46561            | Recycling Hopper Detail Sheet 3                                          | D-52454<br>D-52455 | Remote Welder Details                                                   | D-51243            | Bag-Out Port Details                                                                                      | D-50488            | Second Floor Alpha Seal Sections                                              |
| D-46562<br>D-46563 | Recycling Hopper Details Sheet 4<br>Recycling Hopper Détails Sheet 5     | D-52455            | Remote Welder Details<br>Remote Welder Details                          | D-51244<br>D-51245 | Work Table Dolly Assembly<br>Work Table Dolly Details                                                     | D-50489<br>D-50490 | Second Floor Alpha Seal Details<br>Balcony and Third Floor Plan               |
| D-50371            | Ball Valve Control Shaft Details                                         | D-52457            | Remote Welder Details                                                   | D-51246            | Work Table Dolly Details                                                                                  | D-50491            | Solids Preparation Area - Horizontal Sec                                      |
| D-50372            | Interlocking Control Shaft Details                                       | D-52458            | Remote Welder Details                                                   | D-51247            | Work Table Dolly Details                                                                                  | D-50492            | Solids Preparation Area - Vertical Secti                                      |
| D-50373<br>D-50374 | Push Pull Control Shaft Details                                          | D-52459<br>D-52460 | Remote Welder Details<br>Remote Welder Details                          | D-51248            | Bag-Out Port Details                                                                                      | D-50493            | Second and Third Floor Gamma Shield                                           |
| D-50374<br>D-50418 | Vibrator Control Cable Details<br>Door Clamp                             | D-52460            | Remote Welder Details                                                   | D-51249<br>D-51858 | Bag-Out Port Details<br>Crucible Dumper Assembly                                                          | D-50494<br>D-50495 | Solids Preparation Area - Panel Details<br>Solids Preparation Area Elevations |
| D-50419            | Blender Valve Control Shaft                                              | D-52462            | Remote Welder Details                                                   | D-51859            | Crucible Dumper Details                                                                                   | D-50496            | Vertical Section Looking North                                                |
| D-50420            | Blender Valve Control Shaft Details                                      | D-52463            | Remote Welder Details                                                   | D-51860            | Crucible Dumper Details                                                                                   | D-50497            | Air Lock and Hatch Enclosures Details                                         |
| D-50421<br>D-50422 | By Pass Valve<br>Equipment Carriage Assembly                             | D-52464<br>D-52465 | Remote Welder Details<br>Remote Welder Details                          | 0-51861<br>C-51862 | Crucible Dumper Details<br>Crucible                                                                       | D-50498<br>D-50499 | Air Lock and Hatch Enclosures Details<br>Access Ladder Details                |
| D-50423            | Pallets                                                                  | D-52466            | Remote Welder Details                                                   | D-51863            | Hopper - Weldment Assembly                                                                                | D-40283 RI         | Preliminary Solids Preparation Area                                           |
| D-50424            | Cell Service Index                                                       | D-52467            | Remote Welder Details                                                   | 0-51864            | Elevator - Assembly and Details                                                                           | D-40288            | Preliminary Solids Preparation Area                                           |
| D-51175<br>D-51176 | fuel Rod<br>Vibrator Details                                             | D-52468<br>D-52469 | Remote Welder Details<br>Remote Welder Details                          | D-51865<br>D-51866 | Elevator ~ Details                                                                                        |                    |                                                                               |
| D-51170            | Vibrator Details                                                         | D-52470            | Remote Welder Details                                                   | D-54250            | Elevator - Details<br>Window No. 1 Installation                                                           |                    |                                                                               |
| D-51178            | Vibrator Details                                                         | D-52471            | Remote Welder Details                                                   | D-54251            | Window No. 2 Installation                                                                                 |                    |                                                                               |
| D-51179            | Vibrator Details                                                         | D-52472            | Remote Welder Details                                                   | D-54252            | Window No. 3 Installation                                                                                 |                    |                                                                               |
| D-51180<br>D-51181 | Vibrator Details<br>Vibrator Details                                     | D-53475<br>D-53476 | Carriage for 2" Feeder Valve<br>Pallet for 2" Feeder Valve              | D-54253<br>D-54254 | Window No. 4 Installation<br>Window No. 5 Installation                                                    |                    |                                                                               |
| D-51182            | Vibrator Details                                                         | D-53477            | Special Pallet                                                          | D-54255            | Window No. 6 Installation                                                                                 |                    |                                                                               |
| D-51183            | Vibrator Details                                                         | D-53478            | Carriage Clamp Assembly                                                 | D-54256            | Left Hand and Right Hand Glove Port Assembly                                                              |                    |                                                                               |
| D-51184<br>D-51185 | Vibrator Details<br>Vibrator Details                                     | D-53479<br>D-53480 | Repair Area Carriage<br>Repair Area Door                                | D-54257            | Glove Port and Shielded Glove Port Assembly                                                               |                    |                                                                               |
| D-51186            | Vibrator Details                                                         | D-53481            | Vibrator Control Bracket Details                                        | D-54258<br>D-54259 | Bag-Out Port Assembly<br>Service Panel Installation and Details                                           |                    |                                                                               |
| D-51187            | Vibrator Details                                                         | D-53482            | Vibrator Control Bracket Details                                        | D-54260            | Glove Port Details                                                                                        |                    |                                                                               |
| D-51188<br>D-51189 | Vibrator Details                                                         | D-53483<br>D-53484 | Equipment Shaft Installation<br>Equipment Shaft Frame Structure         | D-54261            | Glove Port Details                                                                                        |                    |                                                                               |
| D-51189<br>D-51190 | Vibrator Assembly<br>Lead Glass Window                                   | D-53500            | Classifier Assembly                                                     | 0-54262<br>0-54263 | Blend Tank Table Installation<br>Blend Tank Table Details                                                 |                    | ELECTRICAL                                                                    |
| D-51191            | Bag Out Port Assembly                                                    | D-53501            | Classifier Detail Sheet I                                               | D-54264            | Crucible Cover                                                                                            |                    | ,                                                                             |
| D-51192            | Rotary Control Shaft Assembly                                            | D-53502            | Classifier Detail Sheet 2                                               | D-54265            | Window No. 5 Details                                                                                      | DWG. No.           | TITLE                                                                         |
