

AIR REDUCTION COMPANY INC. ■ RESEARCH and ENGINEERING DEPARTMENT ■ RE-66-085-CRE-36 Copy No. 4

# AIR REDUCTION COMPANY INCORPORATED

## RESEARCH and ENGINEERING DEPARTMENT

RE-66-085-CRE-36

TOFLOX Synthesizer Study

Final Report

Contract No. NAS8-20099

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# AIR REDUCTION COMPANY

INCORPORATED

RESEARCH AND ENGINEERING DEPARTMENT  
MURRAY HILL, NEW JERSEY

RE-66-085-CRE-36

TOFLOX Synthesizer Study

Final Report

to

National Aeronautics and Space Administration  
George C. Marshall Space Flight Center  
Huntsville, Alabama 35812  
Attention: PR-RC

Contract No. NAS8-20099

Control No. DCN-1-5-54-01155-01

J.J. Sima

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ABSTRACT

Equipment has been developed for the pilot production of 0.05 - 0.10%  $O_3F_2$  in  $LO_2$  (TOFLOX) in 25 gal. batch quantities. The equipment, now being operated at Huntsville, demonstrates that TOFLOX can be made reliably and safely on an engineering scale. This report contains information necessary for the operation and maintenance of that equipment.

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## 1. INTRODUCTION AND SUMMARY

This Final Report has been prepared to provide NASA with the required technical and inventory data necessary for the operation and maintenance of the TOFLOX production equipment.

The TOFLOX production equipment was developed to produce a mixture of 0.05 - 0.10% by weight trioxygen difluoride ( $O_3F_2$ ) in liquid oxygen ( $LO_2$ ). The equipment consists of two major systems, one to produce pure  $O_3F_2$  from a fluorine-oxygen gas mixture in a series of manifolded glow discharge reactors at liquid oxygen temperature; and the other, a mixing system for obtaining a homogeneous mixture (TOFLOX) of the  $O_3F_2$  and  $LO_2$ . A nominal capacity of 25 gal. of TOFLOX in about 6 hr. has been achieved.

The equipment was developed at the Airco Murray Hill Laboratory where preliminary operation was completed. The system was then shipped to Huntsville where it was installed in a revetment at Redstone Arsenal. Performance tests also were run at Redstone to demonstrate the adequacy of the equipment and to instruct NASA personnel in its use.

From the results of the performance runs made at Murray Hill and Huntsville, it can be stated that TOFLOX can be made reliably and safely in engineering type equipment as compared with the all glass laboratory type installations previously used for  $O_3F_2$  production.

NASA will use the test quantities of TOFLOX to determine if a significant reduction in blast hazard results when mixed with  $LH_2$ . It is hoped that TOFLOX will provide hypergolic ignition that will permit a controlled deflagration rather than a detonation which usually occurs with the  $LO_2 - LH_2$  system.

This Final Report differs from the conventional, in that it is not prepared as a description of the development and results obtained. Such information is contained in a series of 8 Monthly Reports previously issued under this contract. Rather, this report is prepared to permit NASA personnel to operate and maintain the equipment. Accordingly, 3 sections are contained as follows:

- 1) Operating instructions for the TOFLOX synthesizer.
- 2) A description of the  $O_3F_2$  system leak rate calculations.
- 3) Tabulation of all project purchase orders and the location of the included equipment on a process flow sheet.

## 2. DISCUSSION OF TOFLOX EQUIPMENT

### 2.1 SYNTHESIZER

The TOFLOX Synthesizer was developed, fabricated, and tested for MSFC under Contract NAS8-20099 for the purpose of producing pilot plant quantities of nominal 0.05 - 0.10 weight percent trioxygen difluoride ( $O_3F_2$ ) solution in  $LO_2$  (TOFLOX).

The equipment consists of two independently operable systems, the " $O_3F_2$  Reactor Unit" and the "TOFLOX Mixer Unit." Pertinent details of each unit are described below.

#### 2.1.1 $O_3F_2$ Reactor Unit

This system consists of five glass envelopes or "cells" containing electrodes mounted on a common manifold, each of which has its own gas control valve and electrical control circuitry. The reactors and manifold are immersed in a  $LO_2$  bath to synthesize and maintain the produced  $O_3F_2$  at  $90^\circ K$ . The glass "cells", manifold, and associated  $O_2-F_2$  feed gas plumbing system and helium gas purge system are capable of being evacuated, purged with helium, or vented into the fluorine disposal system as desired.

#### 2.1.2 TOFLOX Mixer Unit

When sufficient  $O_3F_2$  is synthesized to make the desired quantity of TOFLOX when mixed with  $LO_2$ , the  $O_3F_2$  is transferred by gravity flow (while being "washed" with helium gas) into the Mixer Unit containing  $LO_2$ . The mix is stirred with a remote controlled air stirrer motor until analysis of TOFLOX samples indicate that the desired concentration of TOFLOX is obtained. The contents are then transferred into a TOFLOX Transport Vessel for its removal to the test site.

### 2.2 FLUORINE PRECONDITIONING

#### 2.2.1 Purpose

All components which come in contact with fluorine must be "preconditioned" using low concentrations of fluorine in order to form a thin protective coating over the exposed surfaces. If this is not accomplished, then the introduction of a high concentration of fluorine may cause rapid chemical reaction to the extent that even the metal may burn.

## 2.2.2 Directions

- 1) Clean all equipment before assembly per MSFC-SPEC-106A, Cleaning Instructions for Liquid Oxygen, as it applies to hydrocarbon cleanliness levels.
- 2) Apply heat to the NaF trap while purging with gaseous nitrogen or helium until no more HF vapor is driven off. (This is required normally only after 5 - 10 runs or when F<sub>2</sub> feed line is penetrated for repairs or other purposes.)
- 3) Assemble the equipment per the attached flow sheet (Fig. 1).

NOTE: The system must be passivated with fluorine prior to use. The following steps are to be followed:

- 4) Pump the entire system down with the vacuum pump and open all internal plumbing system valves except the "O<sub>2</sub>-F<sub>2</sub> Feed Valve" (V-17), discharge valves, and vent valves.
- 5) When the system is evacuated, close Surge Tank Inlet Valve (V-14), Helium Purge Valves (V-6 and V-25), Vacuum Pump Manifold Valve (V-13), and open O<sub>2</sub>-F<sub>2</sub> Regulator Feed Valve (V-17).
- 6) Open the main valve on the O<sub>2</sub>-F<sub>2</sub> supply cylinder and set the regulator at 10 p.s.i.g.
- 7) Carefully and slowly open Surge Tank Inlet Valve (V-14) until a pressure of approx. 380 mm. absolute is registered on the Heise gauge.
- 8) Close valve V-14 and allow the system to remain this way for about 10 hr.
- 9) The system should now be ready to operate.

NOTE: Unless the plumbing system is penetrated, the above procedure need not be repeated.

## 2.3 PROCEDURE FOR TOFLOX MANUFACTURE

### 2.3.1 Operating Instructions

#### 2.3.1(1) Reactor unit

- 1) Start vacuum pump with all valves in the system closed.

- 2) Open slowly and in the following order, Vacuum Pump Manifold Valve (V-13) and Reactor Manifold Valve (V-19). (This exposes reactor manifold to the vacuum.)
- 3) When the vacuum gauge indicates a minimum value, attach McLeod gauge to system through Vacuum Bleed Valve (V-38) and calibrate Heise gauge for absolute pressure equating pressures on both gauges, shut Vacuum Pump Manifold Valve (V-13), and check for leaks by observation of the Heise gauge.
- 4) Open the valves (V-18, V-21) controlling the  $IO_2$  supply to the reactor tank and fill the tank with  $IO_2$ .

NOTE:  $IO_2$  level will be controlled automatically via (V-36). During this operation, watch the Heise gauge closely to detect leaks into the reactor caused by change in temperature. If no leaks are found, open V-13 and proceed as follows:

- 5) Open main valve on  $O_2$ - $F_2$  supply cylinder and set the regulator at 10 - 20 p.s.i.g.
- 6) Open slowly and in the following order, valves V-14, V-15, and V-8. (This introduces  $F_2$ - $O_2$  into the reactor plumbing.)
- 7) At this point, the Heise gauge should indicate no more than 15 - 20 mm. Hg absolute pressure.
- 8) Adjust all Variacs to an arbitrary setting of 75 with the power off.

NOTE: Disconnect electrical leads to electrostatic voltmeters until after arcs have started.

- 9) Turn on Variac switch #5, and check for an increase in voltage to about 1000 - 1500 v.

NOTE: The unplugged voltmeters will still indicate a rough voltage reading.



An ammeter needle displacement is an indication that an arc has started. (Increase Variac setting if arc is not initiated.)

- 10) Sequentially ignite Reactors 4, 3, 2, 1, as in Step 9. (Connect voltmeter leads after all arcs are obtained.)
- 11) Open No. 5 Reactor Meter Valve (V-5) approximately four full turns and then slowly open further until a voltage increase is observed. Maintain current above about 21 ma. (or arc will cease) by adjusting the Variac.
- 12) Simultaneously adjust V-5 and the Variac setting to attain operating conditions. (nominally, 75 w. at 3000 v. and 25 ma., though experience may indicate that other conditions may be more optimum.)
- 13) Similarly, adjust controls for Reactors 4, 3, 2, 1, in this order.

NOTE: Reactor should now be producing  $O_3F_2$ . Allow to continue until sufficient  $O_3F_2$  is prepared to make the desired quantity of TOFLOX when  $O_3F_2$  is mixed with  $IO_2$ . Experience will determine  $O_3F_2$  production rate.

- 14) At the end of reaction operation, close feed valve  $O_2-F_2$  Reactor Feed Valve (V-8) and open all electrical switches controlling the Variacs.
- 15) Evacuate reactor manifold for about 45 min., then close Vacuum Pump Manifold Valve (V-13) and admit He into the system through Helium Purge Valve (V-11) until ambient pressure is attained as indicated on the Heise gauge.

NOTE: Previous to the latter step, the mix tank may be filled with  $IO_2$  to the desired quantity (as indicated on the remote control panel gauge; 1 in. = 1.88 gal.) level via the direct filling line.

- 16) Open the Reactor Discharge Valve (V-27) from the remote panel board (V-27A) and start the Mixer Motor by adjusting the Mixer Air Control Pressure Valve (V-37A) to the desired pressure to permit adequate mixer motor speed.
- 17) Adjust Helium Purge Valve (V-11) cautiously and observe the Heise gauge carefully during this operation. Any sudden pressure rise indicates incomplete draining or solid inclusions. (Over-pressure may be relieved through the Reactor Vent Valve (V-12)).
- 18) After transfer of  $O_3F_2$ , open Reactor Vent Valve (V-12), close the Reactor Discharge Valve (V-27) and close Helium Purge Valve (V-11).
- 19) Close Reactor Vent Valve (V-12) and open Vacuum Pump Manifold Valve (V-13). Barring leaks the reactors should be ready to operate again as soon as the system pumps down to approx. 20 mm. Hg. Refer to Step 1 of the procedure.

#### 2.3.1(2) Mixer unit

- 1) Fill the level of the mix tank to the desired (about 25 gal.) mark with  $LO_2$ . (See Note after Paragraph 15 above.)<sup>2</sup>
- 2) Continue operation of the air driven Mixer Motor (V-37) from the remote control panel (V-37A), for several hours or until an analytical test of the mixed TOFLOX shows a concentration of  $O_3F_2$  within desired limits.

#### 2.3.1(3) Sampling and transportation to laboratory for analysis

- 1) Connect fill and vent lines of sample bomb to Mix Tank Sample Outlet and Mix Tank Sample Vent.
- 2) Open Mix Tank Sample Line  $LO_2$  Coolant Valve (V-31).
- 3) Fill TOFLOX Sample Bomb Dewar with  $LO_2$ .

- 4) Open Mix Tank Sample Valve (V-28, V-28A) and allow TOFLOX to flow through bomb for 15 - 30 min. or until single phase (liquid) flow is obtained.
- 5) Close TOFLOX Sample Inlet and Vent valves.
- 6) Close Mix Tank Sample Outlet and Mix Tank Sample Vent valves.
- 7) Open manual Mix Tank Sample Helium Purge Valves (located on Mix Tank Sample Line).
- 8) Close Mix Tank Sample Line  $\text{IO}_2$  Coolant Valve (V-31).
- 9) Disconnect TOFLOX Sample Bomb fittings from Mix Tank Sample Outlet and Mix Tank Sample Vent fittings.
- 10) Place TOFLOX Sample Bomb in  $\text{LN}_2$  Dewar containing a continuous  $\text{LN}_2$  feed on the vehicle and transfer the sample bomb to the laboratory for analysis.

### 2.3.2 Chemical Analysis at Test Area

It may be expedient to perform the chemical analysis on site rather than transport a sample to MSFC laboratories. In the judgment of the Test Engineer, if this is desirable, the following procedure shall be followed:

#### 1) NaI/NaF Reactor

Assemble apparatus sequentially:

- a) Sample bomb immersed in coolant cryogen ( $\text{LN}_2$ ).
- b) Connect bomb gas exit to inlet connection of NaI trap. (Add Dry Ice - Freon or  $\text{LN}_2$  coolant to trap outer chamber.)
- c) Connect NaI trap exit to water bubbler.

#### 2) Iodine-Iodate Titration

- a) Fill buret with  $\text{Na}_2\text{S}_2\text{O}_3$  standard solution.
- b) Provide a flask for each sample to be titrated.

- c) Provide sufficient distilled water for transferring and dissolving NaI into flask.
- d) Provide standard starch solution for indicator during titration.

### 3) Procedure

- a) Open sample bomb gas exit valve.
- b) Lower bomb coolant level until sample gas boil-off rate is sufficient to provide positive pressure through the downstream water bubbler.

NOTE: Care should be taken to prevent "flooding" the system by furnishing too great a gas flow; one or two bubbles per second should be nominally satisfactory.

- c) Repeat above step until all sample has boiled-off from the sample bomb.
- d) Heat sample bomb to 70 - 120°F nominally with hot air gun.
- e) Remove NaI/NaF trap and transfer contents to titration flask using distilled water as necessary.
- f) Titrate resulting NaI/NaF solution to end-point of starch solution using standard  $\text{Na}_2\text{S}_2\text{O}_3$  solution.
- g) Calculate  $\text{O}_3\text{F}_2$  concentration as follows:

$$\text{wt. \% } \text{O}_3\text{F}_2 = \frac{\text{ml. Na}_2\text{S}_2\text{O}_3 \times N \times 4.3}{\text{ml. sample} \times 1.14}$$

where:

$$N = \text{Normality of Na}_2\text{S}_2\text{O}_3 = 0.1$$

$$4.3 = 0.043 \text{ (milliequivalent weight factor)} \times 100\%$$

$$1.14 = \text{IO}_2 \text{ density (g./liter)}$$

A typical calculation derived from experimental data of 50 ml. TOFLOX sample which titrated to an end point with 14 ml. of  $\text{Na}_2\text{S}_2\text{O}_3$  follows:

$$\text{wt. } \% \text{ O}_2\text{F}_2 = \frac{14.0 \times 0.10 \times 4.3}{50 \times 1.14} = 0.105\%$$

### 2.3.3 System Shut-Down (Terminal)

#### 2.3.3(1) Reactor

- 1) Close all valves of Reactor Unit starting with  $\text{O}_2\text{-F}_2$  cylinder supply valve.
- 2) Open valve V-9, feed valves V-1, -2, -3, -4, and -5, and Helium Purge Valve (V-11), pressurize reactors to slightly above atmospheric pressure with helium (through V-11).
- 3) Open Reactor Vent (V-12) and flow helium through the reactors to the disposal pit.
- 4) Purge fluorine feed line per the following:
  - a) Open Surge Tank Vent Valve (V-16) until surge tank pressure gauge indicates 0 p.s.i.g.;
  - b) Open Surge Tank Feed Valve (V-14);
  - c) Open Helium/Fluorine Purge Valve (V-25). Flow helium for 3 - 5 min.
  - d) Close V-1, -2, -3, -4, and -5, and open V-8 and V-15 to back purge the flow meter.
- 5) Open the Reactor Bath Discharge Valve (V-26, V-26A). As the oxygen drains out, the reactors will slowly warm up, allowing the residual  $\text{O}_2\text{F}_2$  to decompose slowly. If slower decomposition is desired (as indicated by

slow pressure build-up on Heise gauge), decrease the  $\text{IO}_2$  flow draining from the tank with valves V-26, V-26A.

- 6) Continue to flush the reactors with helium through V-11 until all the  $\text{IO}_2$  is drained and the reactors are warmed up.

