

INDEPENDENT ORBITER ASSESSMENT

**ASSESSMENT
OF THE
LIFE SUPPORT &
AIRLOCK SUPPORT
SYSTEMS
VOLUME 1 OF 2**

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INDEPENDENT ORBITER ASSESSMENT
ASSESSMENT OF THE LIFE SUPPORT AND AIRLOCK SUPPORT SYSTEMS

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CONTENTS

	Page
1.0 EXECUTIVE SUMMARY	1
2.0 INTRODUCTION	3
2.1 Purpose	3
2.2 Scope	3
2.3 Analysis Approach	3
2.4 LSS and ALSS Ground Rules and Assumptions	4
3.0 SUBSYSTEM DESCRIPTION	5
3.1 Design and Function	5
3.2 Interfaces and Locations	29
3.3 Hierarchy	29
4.0 ASSESSMENT RESULTS	35
4.1 - SWS Assessment Results	38
4.2 - WMS Assessment Results	39
4.3 - SD/FS Assessment Results	41
4.4 - ALSS Assessment Results	42
5.0 REFERENCES	43
APPENDIX A ACRONYMS	A-1
APPENDIX B DEFINITIONS, GROUND RULES, AND ASSUMPTIONS	B-1
B.1 Definitions	B-2
B.2 Project Level Ground Rules and Assumptions	B-4
B.3 Subsystem-Specific Ground Rules and Assumptions	B-6
APPENDIX C ASSESSMENT WORKSHEETS	C-1
C.1 Supply Water Subsystem	C-2
C.2 Waste Management Subsystem	C-201
C.3 Smoke Detection and Fire Suppression Subsystem	C-519
C.4 Airlock Support System	C-602
APPENDIX D CRITICAL ITEMS LIST	D-1
APPENDIX E ANALYSIS WORKSHEETS	E-1
E.1 Supply Water Subsystem	E-2
E.2 Waste Management Subsystem	E-14
E.3 Smoke Detection/Fire Suppression Subsystems	E-47
E.4 Airlock Support System	E-62
APPENDIX F NASA FMEA TO IOA WORKSHEET CROSS REFERENCE/ RECOMMENDATIONS	F-1

List of Figures

	Page
Figure 1 - LSS and ALSS FMEA/CIL Assessment Summary	2
Figure 2 - The Supply Water Subsystem Schematic	11
Figure 3 - Supply Water Pressurization and Galley Lines	12
Figure 4 - Supply Water Tanks B, C, and D Configuration	13
Figure 5 - Supply Water FES and Dump Lines	14
Figure 6 - Waste Management Subsystem Integrated Schematic	15
Figure 7 - Waste Collection Subsystem Schematic	16
Figure 8 - Waste Water Subsystem Storage Assembly Schematic	17
Figure 9 - Waste Water Subsystem Dump Line Assembly Schematic	18
Figure 10 - Vacuum Vent Subsystem Schematic	19
Figure 11 - Typical Smoke Detector Schematic	20
Figure 12 - SD/FS Typical Smoke Detector	21
Figure 13 - SD/FS Active Fire Suppressant Bottle	22
Figure 14 - SD/FS Portable Fire Extinguisher	23
Figure 15 - Airlock Support System	24
Figure 16 - Airlock Piping and Instrumentation Diagram	25
Figure 17 - Airlock Vacuum Vent and Pressure Equalization Valves	26
Figure 18 - Airlock Electrical Schematic	27
Figure 19 - Vacuum Vent Isolation Valve	28
Figure 20 - General Location of the Supply and Waste Management Subsystems	30
Figure 21 - General Location of the Smoke Detection and Fire Suppression Subsystems	31
Figure 22 - General Location of the Airlock Support System and Waste Collection Subsystem	32
Figure 23 - Life Support System Hierarchy	33
Figure 24 - Airlock Support System Hierarchy	34

List of Tables

	Page
Table I - Summary of IOA FMEA Assessment	36
Table II - Summary of IOA CIL Assessment	36
Table III - Summary of IOA Recommended Failure Criticalities	36
Table IV - Summary of IOA Recommended Critical Items	37
Table V - IOA Worksheet Numbers	37

**Independent Orbiter Assessment
Assessment of the Life Support and
Airlock Support System FMEA/CIL**

1.0 EXECUTIVE SUMMARY

The McDonnell Douglas Astronautics Company (MDAC) was selected in June 1986 to perform an Independent Orbiter Assessment (IOA) of the Failure Modes and Effects Analysis (FMEA) and Critical Items List (CIL). Direction was given by the STS Orbiter and GFE Projects Office to perform the hardware analysis using the instructions and ground rules defined in NSTS 22206, Instructions for Preparation of FMEA and CIL, 10 October 1986.