| D-51193<br>D-51194 | Ball Valve Control Shaft Assembly<br>Interlocking Control Shaft Assembly | D-53503<br>C-53504 | Classifier Detail Sheet 3<br>Classifier Detail Sheet 4                  | D-5 224            | Glove Port Details                                                                                        | D-50885            | Electrical Notes and Legend                                                   |
| D-51195            | Push Pull Control Shaft Assembly                                         | D-53505            | Classifier Detail Sheet 5                                               |                    |                                                                                                           | D-50886            | Power and Lighting Plan - 1st Floor                                           |
| D-51196            | Control Cable for Vibrator                                               | D-53518            | Carrier Cradle & Track Detail                                           |                    | A/H & PIPING                                                                                              | D-50887            | Power and Lighting Plan - 2nd Floor                                           |
| D-51197<br>D-51198 | Bag Out Port Details<br>Bag Out Port Details                             | D-53485<br>E-54877 | Miscellaneous Details<br>Density Checker Assembly                       | DWG. No.           | TITLE                                                                                                     | D-50888            | Elect. Sect., Details and Pnl Sch.                                            |
| D-51199            | Rotary Control Shaft Details                                             | E-54878            | Density Checker Assembly<br>Density Checker Sub Assy A                  | D-51950            | Cell 4 Cubicle Ventilation Air Ducts - Plans, Elevations                                                  | D-50889<br>D-50890 | Electrical Elev. & Details<br>440V Wiring Diagram                             |
| D-51200            | Feeder Assembly                                                          | D-54879            | Density Checker Sut Assy B                                              |                    | and Sections                                                                                              | D-50891            | Equip. Shaft - Connection Diagram                                             |
| D-51201            | Feeder Details<br>Feeder Details                                         | D-54880            | Density Checker Sub Assy C                                              | D-51951            | Cell 4 Cubicle Ventilation - Supply Air Filter Box                                                        | D-50892            | Connection Diagram & Pnl Det. (Sheet 1)                                       |
| D-51202<br>D-51204 | Feeder Details<br>By Pass Valve                                          | 0-54881<br>D-54882 | Density Checker Details<br>Density Checker Details                      | D-51952            | Plan, Elevation, Section and Details<br>Cell 4 Cubicle Ventilation - Outlet Filter Box                    | D-50893<br>D-50894 | Remote Welder - Connection Diagram<br>Remote Welder - Connection Schematic    |
| D-51205            | By Pass Valve Details                                                    | D-54883            | Density Checker Details                                                 | 5.51552            | Elevations, Sections and Details                                                                          | D-50895            | Connection Diagram and Phl. Det, (Sheet                                       |
| D-51208            | Fuel Cell Door                                                           | D-54884            | Density Checker Details                                                 | D-51953            | Cell 4 Cell Outlet Backflow Preventer Assembly and                                                        | D-42843            | Electrical Plan 3rd Level                                                     |
| D-51209<br>D-51210 | Fuel Cell Door Details<br>Fuel Cell Door Details                         | D-54885<br>D-54886 | Density Chocker Details<br>Density Checker Details                      | D-51954            | Details<br>Cell 4 Ventilation Details                                                                     | D-42844            | Electrical Elevations 3rd Level                                               |
| D-51212            | Crusher Assembly                                                         | D-54887            | Density Checker Details                                                 | D-51954<br>D-51955 | Cell 4 Ventilation Details<br>Cell 4 Duct and Pipe Support Details                                        | D-42845            | Electrical Details 3rd Level                                                  |
| D-51213            | Crusher Details                                                          | D-54888            | Density Checker Details                                                 | D-51960            | Cell 4 Service Piping - Penthouse Plan and Sections                                                       |                    |                                                                               |
| D-51214<br>D-51215 | Crusher Details<br>Ball Mill Assembly                                    | D-54889            | Density Checker Details                                                 | D-51961            | Cell 4 Service Piping - First Floor Plan and Sections                                                     |                    |                                                                               |
| D-51215<br>D-51216 | Ball Hill Assembly<br>Ball Hill Details                                  | D-54890<br>D-54891 | Density Checker Details<br>Density Checker Details                      | D-51962<br>D-51963 | Cell 4 Service Piping - 2nd Floor Plan and Sections<br>Cell 4 Service Piping - Balcony and 3rd Floor Plan |                    |                                                                               |
| 0-51217            | Ball Mill Details                                                        | D-54892            | Density Checker Details                                                 | 5-51305            | and Sections                                                                                              |                    |                                                                               |
|                    | Ball Hill Details                                                        | D-54893            | Density Checker Details                                                 | D-44295 RI         | Sump Dra'in Piping - Plan & Sections                                                                      |                    |                                                                               |
| D-51219<br>D-51220 | Ball Hill Details<br>Ball Mill Details                                   | D-54894<br>D-56677 | Density Checker Details<br>27 By-Pase Value Accombly & Details          |                    |                                                                                                           |                    |                                                                               |
|                    | 2" Feeder Valve Assembly                                                 | 0-56683            | 2 <sup>m</sup> By-Pass Valve Assembly & Details<br>Bag-Out Port Adaptor |                    |                                                                                                           |                    |                                                                               |
| D-51222            | 2" Feeder Valve Details                                                  | D-56684            | Vibratory Filler Tube Assembly                                          |                    |                                                                                                           |                    |                                                                               |
| D-51223            | 2" Feeder Valve Details                                                  | D-56693            | Ball Hill Modifications                                                 |                    |                                                                                                           |                    |                                                                               |
|                    | 1                                                                        | 0-56694            | Ball Hill Modifications Details                                         | 1                  |                                                                                                           |                    | 1                                                                             |