#### 2.3.3(2) Mixer unit

- 1) Open Mixer Discharge Valve (V-24).
- 2) Close Mixer Vent Valve (V-22).
- 3) Pressurize with helium gas through Mixer Purge Valve (V-20) to no more than 5 - 10 p.s.i.g. and allow helium to flow until contents of mixer unit are vaporized.
- 4) Close Mixer Purge Valve (V-20).
- 5) Open Mixer Vent Valve (V-22).
- 6) Close Mixer Discharge Valve (V-24).

NOTE: The Limestone Pit surface should be "sniffed" for effluent fluorine downwind at the surface. In the event fluorine is detected above 0.4 p.p.m., wet the surface of the limestone pit with water.

#### 2.3.4 Emergency Disposal

REMEMBER: All equipment is expendable if personnel hazard is involved.

- 1) Turn on Building Water Deluge System.
- 2) Put on gas mask if conditions warrant.
- 3) Turn off electrical power to TOFLOX Synthesizer at building circuit breaker panel. LEAVE FAN RUNNING.

#### 2.3.4(1) TOFLOX synthesizer

The TOFLOX Synthesizer system consists of two independent units. Instructions of EMERGENCY disposal of the contents of either the Reactor Unit or the Mixer Unit follow:

## 2.3.4(1)a Reactor unit

- 1) Shut off  $O_2-F_2$  feed gas supply by closing the valve located on the feed gas cylinder manifold.
- 2) Vent the fluorine entrapped in the lines by opening the Surge Tank Vent Valve (V-16).
- 3) Dump the  $LO_2$  in the reactor tank by opening Reactor Bath Discharge Valves (V-26, V-26A).
- 4) Purge with helium gas by opening Helium Purge Valve (V-11).

NOTE: Likely, malfunctions requiring the dumping of the reactor system contents may be: breakage of Reactor Cell, inability to transfer  $O_3F_2$  Reactor Contents to Mixer Unit through Reactor Discharge Valve (V-27) or stoppage of the vacuum pump. In these events, close Vacuum Valve (V-13), the Feed Gas Supply (V-8), and then purge with helium gas at slightly above ambient pressure through Reactor Purge Valve (V-11) and Reactor Vent Valve (V-12).

## 2.3.4(1)b Mixer unit

[Follow terminal shutdown procedure:  
Section 2.3.3(2)]

3.  $O_3F_2$  SYSTEM LEAK RATE CALCULATION

The portion of the TOFLOX system (Fig. 1) tested for vacuum tightness extends between valves V-27 and V-34 in the reactor section, behind valves V-19 and V-12 in the vacuum line and between valves V-8 and V-9 in the gas supply lines. An accurate estimate of the enclosed volume is 3,750 cc.

To vacuum test the above system it is evacuated to a Heise gage reading of 0 to 10 mm. of mercury and isolated from the pump by valve V-19. Leak rate is determined by the rate of system pressure rise as measured by the Heise gage. Calculations are as follows:

$$\frac{\Delta}{760 \text{ mm. Hg}} \times 3750 \text{ cc.} = \frac{4.94 \Delta \text{ cc./min.}}{\text{Leak Rate}}$$

Where:

$\Delta$  = Change of system pressure (mm./min.)

$(\Delta/760)$  = Fraction of system

3750 cc. = System volume

The reactor system can be started at pressures as high as 8 - 10 mm. Hg and at leak rates up to 15 cc./min.



4. PURCHASE ORDERS

To enable NASA to replace or repair components in the event of their malfunction during operation and to permit NASA to procure the consumables necessary, copies of all purchase orders issued during the course of this work are included in Appendix B.

4.1 INTEGRAL EQUIPMENT COMPONENTS

All purchase orders in this category are marked by the Airco P.O. number on the NASA process flow sheet (Fig. 1).

<u>Airco Purchase Order No.</u>	<u>Item</u>
158931	SS Dished Head
159133	Swagelock Fittings
159137	Swagelock Fittings
159156	Swagelock Fittings
159245	Relay Rack
159287	Swagelock Fittings
162971	Universal Joint
162993	Apparatus Fabrication
163008	Electrical Lead Throughs
163009	Relay Rack
163114	Flexible Joints
163165	Equipment Fabrication
163199	Swagelock Fittings
163490	Swagelock Fittings
163671	Swagelock Fittings
163796	Swagelock Fittings
163832	Kel-F Gaskets
175824	Swagelock Fittings
176163	Swagelock Fittings

4.2 SPECIAL INDIVIDUAL COMPONENTS AND AUXILIARY ORDERS

<u>Airco Purchase Order No.</u>	<u>Item</u>
111845	Cryogenic Valves
290384	Cryogenic Dewar
158928	Heise Press Gage
158954	Air Motor Mixer
158956	Fluorine Barricade and Equipment
158967	Discharge and Sample Control Valves
158996	Relief Valves
159025	Differential Pressure Indicator
159031	Voltmeters
159081	Pressure Gages
159103	Discharge Valve Operator
159112	Foxboro Air Switches
159136	Whitey Valves
159171	Relief Valves
159209	Air Switches
159259	Air Loading Stations
163090	3-Way Valve Manifolds
163367	Relief Valve
163391	Airloading Station
163419	Solenoid Valve
163453	Control Valve
176266	Heat Gun
176798	Tube Flare Kit

4.3 CANCELLED ORDERS

The following orders are cancellations and are attached to their countermanding documents:

<u>Airco Purchase Order No.</u>	<u>Item</u>
159083	Hand Valves
159084	Cryogenic Valves
176490	Tube Flare Tool
176826	Halocarbon Oil

4.4 CONSUMABLES ORDERS

These orders are not included on the flow chart because the items were used and discarded when spent. Also included are items which when used had to be left at the equipment emplacement site. All unused materials in this category were delivered to NASA with the TOFLOX equipment.

<u>Airco Purchase Order No.</u>	<u>Item</u>	<u>Use Point</u>
158949	Pyrex-Kovar seals	Reactor
159134	Stainless tubing	Panel and system piping
159202	Swagelock parts	Reactor seals
159329	Rupture discs	Delivered to NASA
162946	Copper rod	Reactor electrodes
162981	Leland Gifford valve seals	Valve V-27
163068	Limestone	Limestone pit
163395	Nuts and bolts	System hardware
163434	Halocarbon oil	Vacuum pump
163537	Stainless pipe	Disposal system
163735	Teflon packing	Cold box seals
175949	Ryolex insulation	Cold box

<u>Airco Purchase Order No.</u>	<u>Item</u>	<u>Use Point</u>
175991	"O" rings	Helium leak detector
176021	Halocarbon oil	Vacuum pump
176132	Pyrex-Kovar seals	Reactor
176148	Swagelock parts	Reactor seals
176165	Ground glass seals	Reactor joints
176287	Swagelock parts	Reactor seals
176342	Housekeeper seals	Reactor joints
176479	Ground glass seals	Reactor joints
176555	Teflon "O" rings	Sampling valves
176713	Teflon valve seals	Valve V-27
176777	Leland Gifford parts	Valve V-27
176785	Teflon valve seals	Valve V-27
176827	Swagelock parts	Reactor seals
176889	Leland Gifford parts	Valve V-27
176997	Halocarbon oil	Vacuum pump
171139	Teflon valve seals	Valve V-27

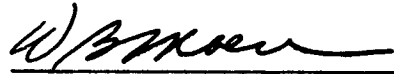
5. SPECIAL DESIGN DRAWINGS AND SKETCHES

This contract specifies that engineering drawings of the TOFLOX system components will not be included in this report. However, two drawings showing the reactor and its supporting manifold will be appended to provide a permanent record of these units should they need replacement. These drawings are included in Appendix A:

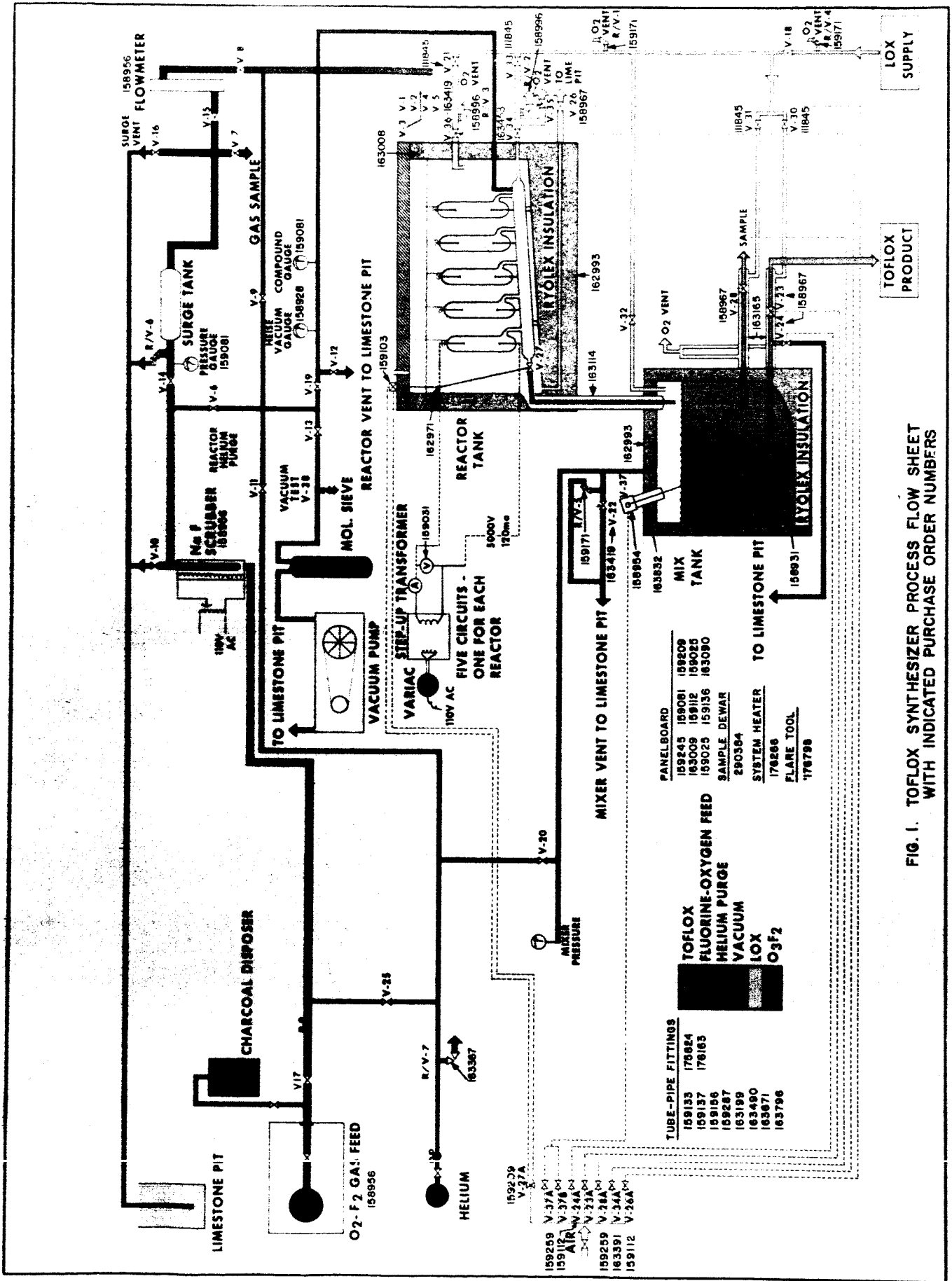
<u>Drawing No.</u>	<u>Title</u>
C-898-5273-1	O <sub>3</sub> F <sub>2</sub> Reactor Bank
C-898-5715	Typical Reactor

  
 \_\_\_\_\_  
 J. Sima

Approved:

  
 \_\_\_\_\_  
 W.B. Moen  
 Assistant Chief Engineer

4/18/66  
 ew



- TUBE-PIPE FITTINGS**  
 159135 V.37A  
 159137 V.37B  
 159186 V.24A  
 159287 V.23A  
 163199 V.26A  
 163490 V.34A  
 163671 V.26A  
 163796
- TOFLOX**  
 FLUORINE-OXYGEN FEED  
 HELIUM PURGE  
 VACUUM  
 LOX  
 O<sub>2</sub>F<sub>2</sub>
- PANELBOARD**  
 159245 159081 159209  
 163009 159112 159025  
 159025 159136 163080
- SAMPLE DEWAR**  
 290384
- SYSTEM HEATER**  
 176286
- FLARE TOOL**  
 176798

FIG. 1. TOFLOX SYNTHESIZER PROCESS FLOW SHEET WITH INDICATED PURCHASE ORDER NUMBERS

APPENDIX A: REACTOR DRAWINGS

AIR REDUCTION COMPANY INCORPORATED		TITLE O <sub>2</sub> REACTOR BANK (51194.f)		DATE C 9935273	REVISIONS
MATERIAL SCHEDULE 40S		DESIGNED BY P. J. ...		APPROVED BY ...	...
SCALE 1" = 2'		CHECKED BY ...		DATE ...	...

THIS DRAWING IS THE PROPERTY OF AIR REDUCTION COMPANY, INC. AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF AIR REDUCTION COMPANY, INC.

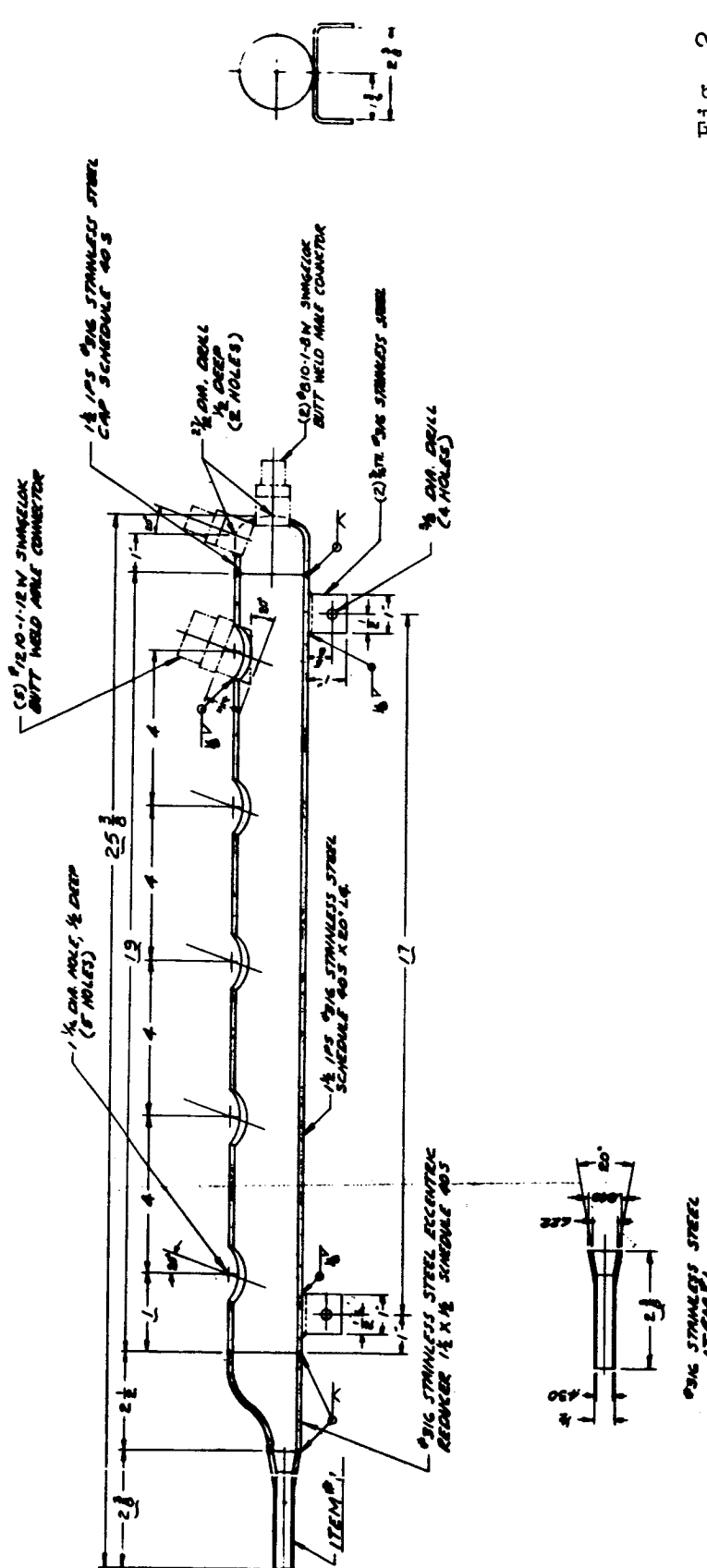


Fig. 2.