The IOA effort first completed an analysis of the Life Support and Airlock Support Systems (LSS and ALSS) hardware, generating draft failure modes and potential critical items. To preserve independence, this analysis was accomplished without reliance upon the results contained within the NASA FMEA/CIL documentation. The IOA results were then compared to the NASA FMEA/CIL baseline with proposed Post 51-L updates included. The resolution of the discrepancies from the comparison was not completed due to a contract termination. However, the discrepancies were flagged for potential future resolution. This report documents the results of that comparison for the Orbiter LSS and ALSS hardware.

The IOA product for the LSS and ALSS analysis consisted of 511 failure mode "worksheets" that resulted in 140 potential critical items. Comparison was made to the NASA baseline dated 1 October 1987 which consisted of 456 FMEAs and 101 CIL items. After the assessment process the number of IOA analysis worksheets rose to 694 which included a total of 171 CIL items. The difference in the number of IOA analysis worksheets and the NASA FMEAs can be explained by the different levels of analysis detail performed to identify failure modes. The comparison was used to determine if there were any results which had been found by the IOA but were not in the NASA baseline. The IOA analysis identified 39 failure modes, 6 of which were classified as CIL items, for components not covered by the NASA FMEAs. It was recommended that these failure modes be added to the NASA FMEA baseline. The overall assessment produced agreement on all but 301 FMEAs which caused differences in 111 CIL items. Figure 1 presents a comparison of the proposed Post 51-L NASA data, with the IOA recommended baseline, and any issues.

LSS/ALSS ASSESSMENT SUMMARY			
	IOA	NASA	ISSUES
FMEA	694	456	301
CIL	171	101	111

AIRLOCK SUPPORT SYSTEM			
	IOA	NASA	ISSUES
FMEA	88	74	73
CIL	43	25	36

LIFE SUPPORT SYSTEM			
	IOA	NASA	ISSUES
FMEA	606	382	228
CIL	128	76	75

SUPPLY WATER SUBSYSTEM			
	IOA	NASA	ISSUES
FMEA	201	133	113
CIL	41	12	22

WASTE MANAGEMENT SUBSYSTEM			
	IOA	NASA	ISSUES
FMEA	324	189	88
CIL	63	36	33

SMOKE DETECTION AND FIRE SUPPRESSION SUBSYSTEM			
	IOA	NASA	ISSUES
FMEA	81	60	27
CIL	24	28	20

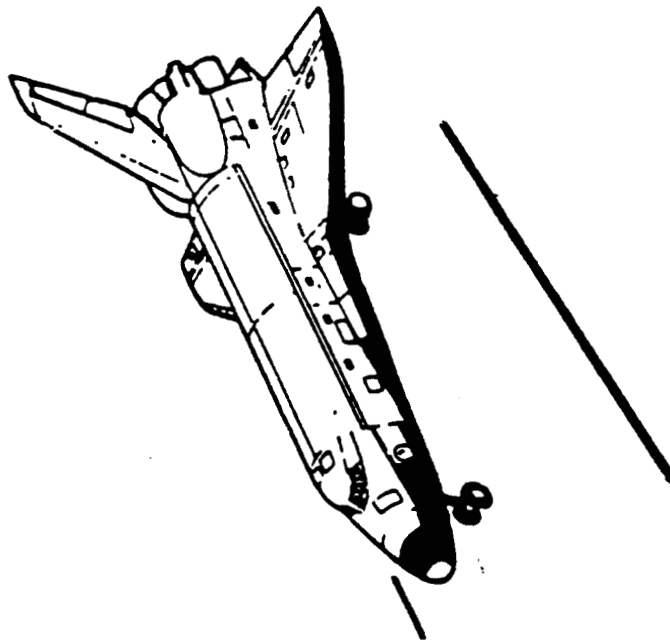


Figure 1 - LSS and ALSS FMEA/CIL Assessment Summary

2.0 INTRODUCTION

2.1 Purpose

The 51-L Challenger accident prompted the NASA to readdress safety policies, concepts, and rationale being used in the National Space Transportation System (NSTS). The NSTS Office has undertaken the task of reevaluating the FMEA/CIL for the Space Shuttle design. The MDAC is providing an independent assessment of the Orbiter FMEA/CIL reevaluation results for completeness and technical accuracy.

2.2 Scope

The scope of the independent FMEA/CIL assessment activity encompasses those Shuttle Orbiter subsystems and GFE hardware identified in the Space Shuttle Independent FMEA/CIL Assessment Contractor Statement of Work. Each subsystem analysis addresses hardware, functions, internal and external interfaces, and operational requirements for all mission phases.