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| Laboratory Records Department  | 55.                                                                                                                                                                                                                                                                                                                                                                                          | R. W                                                                                                                                                                                                                                                                                                                                                                                                                                     | . McClung                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Laboratory Records, ORNL R. C. | 56.                                                                                                                                                                                                                                                                                                                                                                                          | E. C                                                                                                                                                                                                                                                                                                                                                                                                                                     | . Miller                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| ORNL Patent Office             | 57.                                                                                                                                                                                                                                                                                                                                                                                          | J. F                                                                                                                                                                                                                                                                                                                                                                                                                                     | . Murdock                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| R. J. Beaver                   | 58.                                                                                                                                                                                                                                                                                                                                                                                          | <b>A.</b> F                                                                                                                                                                                                                                                                                                                                                                                                                              | . Olsen                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| R. E. Brooksbank               | 59.                                                                                                                                                                                                                                                                                                                                                                                          | F. I                                                                                                                                                                                                                                                                                                                                                                                                                                     | . Peishel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| C. A. Burchsted                | 60.                                                                                                                                                                                                                                                                                                                                                                                          | S. A                                                                                                                                                                                                                                                                                                                                                                                                                                     | . Rabin                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| J. A. Burka                    |                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| W. L. Carter                   | 62.                                                                                                                                                                                                                                                                                                                                                                                          | J. I                                                                                                                                                                                                                                                                                                                                                                                                                                     | . Sease                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| F. L. Culler                   | 63.                                                                                                                                                                                                                                                                                                                                                                                          | G. M                                                                                                                                                                                                                                                                                                                                                                                                                                     | . Slaughter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| F. C. Davis                    | 64.                                                                                                                                                                                                                                                                                                                                                                                          | C. M                                                                                                                                                                                                                                                                                                                                                                                                                                     | . Smith                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| O. C. Dean                     |                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                          | . Swartout                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                | 66.                                                                                                                                                                                                                                                                                                                                                                                          | J. W                                                                                                                                                                                                                                                                                                                                                                                                                                     | . Tackett                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| J. H Frye, Jr.                 |                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| R. G. Gilliland                |                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                          | _                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| W. R. Grimes                   | 69.                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                          | . Weinberg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| W. O. Harms                    | 70.                                                                                                                                                                                                                                                                                                                                                                                          | М. Е                                                                                                                                                                                                                                                                                                                                                                                                                                     | . Whatley                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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|                                |                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                          | . Burr (consultant)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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