THIS WAS 27 17 WAS 18 2 1/2 WAS 18  
REMOVED 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2

C 0985273	1
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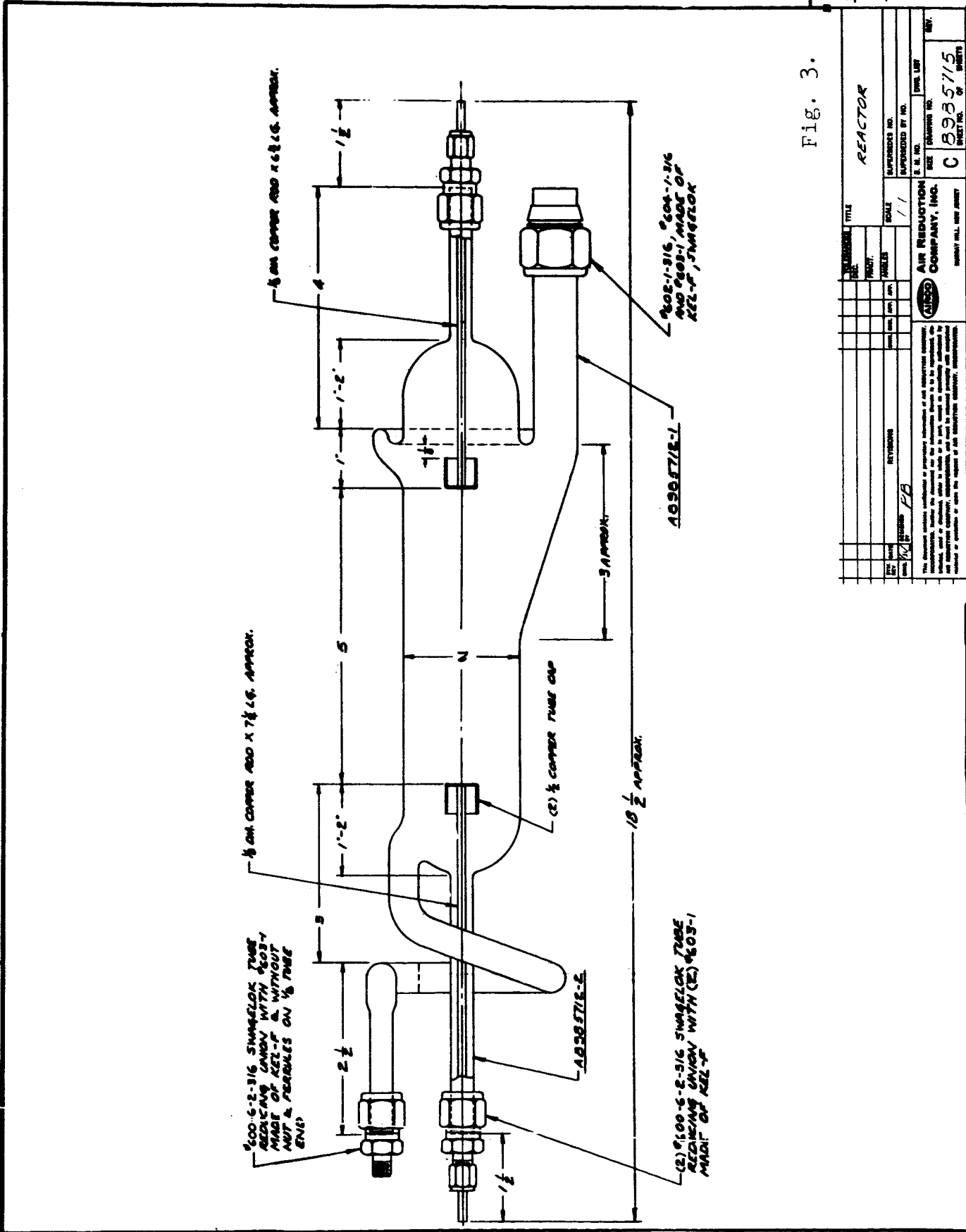


Fig. 3.

REACTOR											
REVISIONS	DATE		BY		CHKD.		SCALE	APPROVED BY NO.		DWG. LFT.	
AIR REDUCTION COMPANY, INC.							SIZE	DRAWING NO.		REV.	
10000							C	8985715		SHEET NO. OF SHEETS	
THE INFORMATION CONTAINED HEREIN IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE AND IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE. DATE OF REVIEW: 10/19/01 BY: [redacted]											

APPENDIX B: COPIES OF PURCHASE ORDERS

1. Integral Equipment Components
2. Special Individual Components and Auxiliaries
3. Cancelled
4. Consumables

1. INTEGRAL EQUIPMENT COMPONENTS



PURCHASE ORDER

158931

AIR REDUCTION COMPANY  
INCORPORATED

DATE 6/15/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.  
~~INDUSTRIAL~~

FILE

J. T. RYERSON & SON, INC.  
203 WESTSIDE AVENUE  
JERSEY CITY, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED

6/21/65

SHIP VIA

MOTOR FREIGHT

F.O.B.

CINCINNATI, OHIO

TERMS

1/2-10

QUANTITY ORDERED

MATERIAL

PRICE

13

1 PC.

CONFIRMATION PHONE MR. COLLETTA, 6/14/65

24" O.D., 316 STAINLESS STEEL ASME FLANGED AND  
DISHED HEAD, 0.250" THICK

\$125.00 PC.



PURCHASE ORDER  
**AIR REDUCTION COMPANY**  
 INCORPORATED  
 PURCHASING DEPARTMENT  
 MURRAY HILL, N. J.

159133  
 FILE

6/30/65

DATE \_\_\_\_\_

R. S. CRUM & CO.  
~~XXXX~~  
 1167 GLOBE AVENUE  
 MOUNTAINSIDE, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~AIR REDUCTION COMPANY~~  
**AIR REDUCTION COMPANY**  
 INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
7/2/65	U.P.S.	P.S.	1/10

QUANTITY ORDERED	MATERIAL	PRICE
	CONFIRMATION PHONE MISS JURGENS, 6/29/65	
	SWAGelok FITTINGS AS FOLLOw:	
12 EA. ✓	UNIONS, #400-6-316	\$3.60 EA.
18 EA. ✓	MALE CONNECTORS #400-1-4-316	2.60 EA.
12 EA. ✓	DITTO, #400-1-2-316	2.25 EA.
6 EA. ✓	FEMALE CONNECTORS #400-7-2-316	3.70 EA.
6 EA. ✓	DITTO #400-7-4-316	4.50 EA.
12 EA. ✓	NUTS, #202-1-316	.93 EA.
24 EA. ✓	NUTS, #402-1-316	.72 EA.
12 EA. ✓	NUTS, #812-1-316	1.45 EA.
12 EA. ✓	FRONT FERRULES #203-1-316	.63 EA.
24 EA. ✓	DITTO, #403-1-316	.48 EA.
		ALL LESS 35%



DATE 6/30/65

**PURCHASE ORDER**  
**AIR REDUCTION COMPANY**  
INCORPORATED  
**PURCHASING DEPARTMENT**  
**MURRAY HILL, N. J.**

**159137**  
**FILE**

**R. S. CRUM & CO.**  
**1167 GLOBE AVENUE**  
**MOUNTAINSIDE, N. J.**

SHIP TO  
**SAME AS ABOVE**

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
**AIR REDUCTION COMPANY**  
INCORPORATED

SAME ADDRESS AS ABOVE

QUANTITY ORDERED	SHIP VIA	F.O.B.	TERMS
<b>7/2/65</b>	<b>U.P.S.</b>	<b>P.S.</b>	<b>1/10</b>

QUANTITY ORDERED	MATERIAL	PRICE
	CONFIRMATION PHONE MISS JURGENS, 6/29/65	
	SWAGelok FITTINGS AS FOLLOW:	
7 EA ✓	BUTT WELD MALE CONNECTOR #1210-1-12W-316	\$12.25 EA.
4 EA ✓	DITTO #310-1-6W-316	4.95 EA.
7 EA ✓	REDUCING UNIONS, #400-6-2-316	4.90 EA.
12 EA ✓	BULKHEAD UNIONS, #200-6b-316	14.75 EA.
8 EA ✓	DITTO, #600-61-316	12.90 EA.
6 EA ✓	DITTO, #810-61-316	15.80 EA.
8 EA ✓	DITTO #400-61-316	8.60 EA.
18 EA ✓	ALL TUBE TEES #400-3-316	12.25 EA.
12 EA ✓	DITTO #810-3-316	17.25 EA.
12 EA ✓	REDUCERS #400-R-8-316	4.60 EA.

(CONT'D ON PAGE 2 OF 2)

CONTINUATION OF PURCHASE ORDER NO. 159137

AIR REDUCTION CO., INC.  
MURRAY HILL, N. J.

DATE 6/30/65

SHEET NO. 2 of 2

12 EA. ✓	FRONT FERRULES #813-1-316	\$ .78 EA.
24 EA. ✓	BACK FERRULES #204-1-316	.57 EA.
24 EA. ✓	DITTO #404-1-316	.45 EA.
12 EA. ✓	DITTO #814-1-316	.72 EA.
3 EA. ✓	1 OZ. TUBES HIGH PURITY GOOP	ALL LESS 35%
		11.00 EA.
		NET



159156

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 7/7/65

PURCHASING DEPARTMENT

MURRAY HILL, N. J.

FILE

R. S. CRUM & CO.  
1167 GLOBE AVENUE  
MOUNTAINSIDE, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED

7/8/65

SHIP VIA

U.P.S.

F.O.B.

P.S.

TERMS

1/10

QUANTITY ORDERED

MATERIAL

PRICE

CONFIRMATION PHONE MRS. STOCKMAN, 7/6/65

SWAGELOK FITTINGS AS FOLLOW:

3 EA ✓

BUTT WELD MALE CONNECTOR #810-1-6W-316

\$4.95 EA.

2 EA ✓

DITTO #810-1-8W-316

7.10 EA.

2 EA ✓

SWAGELOK TO SOCKET WELD UNION, #810-6-8SW-316

6.30 EA.

ALL LESS 35%





159245

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 7/13/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

EASTERN RADIO CORP.  
312 CLIFTON AVENUE  
CLIFTON, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	7/23/65	SHIP VIA	YOUR TRUCK	F.O.B.	DEST.	TERMS	2/10
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QUANTITY ORDERED	MATERIAL	PRICE
	CONFIRMATION PHONE MR. ROSS, 7/12/65	
1 ONLY ✓	STANDARD MODEL TELEPHONE TYPE RELAY RACK, BUD NO. RR-1364, 75-55/64" OVERALL HEIGHT, GRAY HAMMERTONE FINISH	\$25.13 EA.
2 EA. ✓	STANDARD RELAY RACK PANELS, BUD NO. PS-1261-SG	4.26 EA.
1 ONLY ✓	DITTO, NO. PS-1256-SG	2.42 EA.
1 ONLY ✓	DITTO, NO. PS-1255-SG	2.09 EA.
1 ONLY ✓	DITTO, NO. PS-1254-SG	1.75 EA.
1 ONLY ✓	DITTO, NO. PS-1253-SG	1.42 EA.
	NASA / XXXXXXXXXXXX NAS8-20099	
	RATING DR-AB (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.	

H. BRUECHER

206122

CRE 36

2



159287

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 7/9/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

R. S. CRUM & CO.  
1167 GLOBE AVENUE  
MOUNTAINSIDE, N. J.  
ATT: MRS. STOCKMAN

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	7/21/65	SHIP VIA	U.P.S.	F.O.B.	P.S.	TERMS	1/10
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QUANTITY ORDERED	MATERIAL	PRICE
2 EA. ✓	SWAGELOK UNIONS #810-6-316	\$5.70 EA. LESS 35%



162971

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 7/28/55

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

P.I.C. DESIGN CORP.  
477 ATLANTIC AVENUE  
EAST ROCKAWAY, LONG ISLAND  
NEW YORK 11518

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	8/9/65	SHIP VIA U.P.S.	F.O.B. P.S.	TERMS n/30
QUANTITY ORDERED	MATERIAL			PRICE
1 ONLY	<p data-bbox="487 1074 1218 1149">/NASA <del>XXXXXXXXXXXXXXXXXXXX</del> NAS8-20099</p> <p data-bbox="357 1287 1104 1351">CONFIRMATION PHONE MR. DENGAN, 7/26/65</p> <p data-bbox="357 1361 1274 1436">PRECISION UNIVERSAL JOINT, CAT. #BC-3, TYPE 303 STAINLESS STEEL</p> <p data-bbox="357 1489 1218 1574">PRIORITY RATING DK-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1</p>			\$16.00 EA. NET

*Handwritten signature/initials*



PURCHASE ORDER

162993

AIR REDUCTION COMPANY  
INCORPORATED

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

7/26/65

DATE

REISINGER CO.  
53 ROME STREET  
NEWARK, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

*see order #1, 2, 3*

DATE WANTED	SHIP VIA	F.O.B.	DEST.	TERMS
8/13/65	YOUR TRUCK			n/30
QUANTITY ORDERED	MATERIAL	PRICE		
	<p>CONFIRMATION PHONE MR. ROSSBACH, 7/23/65</p> <p>FABRICATE THE FOLLOWING PARTS FOR THE O<sub>3</sub>F<sub>2</sub> APPARATUS ACCORDING TO OUR DRAWINGS:</p> <ul style="list-style-type: none"> <li>(1) D898 5431-1 (AS MARKED)</li> <li>(1) D898 5432</li> <li>(1) D898 5433</li> <li>(1) D898 5434</li> <li>(1) E898 5435-1</li> <li>(1) C898 5436</li> <li>(1) C898 5437-1</li> <li>(1) E898 5438-1</li> <li>(1) C898 5439</li> <li>(1) E898 5441 (AS MARKED)-1</li> <li>(1) C898 5442</li> <li>(1) C898 5443</li> <li>(1) E898 5444-1</li> <li>(1) A898 5445</li> </ul> <p>(PRINTS ENCLOSED)</p>	<p>\$3800.00 NET TOTAL</p>		

*1/c*

190532-1

CRS 35

2



SUPPLEMENT NO. 1

TO P. O. NO. 162993

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 7/23/55

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

HEMMINGER CO.  
53 HOME STREET  
NEWARK, N. J.

SHIP TO  
SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

*see report*

DATE WANTED	8/13/55	SHIP VIA	YOUR TRUCK	F.O.B.	DEST.	TERMS	n/30
-------------	---------	----------	------------	--------	-------	-------	------

QUANTITY ORDERED	MATERIAL	PRICE
	NASA XXXXXXXXXXXXXXXXX NAS8-20099	
<p>ADD TO THE SUBJECT PURCHASE ORDER:</p> <p>AIRCO TO SUPPLY ONE (1) STAINLESS STEEL DISHED HEAD AS A PART OF APPARATUS TO BE FABRICATED FROM DRAWING D398 5431-1</p> <p>(ABOVE HEAD SHIPPED TO VENDOR ON OUR RMN 65-234)</p> <p>PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.</p>		

*Handwritten initials*



SUPPLEMENT NO. #2  
 TO P. O. NO. 162993

**PURCHASE ORDER**  
**AIR REDUCTION COMPANY**  
 INCORPORATED

DATE 8/4/65

PURCHASING DEPARTMENT  
 MURRAY HILL, N. J.