2.3 Analysis Approach

The independent analysis approach is a top-down analysis utilizing as-built drawings to breakdown the respective subsystem into components and low-level hardware items. Each hardware item is evaluated for failure mode, effects, and criticality. These data are documented in the respective subsystem analysis report, and are used to assess the proposed Post 51-L NASA and Prime Contractor FMEA/CIL. The IOA analysis approach is summarized in the following Steps 1.0 through 3.0. Step 4.0 summarizes the assessment of the NASA and Prime Contractor FMEA/CIL which is documented in this report.

- Step 1.0 Subsystem Familiarization
 - 1.1 Define subsystem functions
 - 1.2 Define subsystem components
 - 1.3 Define subsystem specific ground rules and assumptions

- Step 2.0 Define subsystem analysis diagram
 - 2.1 Define subsystem
 - 2.2 Define major assemblies
 - 2.3 Develop detailed subsystem representations

- Step 3.0 Failure events definition
 - 3.1 Construct matrix of failure modes
 - 3.2 Document IOA analysis results

2.3 Analysis Approach (concluded)

- Step 4.0 Compare IOA analysis data to NASA FMEA/CIL
- 4.1 Resolve differences
- 4.2 Review in-house
- 4.3 Document assessment issues
- 4.4 Forward findings to Project Manager

2.4 LSS and ALSS Ground Rules and Assumptions

The LSS and ALSS ground rules and assumptions used in the IOA are defined in Appendix B.

3.0 SUBSYSTEM DESCRIPTION

3.1 Design and Function

The LSS provides for the collection and management of the supply water, collection of the metabolic waste, management of the waste water, smoke detection and fire suppression. The ALSS provides water, oxygen, and electrical power to support an Extravehicular Activity (EVA) in the airlock. Below is a brief description of each of these categories.

1. **Supply Water Subsystem** - The SWS provides ullage for the storage and the management of fuel cell generated water throughout the mission. The water is used to meet the Flash Evaporator System (FES) requirements, crew usage, and EVA requirements. For the purpose of this study the SWS was divided into five main assemblies as shown in Figures 2 through 5.

The tank assembly is made up of four tanks (A, B, C, and D) and associated plumbing which interconnects them as shown in Figure 2. Each tank is constructed of thin-wall aluminum with Inconel steel bellows pressurized by the gaseous nitrogen from the Atmospheric Revitalization Pressure Control System (ARPCS). Each tank can be isolated from the line by an inlet valve and an outlet valve in the event of a leak. The fuel cells generated water flows into the tanks A, B, C, and D respectively after passing through two hydrogen separators. The flow to a given tank is accomplished automatically by use of two 1.5 psid relief valves. Before flowing into Tank A the water passes through a microbial filter/check valve which prevents passage of micro-organisms into the potable water tank.

The galley line assembly contains the plumbing for the transport of the potable water from Tank A to the Environmental Control and Life Support System (ECLSS) bay for connection to the galley or the water dispenser as shown in Figure 3. The water is available at the bay either directly (70 F) or chilled. Chilled water is accomplished by interfacing the potable water with the ARS water coolant loops through a heat exchanger called water chiller.

The FES line assembly is comprised of two separate FES feed water lines supplying water, as shown in Figures 4 and 5, to meet FES requirement. The two lines may be isolated from each other by a crossover valve or an isolation valve on Line B. All the associated hardware beyond this isolation valve is considered as part of the ATCS analysis, and therefore not covered in this report.

The dump line assembly, shown in Figures 2 and 4, provides for expulsion of excess water through a dump nozzle during on-orbit dump operation. The line incorporates an isolation

valve, a dump valve, and line and nozzle heaters. Also, capability exists to cross-tie the supply water dump line to the waste water dump line in the event one dump line becomes inoperative. The line and nozzle heaters provide thermal conditioning of the dump line and nozzle to prevent ice formation in the area. The line heaters are thermostatically controlled.

The gaseous nitrogen line assembly pressurizes the tanks with the nitrogen from the ARPCS storage tanks as shown in Figure 3. Cabin atmosphere may also be used to pressurize the tanks if the GN2 pressurization is lost. Most of the hardware in this assembly are covered in the ARPCS analysis except for the Tank A pressure/vent panel which is included in this report.

2. **Waste Management Subsystem** - The WMS is made up of Waste Collection Subsystem (WCS), Waste Water Subsystem (WWS), and the Vacuum Vent Subsystem (VVS) as shown in Figure 6. These subsystems are used in an integrated process for the collection and storage of the crewmember biowaste and the overboard dumping of the waste fluid and gases. The schematics for these subsystems are shown in Figures 7 through 10.