*John - E.G.*

HEMMINGER CO.  
 53 ROMB STREET  
 NEWARK, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
~~XXXXXXXXXX~~  
**AIR REDUCTION COMPANY**  
 INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
8/13/65	YOUR TRUCK	DEST.	n/30

QUANTITY ORDERED	MATERIAL	PRICE
	<p>PLEASE DO NOT PROVIDE THE FLEXIBLE JOINT AS SHOWN ON AIRCO DRWG. #898 5441-B AS PART OF THIS ORDER.</p> <p>REDUCE PRICE TO \$3770.00 NET TOTAL TO ALLOW FOR ABOVE CHANGE.</p>	



SUPPLEMENT NO. 3  
TO P. O. NO. 162993

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 1/3/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

HEMMINGER CO.  
53 ROME STREET  
NEWARK, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~HEMMINGER CO.~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	8/13/55	SHIP VIA	YOUR TRUCK	F.O.B.	DEST.	TERMS	n/30
-------------	---------	----------	------------	--------	-------	-------	------

QUANTITY ORDERED	MATERIAL	PRICE
	<p>PLEASE ADD TO THE SUBJECT PURCHASE ORDER: EXTRA CHARGE FOR GASKETS, LUGS AND CHANGES AT \$114.00 LOT</p> <p>CHANGE NET TOTAL PRICE OF THE SUBJECT PURCHASE ORDER TO \$3884.00 TO INCLUDE ABOVE.</p> <p>REF: VENDOR'S INVOICE #H32117, 10/28/65</p> <p>FOR RECORD PURPOSES ONLY</p>	



PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

163008

DATE 7/23/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

A. L. LIVERA & ASSOCIATES  
JAMES BUILDING  
MADISON, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED 7/30/65 SHIP VIA P.P. F.O.B. P.S. TERMS n/30

QUANTITY ORDERED	MATERIAL	PRICE
30 EA.	<del>XXXXXXXXXXXX</del> NAS8-20078  STRAIN-FREE SINGLE LEAD TERMINAL, TYPE C-80N-PP-HV (PRICE PER PHONE CONVERSATION WITH MR. A. L. LIVERA) PRIORITY RATING DX-AE (SETURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.	\$ .15 EA.



G. MILLER

104315

CRE 36

2



PURCHASE ORDER

163009

AIR REDUCTION COMPANY  
INCORPORATED

DATE 7/23/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

FEDERATED PURCHASER, INC.  
155 ROUTE 22  
~~SPRINGFIELD, N. J.~~  
SPRINGFIELD, N. J.

DR 6-8900  
Mr Jones

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
7/29/65	YOUR TRUCK	DEST.	2/10
QUANTITY ORDERED	MATERIAL	PRICE	
	NASA XXXXXXXXXXXXXXXXXXXX NAS8-20099		
1 ONLY ✓	STANDARD RELAY RACK <del>TYPE</del> PANEL, PART #P.S.-1257-SG (14")	\$2.84 EA.	
1 ONLY ✓	DITTO, PART #PS-1260-SG, (19-1/4")	3.84 EA.	
PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.			



163114

**PURCHASE ORDER**  
**AIR REDUCTION COMPANY**  
INCORPORATED  
**PURCHASING DEPARTMENT**  
**MURRAY HILL, N. J.**

DATE 8/2/65

**FILE**

**FLEXICO CO.**  
**MIDDLESEX AVENUE AT FACTORY ST.**  
**METUCHEN, N. J.**

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

A DIVISION OF  
**AIR REDUCTION COMPANY**  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
8/10/65	U.P.S.	P.S.	n/30
QUANTITY ORDERED	MATERIAL	PRICE	
1 ONLY ✓	FLEXIBLE JOINT AS PER X AIRCO DRAWING #B8985441 Rev. #1 NOW IN YOUR POSSESSION	\$78.50 EA.	
1 ONLY ✓	FLEXIBLE JOINT AS PER AIRCO DRAWING #A8985435 NOW IN YOUR POSSESSION	\$13.49 EA.	
1 ONLY ✓	FLEXIBLE JOINT AS PER AIRCO DRAWING #A8985484 NOW IN YOUR POSSESSION	\$11.84 EA.	
(PRICES AS QUOTED TO OUR MR. H. BRUECHER)			



163165

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 8/5/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

HEMMINGER COMPANY  
53 ROME STREET  
NEWARK, NEW JERSEY

ATT: W. ROSSBACK

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

DIVISION OF  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
8/13/65	VENDOR'S TRUCK	DEST.	n/30

QUANTITY ORDERED	MATERIAL	PRICE
------------------	----------	-------

REFERENCE VENDOR'S QUOTE OF 8/2/65

PLEASE PROVIDE THE ITEMS AS SHOWN ON AIRCO DWGS. A898 5457 AND B898 5458 REV. #1.  
 ALSO PROVIDE THE ITEMS SHOWN ON AIRCO DWGS. C898 5486 AND O898 5487, EXCEPT THAT THE BELLOWS UNITS DESIGNATED AS A898 5484 AND A898 5485 WILL BE FURNISHED BY AIRCO.  
 ALSO THE FINAL ASSEMBLY OF THE VARIOUS SUB-ASSEMBLIES TO THE MIXING TANK WILL BE BY AIRCO, HOWEVER THE VARIOUS SUB-ASSEMBLIES ARE TO BE PROVIDED BY HEMMINGER.

NOTE: THE ABOVE DRAWINGS ARE ALREADY IN VENDOR'S POSSESSION.

\$ 420.00  
NET TOTAL



PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

163199

DATE 8/10/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

R. S. CRUM & CO.  
1167 GLOBE AVENUE  
MOUNTAINSIDE, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~KEESBOK~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED 8/17/65	SHIP VIA U.P.S.	F.O.B. P.S.	TERMS 1/10
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QUANTITY ORDERED	MATERIAL	PRICE
	SWAGELOK FITTINGS AS FOLLOWS:	
10 EA. ✓	FEMALE CONNECTORS, #400-7-4-316	\$4.50 EA.
6 EA. ✓	ALL TUBE TEE #400-3-316	12.25 EA.
10 EA. ✓	ALL TUBE TEE #400-3	2.90 EA.
6 EA. ✓	ALL TUBE TEE #810-3-316 .	17.25 EA.
6 EA. ✓	REDUCER #200-R-4-316	4.30 EA.
4 EA. ✓	UNIONS #810-6-316	5.70 EA.
2 EA. ✓	FEMALE CONNECTOR #1210-7-8	2.85 EA.
20 EA. ✓	MALE CONNECTORS #400-1-4 .	.80 EA.
		ALL LESS 35%



163490

PURCHASE ORDER  
**AIR REDUCTION COMPANY**  
INCORPORATED

DATE 8/30/65

PURCHASING DEPARTMENT  
 MURRAY HILL, N.J.

FILE

R. S. CRUM & CO.  
 1167 GLOBE AVENUE  
~~RESIDENT~~  
 MOUNTAINSIDE, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~RESIDENT~~  
**AIR REDUCTION COMPANY**  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	9/6/65	SHIP VIA	U.P.S.	F.O.B.	P.S.	TERMS	1/10
-------------	--------	----------	--------	--------	------	-------	------

QUANTITY ORDERED	MATERIAL	PRICE
8 EA. ✓	NASA <del>XXXXXXXXXX</del> NAS8-20099 SWAGELOK ELBOW UNION, PART NO. 810-9-316 PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.	\$9.70 EA. LESS 35%

*Handwritten signature*

J. SIMA

290356

CPE 36

2



163671

PURCHASE ORDER

AIR REDUCTION COMPANY  
INCORPORATED

DATE 9/13/65

PURCHASING DEPARTMENT

MURRAY HILL, N. J.

FILE

R. S. CRUM & CO.  
1167 GLOBE AVENUE  
MOUNTAINSIDE, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	9/10/65	SHIP VIA	OUR MR. SIMA	F.O.B.	DEST.	TERMS	E/ 1/10
-------------	---------	----------	--------------	--------	-------	-------	---------

QUANTITY ORDERED	MATERIAL	PRICE
3 EA.	<p>NASA XXXXXXXXXXXXXXXXXXXXX NAS8-20099</p> <p><del>XXXXXXXXXXXXXXXXXXXXX</del> CONFIRMATION PHONE MISS JURGENS, 9/10/65</p> <p>SWAGELOK MALE CONNECTORS, 3/4" O.D. TUBE TO 1/2" IPS, CAT. NO. 1210-1-8-316</p> <p>PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.</p>	\$12.25 EA. LESS 35%

ORDERED BY

REG. NO

CHARGE ACCOUNT NO.

2

J. J. SIMA

290361-62

CRE 36



PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

163796

FILE

DATE 9/22/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

R. S. CRUM & CO.  
1167 GLOBE AVENUE  
MOUNTAINSIDE, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
9/21/65	OUR MR. J. SIMA	P.S.	1/10
QUANTITY ORDERED	MATERIAL	PRICE	
	NASA XXXXXXXXXX NAS8-20099		
20 EA. ✓	CONFIRMATION PHONE MRS. HARVEY, 9/21/65 SWAGELOK REDUCING UNIONS, 1/8" OD. TUBE TO 1/4" O.D. TUBE, #400-6-2-316	\$4.90 EA.	
6 EA. ✓	SWAGELOK MALE CONNECTORS, #810-1-8-316	6.40 EA.	
2 EA. ✓	SWAGELOK MALE CONNECTORS, #810-1-6-316	4.50 EA.	
	PRIORITY RATING DX-A2 (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.	ALL LESS 35%	

9.15



163832

PURCHASE ORDER

AIR REDUCTION COMPANY  
INCORPORATED

DATE 9/22/65

PURCHASING DEPARTMENT

*Red.  
L.F.*

MURRAY HILL, N. J.

HEMMINGER CO.  
53 ROME STREET  
NEWARK, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

A DIVISION OF  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
9/17/65	VENDOR'S TRUCK	DEST.	n/30
QUANTITY ORDERED	MATERIAL	PRICE	
1 ONLY	<p>NASA / <del>XXXXXXXXXXXX</del> NAS8-20099</p> <p>CONFIRMATION - MATERIAL RECEIVED</p> <p>GASKET FOR 5" 150# FLANGE. MADE OF KEL-F GRADE 6060 MATERIAL</p> <p>(PRICE MR. W. ROSBACH TO OUR MR. L. FIX)</p> <p>PRIORITY RATING DK-A2 (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.</p> <p>FIN.</p>	\$12.00 EA.	



J. SIMA

22 290355

CRE 35

2



175824

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 9/29/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

R. S. CRUM & CO.  
1167 GLOBE AVENUE  
MOUNTAINSIDE, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
9/29/65	OUR MR. SIMA	PS	1/10

QUANTITY ORDERED	MATERIAL	PRICE
	NASA XXXXXXXXXXXXXXXXX NAS8-20099	
	CONFIRMATION PHONE MISS JURGENS, 9/28/65	
12 EA. ✓	SWAGELOK #400-1-4-316 MALE CONNECTORS	\$2.60 EA.
3 EA. ✓	SWAGELOK #400-3-4TMT-316 TMT TEES	14.25 EA.
3 EA. ✓	SWAGELOK #400-3-4TFT-316 TFT TEES	14.25 EA.
12 EA. ✓	SWAGELOK #400-3 BRASS ALL TUBE TEES	2.90 EA.
	ALL LESS 35%	
	PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.	

R. E. Wood

ORDERED BY

J. SIA

REQ. NO

290373

CHARGE ACCOUNT NO.

CRE 36

2



176163

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 10/21/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

R. S. CRUM & CO.  
1167 GLOBE AVENUE  
MOUNTAINSIDE, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~AIR REDUCTION COMPANY~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
10/21/65	OUR MESSENGER	P.S.	1/10
QUANTITY ORDERED	MATERIAL	PRICE	
20 EA. ✓	CONFIRMATION PHONE MISS JURGENS, 10/21/65 MALE CONNECTORS #200-1-2-316	\$3.70 EA.	
20 EA. ✓	FEMALE CONNECTORS #600-7-2-316	4.90 EA. ALL LESS 35%	

*H. S. W. W. W.*

2. SPECIAL INDIVIDUAL COMPONENTS  
and AUXILIARIES

**PURCHASE REQUISITION**

No. 111845

P.O. NO. 7

**AIR REDUCTION CO., INC., MURRAY HILL, N.J.**

Company  
 Division

Name of Company or Division

Vendor

**HOFMAN LABORATORIES**

Date

**6/18/65**

**225 PARKHURST STREET**

Del'y. Promised  
 By Vendor

**7/15/65**

**NEWARK, N. J.**

**ATT: MR. VAUGHN**

Terms

**n/30**

Ship  
 Via

**B.P. OR EXP., INS.**

Space Above Is for Purchasing Department Use Only

F.O.B.

**P.S.**

Ship To

**AIR REDUCTION CO., INC., MURRAY HILL, N. J.**

Date  
 Issued

**ATT: H. H. BRUECHER**

Date  
 Required

Ship  
 Via

Issuing  
 Location

Charge  
 A/C No.

**CRR 36**

Sales or Use Tax

TAXABLE

NON-TAXABLE

If Non-Taxable, Give Reason or Exemption Number

QUANTITY	UNIT	DESCRIPTION	PRICE
7 EA.		HOFMAN CRYOGENIC VALVES, PART #C-1795, 1/2" NPT, DEGREASED FOR OXYGEN SERVICE	\$30.15 EA
1 ONLY		HOFMAN CRYOGENIC VALVE, PART #C-1912, 3/4" NPT, DEGREASED FOR OXYGEN SERVICE	30.50 EACH
<p><b>COMPLETED</b></p> <p>DATE <u>8/10/65</u></p>			
<p>MATERIAL SHIPPED TO VENDOR FOR PROCESSING OR REPAIRS COVERED BY REQ. NO.</p>			

QUOTATION RECEIVED FROM

**H. H. BRUECHER**

Prepared By

**W. MOEN**

Approved

**H. B. WENDT, P. A.**

Approved

Title

**PURCHASE REQUISITION**  
**AIR REDUCTION CO., INC., MURRAY HILL, N. J.**

R90384

Company  
 Division

P.O. NO. HOFMAN LABORATORIES, INC. Name of Company or Division

11/12/65

Vendor 225 PARKHURST STREET

Date 11/10/65

NEWARK, N. J.

Del'y. Promised By Vendor n/30

Ship Via OUR MR. C. DI SARNO

Terms P.S.  
 F.O.B.

Space Above is for Purchasing Department Use Only

Ship To AIR REDUCTION CO., INC., MURRAY HILL, N. J.

Date Issued

ATT: J. SIMA

Date Required

Ship Via

Issuing Location

Charge CRE 36  
 A/C No.

Sales or Use Tax

TAXABLE  NON-TAXABLE

If Non-Taxable, Give Reason or Exemption Number

QUANTITY	UNIT	DESCRIPTION	PRICE
ONLY		CONFIRMATION PHONE MR. VAUGHN, 11/10/65	
		HOFFMAN LIQUIFIED GAS DEWAR FLASK, SIZE #E-1	ADVISE
		NASA XXXXXXXXXXXXXXXXXXXX NAS8-20099	
		PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.	
		COMPLETED DATE 11/15/65	
		MATERIAL SHIPPED TO VENDOR FOR PROCESSING OR REPAIRS COVERED BY REQ. NO.	

QUOTATION RECEIVED FROM J. SIMA

W. MOEN

H. E. WENDT, P. A.

Prepared By

Approved

Title

Approved

Title

H. BRUNGER

111034

ORD-36

2



158928

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 6/15/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

HEISE BOURDON TUBE CO., INC.  
SOUTH MAIN  
NEWTOWN, CONNECTICUT

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

A DIVISION OF  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
7/23/65	U.P.S.	D.S.	n/30
QUANTITY ORDERED	MATERIAL	PRICE	
1 ONLY	<p>CONFIRMATION PHONE MR. ARNDT 6.14.65</p> <p>HEISE VACUUM GAGE, 0-760 MILLIMETERS OF HG. ABSOLUTE, 8-1/2" DIAL, WHITE FACE, BACK CONNECTED FOR PANEL MOUNTING, 1/4" MALE NPT, 760 SCALE DIVISIONS, 316SS BOURDON TUBE, ALL WETTED PARTS TO BE 303 SS OR 316 SS, <u>CLEANED FOR OXYGEN SERVICE.</u></p> <p>NOTE: PROVIDE 3 COPIES OF INSTRUCTION MANUALS, VENDORS PRINTS AND SPARE PARTS LISTS TWO WEEKS AFTER RECEIPT OF PURCHASE ORDER.</p>	\$208.50 EA. NET	



158954

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 6/12/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

MIXING EQUIPMENT CO.  
51 LINCOLN STREET  
EAST ORANGE, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

8-13-65

per invoice #1, 2

SAME ADDRESS AS ABOVE

DATE WANTED	7/23/65	SHIP VIA	MOTOR FREIGHT	F.O.B.	ROCHESTER, N.Y.	TERMS	n/30
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QUANTITY ORDERED	MATERIAL	PRICE
1 ONLY	<p>CONFIRMATION PHONE MR. WEIRE 6/15/65</p> <p>REFERENCE VENDOR'S QUOTATION 4/13/65</p> <p>MODEL NO N33AR-35, 1/3 H.P. EQUIVALENT FLANGE MOUNT, LIGHTNING MIXER AS PER THE ATTACHED QUOTE DATED 4/13/65 WITH THE FOLLOWING EXCEPTIONS. THE INTEGRAL STUFFING BOX TO BE PACKED WITH CRANE #C-995 (ASBESTOS COATED WITH TEFLON) INSTEAD OF CRANE #177J6. WILL ADVISE REGARDING LENGTH OF MIXER SHAFT IN ONE WEEK. THE INTERNALS OF THE STUFFING BOX SHOULD BE DEGRESSED FOR OXYGEN SERVICE. DO NOT PROVIDE A <del>EXHAUSTION</del> CONTAMINANT TRAP. DRIVE SHAFT AND CHUCK TO BE OF 18-8 STAINLESS STEEL.</p> <p>PROVIDE THREE (3) COPIES OF OPERATING INSTRUCTIONS, VENDOR'S DRAWINGS AND SPARE PARTS LISTS TWO WEEKS AFTER RECEIPT OF PURCHASE ORDER.</p>	<p>492.00</p> <p>\$420.00</p> <p>EA.?</p>



SUPPLEMENT NO. 1

TO P. O. NO. 158954

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 7/1/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

MINING EQUIPMENT CO.  
51 LINCOLN STREET  
EAST ORANGE, N. J.

SHIP TO

SALE AS ABOVE

CHARGE AND BILL TO:

~~MINING EQUIPMENT CO.~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
<u>7/23/65</u>	MOTOR FREIGHT	ROCHESTER, N. Y.	n/30

QUANTITY ORDERED	MATERIAL	PRICE
E	<p>CONFIRMING PHONE CONVERSATION YOUR MR. ELLERY TO OUR MR. BRUCHER, 6/23/65</p> <p>THE DRIVE SHAFT AND THE CHUCK ARE NOT <del>MINING</del> REQUIRED TO BE OF 18-8 STAINLESS STEEL AND CAN BE THE CONVENTIONAL ELECTROLESS NICKEL PLATED STEEL.</p> <p>THE LENGTH OF THE MEMBER SHAFT IS TO BE 29 INCHES LONG AS MEASURED DOWN FROM THE FACE OF THE 5 INCH FLANGE ON THE NICKER.</p> <p>NOTE: PRICE REMAINS THE SAME.</p>	





SUPPLEMENT NO. 2

TO P. O. NO. 158954

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 9/9/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.



MINING EQUIPMENT CO.  
51 LINCOLN STREET  
EAST ORANGE, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED 7/23/65 SHIP VIA MOTOR FREIGHT F.O.B. P.S. TERMS n/30

QUANTITY ORDERED

MATERIAL

PRICE

NASA

~~XXXXXXXXXXXXXXXXXXXX~~ NAS8-20099

ADD TO THE SUBJECT PURCHASE ORDER:

CHANGE FLANGE TO SOLID STAINLESS STEEL INSTEAD OF  
STAINLESS STEEL FACED AND FURNISH RIGID COUPLING  
CONSTRUCTION.

TOTAL ADDITIONAL CHARGE FOR ABOVE CHANGES. . . . . \$73.00

REF: VENDOR'S LETTER OF 8/20/65

(FOR RECORD PURPOSES ONLY)

PRIORITY RATING DX-A2 (SATURN) CERTIFIED FOR  
NATIONAL DMS REGULATION 1.

*Handwritten signature or initials*



PURCHASE ORDER

158956

AIR REDUCTION COMPANY  
INCORPORATED

DATE 6/27/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

THE EMERSON CO., INC.  
337 EMERSON PLANK ROAD  
EAST RUTHERFORD, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~EMERSON~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
6/24/65	MOTOR TRUCK	P.S.	1/10

QUANTITY ORDERED	MATERIAL	PRICE
	CONFIRMATION PHONE MR. GUTHRIE, 6/16/65	
1 ONLY	MATHESON REGULATOR FOR USE WITH FLUORINE, TUBE NO. 603, MAX. FLOW RATE 7.6 C.F.H.	\$125.00 EA.
1 ONLY	FLUORINE CYLINDER BARRICADE, 6 LB. CYLINDER SIZE	375.00 EA.
1 ONLY	#940F DOUBLE VALVING SYSTEM TO FIT 6 LB. CYLINDER BARRICADE	50.00 EA.
1 ONLY	#940F METERING VALVE	15.00 EA.
1 ONLY	HYDROGEN FLUORIDE TRAP-COMplete	30.00 EA.

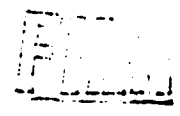


158967

**PURCHASE ORDER**  
**AIR REDUCTION COMPANY**  
INCORPORATED

DATE 6/26/55

**PURCHASING DEPARTMENT**  
**MURRAY HILL, N. J.**



UNIFLOW VALVE CORP.  
 49 HENRIER AVENUE  
 CRANFORD, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

DIVISION OF  
**AIR REDUCTION COMPANY**  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
7/27/55	MOTOR FREIGHT	CRANFORD, N. J.	1/2-10

QUANTITY ORDERED	MATERIAL	PRICE
	CONFIRMATION PHONE MR. J. CORDICK, 6/15/55	
1 ONLY ✓	UNIFLOW TYPE 800 BARSTOCK CONTROL VALVE, 1/4" PIPE SOCKET WELD CONNECTION, 316 STAINLESS STEEL BODY AND TRIM, EQUAL PERCENTAGE PLUG, VALVE TO CLOSE ON AIR FAILURE, TEFLON CHEVRON PACKING, 8" EXTENSION FOR CRYOGENIC SERVICE, FULL PORT OPENING, DEGREASE FOR OXYGEN SERVICE, 3-15 PSIG AIR OPERATOR.	\$175.00 EA.
2 EA. ✓	UNIFLOW TYPE 800 BARSTOCK CONTROL VALVE, 1/2" PIPE SOCKET WELD CONNECTION, 316 STAINLESS STEEL BODY AND TRIM, QUICK OPENING, VALVE TO CLOSE ON AIR FAILURE, TEFLON CHEVRON PACKING, 8" EXTENSION FOR CRYOGENIC SERVICE, FULL PORT OPENING, DEGREASE FOR OXYGEN SERVICE, 3-15 PSIG AIR OPERATOR	201.00 EA.
1 ONLY ✓	UNIFLOW TYPE 800 BARSTOCK CONTROL VALVE, 3/4" PIPE SOCKET WELD CONNECTION, 316 STAINLESS STEEL BODY AND TRIM, LINEAR PLUG, VALVE TO CLOSE ON AIR FAILURE, TEFLON CHEVRON PACKING, 8" EXTENSION FOR CRYOGENIC SERVICE, FULL PORT OPENING, DEGREASE FOR OXYGEN SERVICE, 3-15 PSIG AIR OPERATOR	230.00 EA.
PROVIDE 3 COPIES OF OPERATING INSTRUCTIONS, VENDOR'S DRAWINGS AND SPARE PARTS LISTS TWO WEEKS AFTER RECEIPT OF PURCHASE ORDER.		

*(Handwritten signature)*



158996

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 6/22/65

PURCHASING DEPARTMENT

MURRAY HILLS, N. J.

**FILE**

POWER-DRAULICS, INC.  
420 NORTHERN BOULEVARD  
GREAT NECK, LONG ISLAND  
NEW YORK

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED <b>7/12/65</b>	SHIP VIA <b>P.P. OR EXP., INS.</b>	F.O.B. <b>P.S.</b>	TERMS <b>n/30</b>
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QUANTITY ORDERED	MATERIAL	PRICE
2 EA.	<p>CONFIRMATION PHONE MR. DENNIS, 6/18/65</p> <p>CIRCLE SEAL RELIEF VALVES, TYPE 520T-4MP-15, SET TO RELIEVE AT 15 PSIG, 1/2" NPT, ALL 303 STAINLESS STEEL WITH TEFLON "O" RING, DEGREASE FOR OXYGEN SERVICE</p> <p>SET-UP CHARGE</p>	<p>\$38.40 EA</p> <p>5.00</p> <p>LOT</p>

*Handwritten signature/initials*

AIRCO

159025

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 6/17/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

BLADE EQUIPMENT CO.  
75 GRAND AVENUE  
ENGLEWOOD, N. J.  
ATT: MR. VOSS

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	#1=7/6/65 #2=7/16/65	SHIP VIA	MOTOR FREIGHT	F.O.B.	P.S.	TERMS	n/30
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QUANTITY ORDERED	MATERIAL	PRICE
1 ONLY	BARTON MODEL #200 DIFFERENTIAL PRESSURE INDICATOR, CAST ALUMINUM HOUSING, 316 STAINLESS STEEL BELLOWS, 0-20 INCHES WATER COLUMN, UNIFORM SCALE WHITE ON <del>BACK</del> BLACK, PANEL MOUNTING, DEGREASE FOR OXYGEN SERVICE, CLASS 2 CLEANING, 1000 PSI BODY RATING	248.00 \$250.00 EA
1 ONLY	BARTON MODEL #289 DIFFERENTIAL PRESSURE UNIT, CAST ALUMINUM HOUSING, 316 STAINLESS STEEL BELLOWS, 0-20 INCHES WATER COLUMN, UNIFORM SCALE WHITE ON BLACK, PANEL MOUNTING, HIGH AND LOW CONTACTS (MILISWITCH), LOW CONTACT TO CLOSE ON DECREASING PRESSURE AT 15 INCHES WATER COLUMN AND THE HIGH CONTACT TO OPEN ON INCREASING PRESSURE AT 17 INCHES WATER COLUMN, DEGREASE FOR OXYGEN SERVICE, 1000 PSI BODY RATING	278.00 300.00 EA
PROVIDE THREE COPIES OF VENDOR'S PRINTS AND SPARE PARTS LISTS ONE WEEK AFTER RECEIPT OF PURCHASE ORDER.		

*Handwritten signature*



159031

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 5/18/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FOUR

FERRANTE ELECTRIC, INC.  
INDUSTRIAL PARK #1  
PLAINVIEW, LONG ISLAND  
NEW YORK

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	7/30/65	SHIP VIA	P.P. OR EXP., INS.	F.O.B.	P.S.	TERMS	n/30
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QUANTITY ORDERED	MATERIAL	PRICE
4 EA.	PRICE QUOTED TO MR. KILMER BY YOUR MR. ELSTON, 6/15/65 ELECTROSTATIC VOLTMETERS, MODEL NO. A-506F, RANGE 0-3500 VOLTS	\$46.35 EA.



**PURCHASE ORDER**  
**AIR REDUCTION COMPANY**  
INCORPORATED

**159081**

DATE 6/23/55

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

**FILE**

**W. S. WILSON CORP.**  
**47-50 38TH STREET**  
**LONG ISLAND CITY 1, NEW YORK**

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXXXX~~  
**AIR REDUCTION COMPANY**  
INCORPORATED

8/6/55

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
<u>7/23/55</u>	VENDOR'S TRUCK	DEST.	<u>2/10</u>
QUANTITY ORDERED	MATERIAL	PRICE	
1 ONLY ✓	ASHCROFT DURAGAUGE, TYPE 1379, 0-60 PSIG, 316 S.S. BOURDON, BOTTOM CONNECTED 1/4" NPT, WALL MOUNTING, DEGREASE FOR OXYGEN SERVICE, ALL WETTED PARTS 316 S.S., 4-1/2" DIAL	\$34.40 EA.	
1 ONLY ✓	ASHCROFT DURAGAUGE, TYPE 1377, 0-30" HG VACUUM, 316 STAINLESS STEEL BOURDON, BACK CONNECTED 1/4" NPT, FLUSH MOUNTING, ALL WETTED PARTS 316 S.S., DEGREASE FOR OXYGEN SERVICE, 4-1/2" DIAL	34.40 EA.	
1 ONLY ✓	ASHCROFT DURAGAUGE, TYPE 1377, COMPOUND 60 PSI AND 30" HG, 316 STAINLESS STEEL BOURDON, BACK CONNECTED 1/4" NPT, FLUSH MOUNTING, ALL WETTED PARTS 316 S.S. DEGREASE FOR N2 OXYGEN SERVICE, 4-1/2" DIAL	34.40 EA.	
1 ONLY ✓	ASHCROFT DURAGAUGE, TYPE 1377, 0-15 PSIG, 316 S.S. BOURDON, BACK CONNECTED 1/4" NPT, FLUSH MOUNTING, ALL WETTED PARTS 316 S.S., DEGREASE FOR BEEK OXYGEN SERVICE, 4-1/2" DIAL	34.40 EA.	
3 SETS	MANUFACTURER'S PRINTS OF ABOVE GAUGES / EXCESS (PLEASE MAIL AT ONCE)	ALL LESS 10% NO CHARGE	
(PRICES QUOTED TO OUR MR. H. BRUECHER)			



159103

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 7/2/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

ISLAND GIFFORD PRODUCTS CO.  
SMITH STREET  
BIDDEFORD, MAINE  
ATT: BILL BRICE

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	QUANTITY ORDERED	SHIP VIA	MATERIAL	F.O.B.	TERMS	PRICE
7/3/65		U.P.S.		P.S.	n/30	
	1 ONLY		CONFIRMATION PHONE WILLIAM BRYAN, 6/30/65 ISLAND GIFFORD VALVE OPERATOR, TYPE 125-200 PNEUMATIC OPERATOR, SUITABLE TO TAKE A 5/8" OD VALVE STEM			\$69.50 EA.
	3 COPIES		MFR'S. DRAWINGS OF ABOVE (MAIL AT ONCE)			NO CHARGE





159112

PURCHASE ORDER

AIR REDUCTION COMPANY

INCORPORATED

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

DATE 6/29/65

**FILE**

THE FOXBORO CO.  
80 MORRIS AVENUE  
SPRINGFIELD, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~SA DIVISION OR~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
7/5/65	P.P. OR EXP., INS.	P.S.	n/30
QUANTITY ORDERED	MATERIAL	PRICE	
2 EA. ✓	CONFIRMATION PHONE MR. CHRISTY, 6/28/65 FOXBORO AIR SWITCHES, MODEL #39462, ON-OFF TYPE FOR USE WITH VALVE WHICH IS AIR TO OPEN, PANEL MOUNTING	\$20.00 EA.	
3 COPIES	MFR'S. DRAWINGS FOR ABOVE (PLEASE MAIL AT ONCE)	NO CHARGE	

*Handwritten scribbles*



159136

**PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED**

DATE 6/30/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

R.S. CRUM & CO.  
1167 GLOBE AVENUE  
MOUNTAINSIDE, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
**AIR REDUCTION COMPANY  
INCORPORATED**

SAME ADDRESS AS ABOVE

<b>DATE WANTED</b> 7/27/65	<b>SHIP VIA</b> U.P.S.	<b>F.O.B.</b> P.S.	<b>TERMS</b> 1/10
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QUANTITY ORDERED	MATERIAL	PRICE
5 EA.	CONFIRMATION PHONE MISS JURGENS, 6/29/65 WHITBY VALVES, PART #21RS-2-316	\$61.20 EA.
20 EA.	DITTO, PART #6TS4-316	NET 37.30 EA.
4 EA.	DITTO, PART #6TS8-316	40.00 EA.
2 EA.	DITTO, PART #6RS8-316	39.20 EA.
ALL ABOVE VALVES TO BE CLEANED FOR <u>OXYGEN SERVICE</u>		

*Handwritten scribbles at the bottom of the page.*



159171

PURCHASE ORDER

AIR REDUCTION COMPANY  
INCORPORATED

6/30/65

DATE

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

LOUIS H. FEIN CO.  
2 PLEASANT AVENUE  
CLIFTON, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~AGENCIAS~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	7/16/65	SHIP VIA	P.P. OR EXP., INS.	F.O.B.	P.S.	TERMS
						1/16 n/30

QUANTITY ORDERED	MATERIAL	PRICE
3 EA.	LOUIS FEIN RELIEF VALVES, PART #10-159-1-2, SET AT 80 PSIG, 3/8" NPT, CLEANED FOR OXYGEN SERVICE	\$25.88 EA.
3 COPIES	MFR'S DRAWING OF ABOVE (MAIL AT ONCE-PLEASE)	LESS 10% NO CHARGE

*Handwritten initials*



**159209**

**PURCHASE ORDER**  
**AIR REDUCTION COMPANY**  
INCORPORATED  
**PURCHASING DEPARTMENT**  
**MURRAY HILL, N. J.**

DATE 7/5/65

**FILE**

~~XXXXXXXXXX~~  
**THE FOMBORO COMPANY**  
**80 MORRIS AVENUE**  
**SPRINGFIELD, N. J.**

SHIP TO

**SAME AS ABOVE**

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
**AIR REDUCTION COMPANY**  
INCORPORATED

**SAME ADDRESS AS ABOVE**

DATE WANTED	SHIP VIA	P.P. OR EXP., INS.	F.O.B.	TERMS
<b>7/15/65</b>			<b>P.S.</b>	<b>n/30</b>
QUANTITY ORDERED	MATERIAL			PRICE
✓ 1 ONLY	FOMBORO AIR SWITCH, 2 POSITION, 4 PORTS, TYPE 48281 WITH TYPE 48284 HANDLE FOR USE WITH 80 PSIG AIR			<b>\$40.00 EA. NET</b>
✓ 3 COPIES	VENDOR'S DRAWING OF ABOVE (PLEASE MAIL ONE WEEK AFTER RECEIPT OF PURCHASE ORDER)			



159259

PURCHASE ORDER  
**AIR REDUCTION COMPANY**  
 INCORPORATED  
 PURCHASING DEPARTMENT  
 MURRAY HILL, N. J.

DATE 7/1/65

FILE

MOORE PRODUCTS CO.  
 2720 MORRIS AVENUE  
 UNION, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
 AIR REDUCTION COMPANY  
 INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED 7/19/65      SHIP VIA P.P. OR EXP., INS.      F.O.B. P.S.      TERMS n/30

QUANTITY ORDERED	MATERIAL	PRICE
2 EA.	MOORE MANUAL LOADING STATIONS TYPE 473K15, COMPLETE WITH GAUGE FOR PANEL MOUNTING, FOR 3-15 PSIG AIR TO OPEN VALVE	\$80.00 EA.
1 ONLY	MOORE MANUAL LOADING STATION TYPE 473K100, COMPLETE WITH GAUGE FOR PANEL MOUNTING TO SUPPLY 0-70 PSIG AIR TO AIR DRIVEN MIXER	77.50 EA.
3 COPIES	MFR'S. DRAWINGS OF ABOVE (PLEASE MAIL AT ONCE)	NO CHARGE



163090

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED  
PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

DATE 7/29/65

ANDERSON GREENWOOD CO., INC.  
87-66 150TH STREET  
JAMAICA, LONG ISLAND  
NEW YORK

FILE O.K.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	8/9/65	SHIP VIA	P.P. OR EXP., INS.	F.O.B.	P.S.	TERMS	n/30
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QUANTITY ORDERED	MATERIAL	PRICE
2 EA.	NASA XXXXXXXXXXXXXXXXXXXX NASS-20099 ANDERSON GREENWOOD THREE VALVE MANIFOLDS X TYPE M-1 ALL 316 STAINLESS STEEL BONNET, BODY AND STEM. TEFLON PACKING AND KEL-F SEATS  (PRICE QUOTED TO OUR MR. H. BRUECHER)	\$66.60 EA.
3 COPIES	MFR'S. DRAWINGS OF ABOVE MANIFOLDS. PLEASE MAIL AT ONCE  PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.	NO CHARGE



PURCHASE ORDER

163367

AIR REDUCTION COMPANY  
INCORPORATED

DATE 8/14/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

POWER DRAULICS, INC.  
420 NORTHERN BOULEVARD  
GREAT NECK, LONG ISLAND  
NEW YORK

FILE

SHIP TO

SAME AS ABOVE

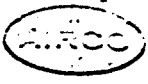
CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
9/9/65	U.P.S.	P.S.	n/30

QUANTITY ORDERED	MATERIAL	PRICE
1 ONLY	<p>NASA XXXXXXXXXXXXX NAS8-20099</p> <p>CIRCLE SEAL RELIEF VALVE TYPE 520T-4MP-60, SET TO RELIEVE AT 60 PSIG, 1/2" NPT, 303 STAINLESS STEEL WITH TEFLON "O" RING, <u>DEGREASE FOR OXYGEN SERVICE</u></p> <p>SET-UP CHARGE</p> <p>PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.</p>	<p>\$38.40 EA.</p> <p>5.00 NET</p>



163391

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 8/20/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

MOORE PRODUCTS CO.  
2720 MORRIS AVENUE  
UNION, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
8/9/65	P.P. OR EXP., INS.	P.S.	n/30

QUANTITY ORDERED	MATERIAL	PRICE
1 ONLY	<p>NASA XXXXXXXXXXXXXXXXX NAS8-20099</p> <p>CONFIRMATION PHONE MR. DODDLE, 8/19/65</p> <p>MOORE MANUAL LOADING SECTION TYPE 473K15, COMPLETE WITH GAGE FOR PANEL MOUNTING, FOR 3-15 PSIG AIR TO OPEN VALVE</p> <p>PRIORITY RATING DK-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION I.</p>	\$80.00 EA. NET





163419

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 8/23/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

VALCOR ENGINEERING CO.  
365 CARNEGIE AVENUE  
KENILWORTH, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED

9/10/65

SHIP VIA

U.P.S.

F.O.B.

P.S.

TERMS

n/30

QUANTITY ORDERED

NASA

MATERIAL

~~XXXXXXXXXXXX~~ NAS8-251574 20099

PRICE

2 EA.

CONFIRMATION PHONE MR. PARRILL, 8/20/65

VALCOR SOLENOID VALVES, MODEL 90C-89C-7F, ALL STAINLESS CONSTRUCTION, 1/2" FPT EITHER END, IOX CLEANED.

\$120.00 EA.  
NET

PRIORITY RATING SEE BX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION I.



SUPPLEMENT NO. 1  
TO P. O. NO. 163419

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED  
PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

DATE 3/27/65

245-1661

VALCOR ENGINEERING CO.  
365 CARNEGIE AVENUE  
KENILWORTH, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED 9/10/65 SHIP VIA U.P.S. F.O.B. P.S. TERMS n/30

QUANTITY ORDERED	MATERIAL	PRICE
	<p>NASA / <del>XXXXXXXXXXXXXXXXXXXX</del> NAS8-20099</p> <p>PLEASE ADD TO THE SUBJECT PURCHASE ORDER:                      PROVIDE THREE (3) COPIES OF OPERATING <del>XXXXXXXXXXXXXXXXXXXX</del>                      INSTRUCTIONS, SPARE PARTS LISTS AND DRAWINGS AT                      NO CHARGE. PLEASE MAIL AT ONCE.</p> <p>PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR                      NATIONAL DEFENSE UNDER DMS REGULATION 1.</p>	NO CHARGE



163453

**PURCHASE ORDER**  
**AIR REDUCTION COMPANY**  
INCORPORATED  
**PURCHASING DEPARTMENT**  
**MURRAY HILL, N. J.**

DATE 8/23/65

**FILE**

**UNIFLOW VALVE CORP.**  
**49 WEBBER AVENUE**  
**CRANFORD, N. J.**

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

**AIR REDUCTION COMPANY**  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
10/4/65	MOTOR FREIGHT	CRANFORD, N. J.	1/2-10
QUANTITY ORDERED	MATERIAL		PRICE
1 ONLY	NASA / XXXXXXXXXXXXXXXX NAS8-20099  THESE PRICES PER MR. THOMAS 8/16/65 TO OUR MR. J.SIMA  UNIFLOW TYPE 800 BARSTOCK CONTROL VALVE 1/2" PIPE FEMALE END CONNECTIONS, 316 STAINLESS STEEL BODY AND TRIM, EQUAL PERCENTAGE PLUS, VALVE TO CLOSE ON AIR FAILURE, TEFLON CHEVRON PACKING, 8" EXTENSION FOR CRYOGENIC SERVICE, FULL PORT OPENING, DEGREASE FOR OXYGEN SERVICE, 3-15 PSIG AIR OPERATOR, REF. NO. 65-9271  PROVIDE 3 COPIES OF OPERATING INSTRUCTIONS, VENDOR'S DRAWINGS AND SPARE PARTS LISTS 2 WEEKS AFTER RECEIPT OF ORDER.  PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.		\$201.00 EA. NET  NO CHARGE

AIRCO

176266

PURCHASE ORDER

10/27/65 AIR REDUCTION COMPANY  
INCORPORATED

DATE \_\_\_\_\_

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

ACE SCIENTIFIC SUPPLY CO., INC.  
1420 EAST LINDEN AVENUE  
LINDEN, N. J.  
ATT: MR. LOWENSTEIN

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

*See supplied #1*

DATE WANTED	SHIP VIA	F.O.B.	TERMS
11/2/65	YOUR TRUCK	DEST.	n/30

QUANTITY ORDERED	MATERIAL	PRICE
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1 ONLY ✓	NASA XXXXXXXXXXXXXXXXXXXX NAS8-20099  MASTER APPLIANCE CORP. HEAT GUN, 110/120 VOLTS, AC-DC, MODEL NO. HG-501-L, ACE SCIENTIFIC #17-8945  PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.	45.35 \$40.25 EA. NET
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*R. E. Weaver*



SUPPLEMENT NO. 1

TO P. O. NO. 176266

PURCHASE ORDER

**AIR REDUCTION COMPANY**  
INCORPORATED

DATE 11/9/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

ACE SCIENTIFIC SUPPLY CO., INC.  
1420 EAST LINDEN AVENUE  
LINDEN, N. J.  
ATT: MR. LOWENSTEIN

SHIP TO  
SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	<u>11/2/65</u>	SHIP VIA	<u>YOUR TRUCK</u>	F.O.B.	<u>DEST.</u>	TERMS	<u>n/30</u>
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QUANTITY ORDERED	MATERIAL	PRICE
	<p>PLEASE CHANGE PRICE ON THE SUBJECT PURCHASE ORDER TO READ \$45.35 EA. INSTEAD OF \$40.25 EA. (FOR RECORD PURPOSES ONLY)</p>	



176798

**PURCHASE ORDER**  
**AIR REDUCTION COMPANY**  
INCORPORATED

DATE: 12/2/65

PURCHASING DEPARTMENT  
 MURRAY HILL, N. J.

**FILE**

JONES & AUBRECHER CO.  
 46 EDISON PLACE  
 NEWARK, N. J.  
 ATT: MR. CHUTAK

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXXXX~~  
 AIR REDUCTION COMPANY  
 INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
12/15/65	YOUR TRUCK	DEST.	2/10

QUANTITY ORDERED	MATERIAL	PRICE
1 ONLY	COMPLETE IMPERIAL 37° FLARE KIT INCLUDING BAR AND YOKE MODEL 447-F  NASA <del>XXXXXXXXXXXX</del> NAS8-20099  PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.	\$33.60 LOT

*W. Putignano*

3. CANCELLED



159083

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 6/23/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

ALLOY STEEL PRODUCTS CO.  
1300 WEST ELIZABETH AVENUE  
LINDEN, N. J.  
ATT: MR. DE FRANCE

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~KINDSNETT~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED

7/23/65

SHIP VIA

MOTOR FREIGHT

F.O.B.

P.S.

TERMS

2/10

QUANTITY ORDERED

MATERIAL

PRICE

2 EA.

ALOYCO FIG. #340EB 150# EXTENDED BONNET GLOBE VALVE, 3/4" NPT, 316 STAINLESS STEEL WITH VIRGIN TEFLON PACKING, STANDARD LENGTH BONNET EXTENSION, SCREWED CONNECTION, DEGREASE FOR OXYGEN SERVICE. PRICE INCLUDES DEGREASING

\$117.00 EA.

3 COPIES

MANUFACTURER'S DRAWING OF ABOVE VALVE (PLEASE MAIL AT ONCE)

NO CHARGE

*sent to H.B. 6/29*

*H.C. [unclear]*





SUPPLEMENT NO. 1

TO P. O. NO. 159083

PURCHASE ORDER

AIR REDUCTION COMPANY  
INCORPORATED

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

DATE 10/8/65

ALLOY STEEL PRODUCTS CO.  
1300 WEST ELIZABETH AVENUE  
LINDEN, N. J.  
ATT: MR. DE FRANCE

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

XXXXXXXXXXXX  
DIVISION OF  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED <u>7/23/65</u>	SHIP VIA <u>MOTOR FREIGHT</u>	F.O.B. <u>P.S.</u>	TERMS <u>2/10</u>
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QUANTITY ORDERED	MATERIAL	PRICE
	<p>CONFIRMATION PHONE MR. WILLIAM P. FRANCE, 10/6/65</p> <p>PLEASE CANCEL SUBJECT PURCHASE ORDER FOR 2 EA. ALOYCO FIG. #340EB, 150# EXTENDED BONNET GLOBE VALVE 3/4", NPT 316 S.S. WITH A VIRGIN TEFLON PACKING, STANDARD LENGTH BONNET EXTENSION, SCREWED CONNECTION, DEGREASE FOR OXYGEN SERVICE, PRICE INCLUDES DEGREASING AT \$117.00 EA.</p> <p>3 COPIES MANUFACTURERS DRAWINGS OF ABOVE VALVE (PLEASE MAIL AT ONCE) NO CHARGE</p> <p>(VENDOR DID NOT MEET WANTED DATE)</p>	



159084

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 6/23/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

DANIEL ORIFICE FITTING CO.  
c/o BLAKE EQUIPMENT CORP.  
75 GRAND AVENUE  
ENGLEWOOD, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
<i>suppl #</i> 7/7/65	P.P. OR EXP., INS.	P.S.	n/30

QUANTITY ORDERED	MATERIAL	PRICE
2 EA.	DANIEL TRI HALVES TYPE 1500 TW-3, 303 STAINLESS STEEL, VIRGIN TEFLON SEALS AND PACKING, 1/4" NPT DECREASE FOR OXYGEN SERVICE	\$42.00 EA.
	CHARGE FOR DEGREASING ABOVE VALVES . . . . .	10.00 EA.
3 COPIES	MANUFACTURER'S DRAWING OF ABOVE VALVE (PLEASE MAIL AT ONCE)	NO CHARGE

ORDERED BY  
H. BRUCHNER

REQ. NO.  
111848-1

CHARGE ACCOUNT NO.  
CRE 36

2



SUPPLEMENT NO. 1  
TO P. O. NO. 159084

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 7/23/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

DANIEL ORIFICE FITTING CO.  
c/o BLAKE EQUIPMENT CO.  
75 GRAND AVENUE  
ENGLEWOOD, N. J.

FILE

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXXXXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED 7/7/65 SHIP VIA P.P. OR EXP., INS. F.O.B. P.S. TERMS n/30

QUANTITY ORDERED	MATERIAL	PRICE
	<p>REF: VENDOR'S LETTER 7/12/65 SIGNED BY MR. RIETHOF</p> <p>PLEASE CANCEL THE SUBJECT PURCHASE ORDER. VENDOR NOT ABLE TO SUPPLY THIS EQUIPMENT AS SPECIFIED.</p>	

# REJECTED MATERIAL NOTICE

No 9544

AIR REDUCTION CO., INC., MURRAY HILL, N.J.

DIVISION

ADDRESS

Date 12/14/65

Received from LOUIS HEIN CO., 2 PLEASANT AVENUE, CLIFTON, N. J.

R. V. No. \_\_\_\_\_ Date ~~xxxxxx~~ Purch. Ord. No. 176490 For Dept. CRE 36

Return to SAME AS ABOVE

Via U. P. S.

For Replacement  
 For Credit

TOTAL QUANTITY RECEIVED	QUANTITY REJECTED	DESCRIPTION OF MATERIAL ORDERED	REASON FOR REJECTION OR DESCRIPTION OF MATERIAL RECEIVED
1 ONLY	1 ONLY	37° FLARE TOOL KIT MODEL 2343 FOR 1/8", 3/16"	<p><i>comp phone m. Relet 12/23/65</i></p> <p>ORDERED IN ERROR</p>
1 ONLY	1 ONLY	DITTO, MODEL 410A, FOR 1/4" TO 5/8"	
RETURN OF MATERIAL APPROVED		<p style="text-align: right;"><i>JK</i></p> <p style="text-align: center;">DATE 12/23/65</p>	<p>SIGNED J. SIMA</p> <p style="text-align: right;">INSPECTOR</p>

1. THIS COPY FOR PURCHASING DEPT.



176490

PURCHASE ORDER  
 AIR REDUCTION COMPANY  
 INCORPORATED  
 PURCHASING DEPARTMENT  
 MURRAY HILL, N. J.

DATE 11/15/65

LOUIS IEBIN CO.  
 2 PLEASANT AVENUE  
 CLIFTON, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
 INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	11/15/65	SHIP VIA	U.P.S.	F.O.B.	P.S.	TERMS	n/30
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QUANTITY ORDERED	MATERIAL	PRICE
	NASA XXXXXXXXXXXXXXXX NAS8-20099	
1 ONLY	CONFIRMATION PHONE MR. ROBT, 11/12/65 37° FLARE TOOL KIT MODEL 2343, FOR 1/8", 3/16"	\$12.50 EA.
1 ONLY	37" FLARE TOOL KIT, MODEL 410A, FOR 1/4" TO 5/8"	18.00 EA.
PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.		

*R. E. Weidert*

Form H.O. 4-57  
Printed in U. S. A.

# REJECTED MATERIAL NOTICE

No. 9543

AIR REDUCTION CO., INC., MURRAY HILL, N. J.

DIVISION

ADDRESS

Date 12/14/65

Received from HALOCARBON PRODUCTS, INC., 82 BURLEWS COURT, HACKENSACK, N. J.

R. V. No. \_\_\_\_\_ Date 12/7/65 Purch. Ord. No. 176826 For Dept. CRE 36

Return to SAME AS ABOVE

Via OUR TRUCK

For Replacement  
 For Credit

TOTAL QUANTITY RECEIVED	QUANTITY REJECTED	DESCRIPTION OF MATERIAL ORDERED	REASON FOR REJECTION OR DESCRIPTION OF MATERIAL RECEIVED
2 LBS.	2 LBS.	HALOCARBON OIL, SERIES 13-21	VENDOR SENT SERIES 13-21E  CONFIRMATION PHONE MRS. STANELY, 12/14/65  J. SIMA  SIGNED _____ INSPECTOR

RETURN OF MATERIAL APPROVED

12/14/65  
DATE

S. O. No. \_\_\_\_\_

DATE \_\_\_\_\_

1. THIS COPY FOR PURCHASING DEPT.

SIA

290395

ORE 36



176826

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 12/8/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

HALOCARBON PRODUCTS, INC.  
82 BURLING COURT  
HACKENSACK, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	12/13/65	SHIP VIA	P.P. OREXP., INS.	F.O.B.	P.S.	TERMS	n/30
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QUANTITY ORDERED	MATERIAL	PRICE
2 LBS.	<p>NASA XXXXXXXXXXXXXXXXX NAS8-20099</p> <p>HALOCARBON OIL, SERIES 13-21</p> <p>PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1</p>	\$24.00 LOT

*A/E - [Signature]*

4. CONSUMABLES





158949

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 6/17/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

ELECTRON TECHNOLOGY, INC.  
626 SCHUYLER AVENUE  
KEARNEY, N. J.

FILE

SHIP TO  
SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED 6/24/65      SHIP VIA U.P.S.      F.O.B. P.S.      TERMS 1/10

QUANTITY ORDERED	MATERIAL	PRICE
7 EA.	CONFIRMATION PHONE MR. PERRY, 6/16/65 STANDARD PYREX-KOVAR SEALS, KOVAR O.D. TO BE 0.750 INCHES, AS SHOWN ON E.T.I. INFORMATION SHEET #2M-10-63	\$7.10 EA.
20 EA.	STANDARD PYREX-KOVAR SEALS, KOVAR O.D. TO BE 0.250 INCHES, AS SHOWN ON E.T.I. INFORMATION SHEET #2M-10-63	4.05 EA.

*Handwritten signature/initials*

184313  
184314

ORB-36

2



159134

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 6/30/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

TUBE SALES CO.  
456 NORDHOFF PL.  
ENGLEWOOD, NEW JERSEY

SHIP TO  
  
SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
7/2/65	<del>TAKE</del> YOUR TRUCK	DEST.	1/2-10
QUANTITY ORDERED	MATERIAL	PRICE	
	CONFIRMATION PHONE MR. KOEL 6/29/65		
67ft. 3 EA. ✓	20 FT. LENGTHS 1/8" O.D. STAINLESS STEEL TUBING, SEAMLESS, TYPE 304 ANNEALED, .035" WALL	\$62.37	CFT.
128ft. 8 EA. ✓	20 FT. LENGTHS 1/4" O.D. STAINLESS STEEL TUBING, SEAMLESS, TYPE 304 ANNEALED, .035" WALL.	73.14	CFT.
37ft. 2 EA. ✓	20 FT. LENGTHS 3/8" O.D. STAINLESS STEEL TUBING, SEAMLESS, TYPE 304, ANNEALED .035" WALL.	109.46	CFT.
40ft. 3 EA. ✓	20 FT. LENGTHS 1/2" O.D. STAINLESS STEEL TUBING, SEAMLESS, TYPE 304, ANNEALED .035" WALL.	119.00	CFT.



159202

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 7/5/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

FREDERICK ROEMER  
19 SHADOWLAWN DRIVE  
COLONIA, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	7/16/65	SHIP VIA	YOUR TRUCK	F.O.B.	DEST.	TERMS	n/30
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QUANTITY ORDERED	MATERIAL	PRICE
PLEASE PROVIDE THE FOLLOWING FRONT FERRULES ONLY FOR SWAGELOK TYPE FITTINGS, MATERIAL TO BE KEL-F:		
10 PCS.	FOR 3/4" O.D. TUBING	\$1.60 PC.
10 PCS.	FOR 1/2" O.D. TUBING	.80 PC.
50 PCS.	FOR 1/4" O.D. TUBING	.50 PC.
15 PCS.	FOR 1/8" O.D. TUBING	.50 PC.

Handwritten notes: 4/15 110-11



159329

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 7/12/65

PURCHASING DEPARTMENT

MURRAY HILL, N. J.

FILE

FRANCIBLE DISCS, INC.  
7 ALANNING AVENUE  
PENNS GROVE, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~DIVISION OF~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

1/2-10

DATE WANTED	SHIP VIA	F.O.B.	TERMS
7/23/65	P.P., INS.	P.S.	n/30

QUANTITY ORDERED	MATERIAL	PRICE
	NASA XXXXXXXXXXXXXXXXX NAS8-20099	
1 ONLY ✓	1 ONLY PLEASE REWORK/RUPTURE DISC HOLDER FOR LOW PRESSURE SERVICE (SHIPPED TO VENDOR ON OUR RMN 65-207)	\$2.00 EA.
5 EA. ✓	1/2" ALUMINUM DISCS FOR ABOVE HOLDER FOR BURSTING AT 5 PSIG <del>REVERSE</del> 72°F	.75 EA.
5 EA. ✓	1/2" ALUMINUM DISCS FOR ABOVE HOLDER FOR BURSTING AT 8 PSIG AT 72°F	.75 EA.
RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION #1		



**PURCHASE ORDER**  
**AIR REDUCTION COMPANY**  
INCORPORATED  
**PURCHASING DEPARTMENT**  
**MURRAY HILL, N. J.**

**162946**

**FILE**

DATE 7/21/65

**CHASE BRASS & COPPER CO.**  
**188 BADGER STREET**  
**NEWARK, N. J.**

SHIP TO

**SAME AS ABOVE**

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
**AIR REDUCTION COMPANY**  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
<b>7/22/65</b>	<b>YOUR TRUCK</b>	<b>DEST.</b>	<b>n/30</b>
QUANTITY ORDERED	MATERIAL		PRICE
<b>8 LBS.</b>	<p style="text-align: center;"><b>NASA</b>  <del>XXXXXXXXXXXXXXXXXXXX</del> <b>NAS8-20099</b></p> <p>CONFIRMATION PHONE MR. HERICH, 7/20/65</p> <p><b>SOLID, ROUND 1/8" DIAMETER COPPER ROD</b></p> <p>PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.</p>		<b>\$15.00 LOT</b>



162981

PURCHASE ORDER  
**AIR REDUCTION COMPANY**  
INCORPORATED  
 PURCHASING DEPARTMENT  
 MURRAY HILL, N. J.

DATE 7/22/65

FILE

FREDERICK ROEMER  
 19 BRIDGELAWN DRIVE  
 COLONIA, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
7/26/65	P.P. OR EXP., INS.	P.S.	n/30

QUANTITY ORDERED	MATERIAL	PRICE
	<p>NASA  <del>XXXXXXXX</del> NAS8-20099</p> <p>PRICE QUOTED TO OUR MR. BRUCHER, 7/20/65</p> <p>PLEASE PROVIDE TWO (2) EACH OF THE SEALS, BRAPINGS AND SEALS AS SHOWN ON BELAND-GIFFORD DWGS. NO. 50-44-0-10, NO. 25-44-0-14, NO. 25-44-0-13, NO. 25-44-0-12, NO. 25-44-0-11 AND NO. 50-44-0-15S ALL IN YOUR POSSESSION. MATERIAL TO BE KEL-F</p>	\$60.00 LOT



124319

ONE-36

4.

163068

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 8/3/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

LIMESTONE PRODUCTS, INC.  
122 MAIN STREET  
NEWTON, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	DEST.	TERMS
8/5/65	MOTOR FREIGHT			n/30
QUANTITY ORDERED	MATERIAL			PRICE
✓ 3 TONS	CONFIRMATION PHONE MR. CORIELL 8/2/65 LIMESTONE 3/4" SIZE			\$44.80 LOT



PURCHASE ORDER

163395

AIR REDUCTION COMPANY  
INCORPORATED

DATE 8/20/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

LAUREL WHOLESALE HARDWARE CO.  
~~XXXXXXXXXXXXXXXXXXXX~~  
367 SCARSDALE STREET  
N. PLAINFIELD, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXXXXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	DEST.	TERMS
8/23/65	YOUR TRUCK			2/10
QUANTITY ORDERED	MATERIAL		PRICE	
	NASA <del>XXXXXXXXXXXXXXXXXXXX</del> NAS8-20099			
	CONFIRMATION PHONE MRS. DOT KAHN, 8/19/65			
32 EA.	5/16"-NC-18 HEX HEAD BOLTS 3/4" LG, 316 STAINLESS STEEL		\$ .13 EA.	
16 EA.	3/8"-16-NC DIFFO		.15 EA.	
24 EA.	3/4"-10-NC HEX HEAD BOLTS 2" LG., STEEL		.16 EA.	
16 EA.	3/4" NUTS FOR ABOVE		.10 EA.	
240 EA.	1/4"-20-NC HEX HEAD BOLTS, 3/4" LG., STEEL		.90 C	
PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.				





PURCHASE ORDER

163434

AIR REDUCTION COMPANY  
INCORPORATED  
PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

DATE 8/20/65

HALOCARBON PRODUCTS CORP.  
82 BURELWS COURT  
HACKENSACK, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	8/30/65	SHIP VIA	P.P. OR EXP., INS.	F.O.B.	P.S.	TERMS	n/30
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QUANTITY ORDERED	MATERIAL		PRICE
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4 LBS.	NASA <del>XXXXXXXXXXXXXX</del> NAS8-22073 20099 HALOCARBON OIL SERIES 13-21 AT \$12.00 LB. . . . . DX-AE PRIORITY RATING/REMEDY (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.		\$48.00 NET TOTAL
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163537

**PURCHASE ORDER**  
**AIR REDUCTION COMPANY**  
 INCORPORATED  
 PURCHASING DEPARTMENT  
 MURRAY HILL, N. J.

DATE: 8/31/65

FILE

PETER A. FRASSE, INC.  
 17 GRAND STREET  
 NEW YORK, N. Y.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
 INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	DEST.	TERMS
9/7/65	VENDOR'S TRUCK			1/2-10
QUANTITY ORDERED	MATERIAL			PRICE
2 EA.	NASA XXXXXXXXXXXXX NAS8-20099			\$424.69 CFT.
20 FT. LENGTHS 1/2" IPS SCHEDULE 10S PIPE, 316 STAINLESS STEEL, RANDOM LENGTHS TO 22 FT. ACCEPTABLE  PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.				

47 ft



163735

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 9/16/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

CRANE PACKING CO.  
185 SOUTH NEWMAN STREET  
MACKENSACK, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED 9/28/65

SHIP VIA P.P., INS.

F.O.B. P.S.

TERMS n/30

QUANTITY ORDERED

MATERIAL

PRICE

22

NASA

XXXXXXXXXXXXXXXXXXXXX NAS8-20099

4 SPOOLS - CRANE PACKING CO. ZIP JOINT, 1/4" DIA. x 25 FT. LG

\$15.53  
EA. SPOOL

PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR  
NATIONAL DEFENSE UNDER DMS REGULATION 1.



PURCHASE ORDER

175949

AIR REDUCTION COMPANY  
INCORPORATED

FILE

DATE 10/8/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

SILBRICO CORPORATION  
5901 WEST 66TH STREET  
CHICAGO, ILLINOIS

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
10/20/65	MOTOR TRUCK		n/30
QUANTITY ORDERED	MATERIAL	PRICE	
20 BAGS <del>20 BIX</del>	NASA <del>XXXXXXXXXXXXXXXXXXXX</del> NAS8-20099  "RYOLEX" INDUSTRIAL THERM SEALING NO. 3S, EACH BAG CONTAINS APPROX. 4 FT.3  PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.	\$1.27 BAG <del>XXXXX</del>	

*W. E. Wald*



175991

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 10/12/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

CONSOLIDATED VACUUM CORP.  
26 LINDEN AVENUE  
SPRINGFIELD, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED 10/25/65

SHIP VIA

AIR P.P., INS.

F.O.B.

P.S.

TERMS n/30

QUANTITY ORDERED

MATERIAL

PRICE

NASA

~~XXXXXXXXXXXXXXXXXXXX~~ NAS8-20099

7 EA. ✓ #15882-2110 "O" RING

\$ .50 EA.

7 EA. ✓ #15882-2211 "O" RING

.50 EA.

7 EA. ✓ #15882-2342 "O" RING

.50 EA.

PRIORITY RATING DK-A2 (SATURN) CERTIFIED FOR  
NATIONAL DEFENSE UNDER DMS REGULATION 1.

*R. E. Wood*



SUPPLEMENT NO. 1

TO P. O. NO. 175991

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 10/26/65

PURCHASING DEPARTMENT

MURRAY HILL, N. J.

FILE

CONSOLIDATED ELECTRODYNAMICS CORP.  
26 LINDEN AVENUE  
SPRINGFIELD, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	10/29/65	SHIP VIA	AIR P.P., INS.	F.O.B.	P.S.	TERMS	n/30
QUANTITY ORDERED	MATERIAL				PRICE		

CONFIRMATION PHONE MRS. THOMAS, 10/25/65

PLEASE CHANGE NAME OF VENDOR ON THE SUBJECT  
PURCHASE ORDER TO READ:

CONSOLIDATED ELECTRODYNAMICS CORP.

INSTEAD OF

CONSOLIDATED VACUUM CORP.

NASA

~~XXXXXXXXXXXXXXXXXXXX~~ NAS8-20099

PRIORITY RATING DX-A2 (SATURN) CERTIFIED FOR  
NATIONAL DEFENSE UNDER DMS ~~XXXXXXXXXXXX~~ REGULATION 1.

*Handwritten signature: R E Wood*



176021

PURCHASE ORDER  
**AIR REDUCTION COMPANY**  
INCORPORATED  
 PURCHASING DEPARTMENT  
 MURRAY HILL, N. J.

DATE 10/18/65

*P.O.*

FILE

HALOCARBON PRODUCTS CORP.  
 82 BURLINGAME COURT  
 HACKENSACK, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXXXX~~  
**AIR REDUCTION COMPANY**  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	OUR MR. SIMA	F.O.B.	TERMS
10/15/65			P.S.	n/30
QUANTITY ORDERED	MATERIAL			PRICE
12 LBS.	NASA ████████████████████ NAS8-20099  CONFIRMATION PHONE MRS. FERRO, 10/15/65 HALOCARBON OIL SERIES 13-21 AT \$12.00 LB. . . . .  PRIORITY RATED DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.			\$144.00 <b>NET TOTAL</b>

*J. E. Wood*



**PURCHASE ORDER**  
**AIR REDUCTION COMPANY**  
 INCORPORATED

176132

DATE: 10/22/65

PURCHASING DEPARTMENT  
 MURRAY HILL, N. J.

FILE

SCIENTIFIC GLASS APPARATUS CO., INC.  
 735 BROAD STREET  
 BLOOMFIELD, NEW JERSEY

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
 AIR REDUCTION COMPANY  
 INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
10/21/65	OUR MESSENGER	P.S.	n/30
QUANTITY ORDERED	MATERIAL	PRICE	
	NASA /XXXXXXXXXXXXX NAS8-20099		
6 EA. ✓	KOVAR TO PYREX GLASS SEALS SCIENTIFIC GLASS CAT. NO. G-8770 AS FOLLOW: SEALS 0.750" OD KOVAR TO 20 MM OD KK PYREX		38.99 EA.
18 EA. ✓	SEALS 0.250" OD KOVAR TO 8 MM OD PYREX		4.49 EA.
PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.			
<u>CONFIRMATE N PHONE MR. HUTCHINSON 10/21/65</u>			

*R. E. Weir*





**176148**

**PURCHASE ORDER**  
**AIR REDUCTION COMPANY**  
 INCORPORATED  
 PURCHASING DEPARTMENT  
 MURRAY HILL, N. J.

DATE 10/21/65

**FILE**

**FREDERICK ROMER**  
 19 SHADOWLAWN DRIVE  
 COLOMIA, N. J.

SHIP TO

**SAME AS ABOVE**

CHARGE AND BILL TO:

**AIR REDUCTION COMPANY**  
 INCORPORATED

**SAME ADDRESS AS ABOVE**

DATE WANTED	SHIP VIA	F.O.B.	TERMS
10/29/65	P.P. OR EXP., INS.	P.S.	n/30
QUANTITY ORDERED	MATERIAL	PRICE	
20 PCS.	<p><del>XXXXXXXXXXXXXXXX</del> <b>MAS8-20099</b></p> <p>FRONT FERRULES ONLY FOR SWAGelok TYPE FITTINGS                      MATERIAL KEL-F GRADE 6060, TO FIT SIZE 1/8" O.D.                      TUBING</p> <p>PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR                      NATIONAL DEFENSE UNDER DMS REGULATION 1.</p>	\$ .50 PC.	

*R. E. Wood*



PURCHASE ORDER

176165

AIR REDUCTION COMPANY  
INCORPORATED

DATE 10/27/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

F. J. GRAY & CO.  
182 SOUTH PORTLAND AVENUE  
BROOKLYN, NEW YORK

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
11/1/65	U.P.S.	P.S.	1/10
QUANTITY ORDERED	MATERIAL	PRICE	
6 PCS.	PRECISION GROUND <del>XXXXXX</del> (.750 $\pm$ .005, -.000 O.D.) #7740 GLASS TUBING, WALL THICK. 1/8" NOM. x 4" LG.	\$15.00 PC.	
12 PCS.	PRECISION GROUND #7740 PYREX GLASS TUBING (.375 $\pm$ .005, -.000 O.D.) x 0.219 I.D. x 4" LG.	12.50 PC.	

CONFIRMATION PHONE MR. SCHRAUTH, 10/26/65

PRECISION GROUND ~~XXXXXX~~ (.750  $\pm$ .005, -.000 O.D.) #7740  
GLASS TUBING, WALL THICK. 1/8" NOM. x 4" LG.

PYREX

PRECISION GROUND #7740 PYREX GLASS TUBING  
(.375  $\pm$ .005, -.000 O.D.) x 0.219 I.D. x 4" LG.

NOTE: PRECISION GRIND ON OUTSIDE ONLY.

PROPERTY MARKING DX-AR (SATURN) CERTIFIED FOR  
NATIONAL DEFENSE UNDER DMS  
REGULATION 1.

*R. E. Wood*



176287

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 10/28/65

PURCHASING DEPARTMENT

MURRAY HILL, N. J.

FILE

FREDERICK ROEMER  
19 SHADOWLAWN DRIVE  
COLONIA, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	11/2/65	SHIP VIA	P.P. OR EXP., INS.	F.O.B.	P.S.	TERMS	n/30
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QUANTITY ORDERED	MATERIAL	PRICE
	NASA XXXXXXXXXXXXX NAS8-20099	
15 PCS. ✓	FRONT FERRULES ONLY FOR SWAGELOK TYPE FITTINGS FOR 3/4" O.D. TUBING	\$1.60 PC.
30 PCS. ✓	DETTO FOR 3/8" O.D. TUBING	.75 PC.
MIL-F GRADE 6060 MATERIAL DELIVERED TO VENDOR BY OUR MR. MARANCY.		
PRIORITY RATING DX-A2 (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.		



176342

**PURCHASE ORDER**  
**AIR REDUCTION COMPANY**  
INCORPORATED  
**PURCHASING DEPARTMENT**  
**MURRAY HILL, N.J.**

DATE: 11/1/65

ELECTRON TECHNOLOGY, INC.  
 626 SCHUYLER AVENUE  
 KEARNEY, N. J.  
 ATT: MR. PERRY

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
**AIR REDUCTION COMPANY**  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	MATERIAL	F.O.B.	TERMS
	P.P. OR EXP., INS.		P.S.	n/30
		NASA XXXXXXXXXXXXXXXXX NAS8-20099		
<p>to +4 +4 20 EA. +3 +1 6 EA.</p>		<p>HOUSEKEEPER SEALS, PYREX GLASS TO 1/4" O.D. COPPER TUBE</p> <p>HOUSEKEEPER SEALS, PYREX GLASS TO 3/4" O.D. COPPER TUBE</p> <p>PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.</p>		<p>\$10.00 EA.</p> <p>16.00 EA.</p>

*R.E. Wood*



SUPPLEMENT NO. 1

TO P. O. NO. 176342

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 3/10/65

PURCHASING DEPARTMENT

MURRAY HILL, N. J.

FILE

ELECTRON TECHNOLOGY, INC.  
626 SCHUYLER AVENUE  
KEARNEY, N. J.  
ATT: MR. PERRY

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
12/5/65	P.P. OR EXP., INS.	P.S.	n/30

QUANTITY ORDERED	MATERIAL	PRICE
	NASA <del>XXXXXXXXXXXXXXXX</del> NAS8-20099	
	CONFIRMATION PHONE MR. PERRY, 3/7/66	
	PLEASE CHANGE ITEMS 1 & 2 ON THE SUBJECT PURCHASE ORDER TO READ AS FOLLOWS:	
14 EA.	HOUSEKEEPER SEALS, PYREX GLASS TO 1/4" O.D. COPPER TUBE	\$10.00 EA.
	INSTEAD OF	
	20 DITTO AT \$10.00 EA.	
4 EA.	DITTO, 3/4" COPPER TUBE	16.00 EA.
	INSTEAD OF	
	6 EA. DITTO AT \$16.00 EA.	
	(BALANCE NO LONGER NEEDED)	
	PRIORITY RATING EX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.	



PURCHASE ORDER

176479

AIR REDUCTION COMPANY  
INCORPORATED

DATE 11/15/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

F. J. GRAY CO.  
182 S. FORELAND STREET  
BROOKLYN, NEW YORK  
ATT: MR. SCHRAUTH

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
11/17/65	OUR MESSENGER	P.S.	1/10
QUANTITY ORDERED	MATERIAL	PRICE	
6 PCS.	NASA XXXXXXXXXXXXXXXXXXXXX NAS8-XX 20099  PRECISION GROUND GRADE #7740 PYREX GLASS TUBING, (O.D.=0.750" +.005 -.000") x 1/8" NOMINAL WALL x 4" LONG	\$15.00 EA.	
18 PCS.	PRECISION GROUND GRADE #7740 PYREX GLASS TUBING, (O.D.=.375" +.005 -.000) x .219" I.D. x 4" LONG  (PRECISION GROUND OUTSIDE SURFACES ONLY)	12.50 EA.	
CONFIRMATION PHONE MR. SCHRAUTH, 11/10/65  PRIORITY RATING DX-A2 (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.			

*R. E. Wood*



176555

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 11/12/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

C. E. CONOVER CO., INC.  
333 PASSAIC AVENUE  
CALDWELL, N.J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	P.P. OR EXP., INS.	F.O.B.	TERMS
11/19/65				n/30
QUANTITY ORDERED	MATERIAL			PRICE
40 EA.	NASA XXXXXXXXXXXXXXXXX NAS8-20099			23.90c ADVISE
<p>TEFLON "O" RINGS FOR 1/4" TUBING, C.E. CONOVER CAT. NO. R-512-4</p> <p>THIS PURCHASE ORDER IS GOOD FOR NOT MORE THAN \$100. IF THE TOTAL PRICE OF THIS ORDER WILL EXCEED \$100., RETURN IT TO US WITH YOUR QUOTATION.</p> <p>PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION-1.</p>				

*H.E. W... ..*



PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

176713

DATE 11/24/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

FREDERICK ROEMER E  
19 SHADOWLAWN DRIVE  
COLONIA, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

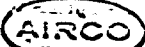
SAME ADDRESS AS ABOVE

DATE WANTED	11/17/65	SHIP VIA	OUR MR. SEMA	F.O.B.	P.S.	TERMS	n/30
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QUANTITY ORDERED	MATERIAL	PRICE
	<p>NASA XXXXXXXXXXXXXXXXX NAS8-20099</p> <p>PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.</p> <p><u>CONFIRMATION - WORK COMPLETED. 11/17/65</u></p> <p>PLEASE PROVIDE THE FOLLOWING QUANTITIES OF BEARINGS, SEALS AND SEALS AS SHOWN ON LELAND GIFFORD DWGS. DWGS. &amp; MEL-F ITEM MATERIAL FURNISHED BY US ARE IN VENDOR'S POSSESSION:</p>	
4 EA. ✓	SEALS, DWG. NO. 50-44-0-10	
2 EA. ✓	BEARINGS, DWG. NO. 25-44-0-11	
2 EA. ✓	BEARINGS, DWG. NO. 25-44-0-12	
2 EA. ✓	SEALS, DWG. NO. <del>XXXXXXXXXX</del> 25-44-0-14	
4 EA. ✓	SEALS, DWG. NO. 25-44-0-13	
2 EA. ✓	BEARINGS AS PER SAMPLE SUPPLIED BY US	
TOTAL FOR ABOVE		\$75.00 LOT

*J. E. W. [Signature]*





176777

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 11/20/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

BANCROFT & MARTIN, INC.  
SMITH STREET  
BIDDEFORD, MAINE

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED

12/8/65

SHIP VIA

P.P.

F.O.B.

P.S.

TERMS

n/30

QUANTITY ORDERED

MATERIAL

PRICE

XXXXXXXXXXXXXXXXXXXXX NAS8-20099

BANCROFT & MARTIN VALVE DIV. PARTS LIST AS FOLLOW:

2 EA. ✓

1/2" STAINLESS STEEL (316) SPHERES

\$2.90 EA.

2 EA. ✓

1/2" STAINLESS STEEL (316) SHAFTS

1.65 EA.

PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR  
NATIONAL DEFENSE UNDER DMS REGULATION 1.



176785

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 12/1/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

FRED ROMER  
19 SHADOWLAWN DRIVE  
COLONIA, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	11/23/65	SHIP VIA	YOUR TRUCK	F.O.B.	D P.S.	TERMS	n/30
-------------	----------	----------	------------	--------	--------	-------	------

QUANTITY ORDERED	MATERIAL	PRICE
	NASA /XXXXXXXXXXXXXXXXX NAS8-20099	
CONFIRMATION - MATERIAL RECEIVED 11/23/65		
PLEASE PROVIDE THE FOLLOWING QUANTITIES OF PARTS AS SHOWN ON LELAND GIFFORD DRAWINGS. DWGS. AND TEFLON MATERIAL IN YOUR POSSESSION:		
3 EA. ✓	SEALS, DWG. NO. 50-44-0-10	
2 EA. ✓	SEALS, DWG. NO. 25-44-0-13	
1 ONLY ✓	SEAL, DWG. NO. 25-44-0-14	
1 ONLY ✓	BEARING, DWG. NO. 50-44-0-15-S	
TOTAL FOR ALL ABOVE . . . . .		\$28.00 NET TOTAL
PRIORITY RATING DX-AE(SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.		

*Handwritten signature*



176827

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 12/1/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

FREDERICK ROEMER  
19 SHADOWLAWN DRIVE  
COLONIA, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	12/10/65	SHIP VIA	YOUR TRUCK	F.O.B.	DEST.	TERMS	n/30
QUANTITY ORDERED		MATERIAL				PRICE	

NASA

XXXXXXXXXXXXXXXXX NAS8-20099

FABRICATE

~~FRONT FERRULES ONLY FOR~~  
SWAGelok TYPE FITTINGS AS FOLLOW:

15 PCS. ✓	FOR 3/4" O.D. TUBING	\$1.60 PC.
30 PCS. ✓	FOR 3/8" O.D. TUBING	.75 PC.
30 PCS. ✓	FOR 1/8" O.D. TUBING	.50 PC.

101-F GRADE 6060 MATERIAL DELIVERED TO VENDOR.  
BY AIR REDUCTION CO.  
PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR  
NATIONAL DEFENSE UNDER DMS REGULATION 1.

*N. E. Wood*



**PURCHASE ORDER**  
**AIR REDUCTION COMPANY**  
INCORPORATED

176889

DATE 12/13/65

PURCHASING DEPARTMENT  
 MURRAY HILL, N. J.

**FILE**

BANCROFT & MARTIN CO.  
 BIDDLEFORD  
 MAINE

SHIP TO: **SAME AS ABOVE**

CHARGE AND BILL TO:  
~~XXXXXXXXXXXX~~  
**AIR REDUCTION COMPANY**  
INCORPORATED  
 SAME ADDRESS AS ABOVE

DATE WANTED: **12/17/65**      SHIP VIA: **AIR P.P., INS.**      F.O.B.: **P.S.**      TERMS: **n/30**

QUANTITY ORDERED	MATERIAL	PRICE
	NASA <del>XXXXXXXXXXXXXXXXXXXX</del> NASS-20099 PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.  CONFIRMATION PHONE 12/10/65  SUPPLY THE FOLLOWING PARTS FOR 1/2" BALL VALVE AS PER PHONE CONVERSATION OUR MR. SIMA WITH YOUR MR. WM. BRICE:	
1 ONLY	BODY, 50-44-XX-1	\$19.00 EA.
2 EA. ✓	GLAND NUTS, 25-44-XX-5	1.25 EA.
<del>XXXXXX</del>		
2 EA ✓	STEMS, 50-44-XX-4	1.65 EA.
2 EA ✓	SPHERES, 50-44-XX-3	2.90 EA.
2 EA ✓	ENDS, 50-24-XX-2	24.00 EA.
	(MATERIAL - 316 STAINLESS STEEL)	

*R. E. Wood*



**PURCHASE ORDER**  
**AIR REDUCTION COMPANY**  
INCORPORATED  
**PURCHASING DEPARTMENT**  
**MURRAY HILL, N. J.**

176997  
*pick up*

DATE 12/15/65

**FILE**

HALOCARBON PRODUCTS CORP.  
 82 BURLING COURT  
 HACKENSACK, N. J.

SHIP TO

SAME AS ABOVE

CHARGE AND BILL TO:

~~XXXXXXXXXX~~  
**AIR REDUCTION COMPANY**  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED	SHIP VIA	F.O.B.	TERMS
12/15/65	OUR TRUCK	DEST.	n/30
QUANTITY ORDERED	MATERIAL	PRICE	
	NASA /XXXXXXXXXXXXXXXXX NAS8-20099  CONFIRMATION PHONE MRS. FERRO, 12/14/65  ✓ 8 LBS. HALOCARBON OIL NO. 13-21 ✓ 2 LBS. DITTO NO. 4-11  THIS OIL TO CONTAIN NO INHIBITORS  PRIORITY RATING BX-1E (SABURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.	\$12.00 LB. 12.00 LB.	

*[Handwritten signature]*

ORDERED BY  
J. STAN

REC. NO.  
290997

CHARGE ACCOUNT NO.  
ONE 36

2



177139

PURCHASE ORDER  
AIR REDUCTION COMPANY  
INCORPORATED

DATE 12/23/65

PURCHASING DEPARTMENT  
MURRAY HILL, N. J.

FILE

FREDERICK ROEMER  
19 SHADOWLAWN DRIVE  
COLONIA, N. J.

SHIP TO

CHARGE AND BILL TO:

SAME AS ABOVE

~~XXXXXXXXXX~~  
AIR REDUCTION COMPANY  
INCORPORATED

SAME ADDRESS AS ABOVE

DATE WANTED 12/30/65

SHIP VIA YOUR TRUCK

F.O.B. DEST.

TERMS n/30

QUANTITY ORDERED

MATERIAL

PRICE

~~XXXXXXXXXXXXXXXXXXXX~~ NAS8-20099

FABRICATE THE FOLLOWING PARTS FOR THE LELAND GIFFORD VALVE OF GRADE 6060 KEL-P. DRAWINGS AND MATERIAL FURNISHED BY AIRCO ARE IN VENDOR'S POSSESSION:

6 EA. ✓ SEALS, DNG. NO. 50-44-0-10

2 EA. ✓ STEM SEALS, MED. DNG. NO. 25-44-0-14

4 EA. ✓ STEM SEALS, TOP-BOT. DNG. NO. 25-44-0-13

\$70.00 LOT

PRIORITY RATING DX-AE (SATURN) CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REGULATION 1.

*D. E. Wood*

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