The WCS, shown in Figure 7, is an integrated multifunctional zero-g device used to collect and process biowaste from the crewmembers, gases from the wet trash stowage area, and waste water from the EMU/Airlock support station. The WCS accommodates both male and female crewmembers and is comprised of the commode assembly, urinal assembly, interconnecting plumbing, mounting framework, crew restraints, and instrumentation. The subsystem uses a system of valves to direct cabin air flow through the urinal and fecal collection systems to draw the biowaste into the collection chamber. In the case of the waste fluids, a centrifugal separator is used to separate the waste fluids from the transport air flow. The waste fluids are then directed into the waste water subsystem and the separated air passes through the muffler assembly for bacteria and odor removal. This air is then injected into the crew cabin atmosphere. The WCS incorporates two redundant fan/separator units with one unit being operational at a time.

The WWS, shown in Figure 8, provides storage and overboard dump capability for urine, atmospheric condensate, EMU waste water, and contingency cooling water to the FES. The waste water storage is a single thin wall aluminum tank shell surrounding an Inconel steel bellows. The tank is identical to the supply water tanks. The bellows is pressurized with nitrogen gas to facilitate waste water expulsion. All tubing is stainless steel. Flow control into and out of the tank is via the inlet valve.

The outlet valve is used only during GSE operation. Both valves are electrically operated solenoid latching type valves.

The WWS provides control for the overboard dump of the waste water through a dump nozzle at the mid fuselage as shown in Figure 9. All plumbing exterior to the crew module is protected by electrical heaters and thermal insulation. The subsystem also contains a provision to cross-tie the waste dump line to the supply water dump line which make it possible to provide waste water to the FES or supply water dump nozzle under contingency cases. The use of the supply water dump line or FES line poses serious contamination problems. Further, a Contingency Water Container (CWC) is flown which provides additional ullage to the waste water tank.

The VVS, shown in Figure 10, provides voluntary and involuntary venting of the ECLSS gases. Voluntary use of the vacuum vent occurs during airlock and cabin depressurization, and the WCS use. During on-orbit operation, the VVS may also be utilized in order to regain automatic pressure control of the cabin atmosphere in the event that the cabin pressure should exceed 14.7 psia. Involuntary venting is available for hydrogen gas from the H₂/H₂O separators, fecal vapors from the WCS, and wet trash vapors from the trash stowage.

The VVS consists of a 2.0 inch O.D., 302 stainless steel duct, two independent line heaters, thermostats, an isolation valve, a 1.93 inch O.D. nozzle, and a single nozzle heater. The isolation valve was analyzed under the ALSS in this report. The line heaters are continuously wrapped together for the full length of the line. Each of the heaters contains a single thermostat.

3. **Smoke Detection and Fire Suppression Subsystems** - These two subsystems are emergency subsystems within the shuttle Caution and Warning (C&W) system. The smoke detection uses electronic sensors to provide on-board annunciation of an impending fire pre-smoke phase. Indications are provided through a light matrix, siren tone, and various CRT data. Fire suppression is provided by fire suppressant (Halon) bottles to suppress the ignition source. The schematic for these subsystems are shown in Figures 11 through 14.

The Smoke Detection Subsystem consists of nine smoke detectors. A typical detector is shown in Figure 11. Six detectors provide redundant sensing within Avionics Bays 1, 2, and 3 and three detectors sense the cabin atmosphere. Each avionics bay has two redundant sensors (Sensors A&B). The cabin sensors are two sensors in the flight deck at the left and right return air ducts, and one sensor in the cabin fan plenum outlet. The cabin fan plenum sensor is considered to provide redundancy to the left and right

flight deck sensors. Further, a fire sensed by the left or right sensor will be followed by an indication on the cabin sensor. Another detector input is also available for certain types of payloads such as Spacelab modules.

Smoke detection operation is based upon sensing of invisible submicron particles emitted from materials subjected to abnormal energy levels. The detectors measure current flow in a measuring chamber, and the current flow in a reference chamber, shown in Figure 12. Air molecules in each chamber are ionized by a radiation source and in the measuring chamber the interaction of particles with the air molecules reduces current flow. The difference in the level sensed provides an indication of the particle level present. If either a preset level (2000+/- 200 micro g per m³) for five seconds or an increase in rate build-up (22 micro g per m³ per sec) for twenty seconds is maintained, then a continuous alarm signal is output until a reset signal is issued. The system is powered from circuit breakers on Panel 014, 015, and 016. The indicator light matrix is located on Panel L1A1 in the CDRs station and CRT data is available on the flight deck CRTs. The siren alarm is output through speakers in the flight and middeck and through headset assemblies via the Audio Terminal Units. The sensed concentration level analog signal which was originally sent to the ground for monitoring has been included in the Fault Detection Annunciation software to provide redundant alarm capability. This software generated alarm is output when the concentration level reaches 2000 micro g per m³.

A test circuit controlled by a switch on Panel L1A1 provides for sensor and alarm checkout, excluding the concentration level analog signal. The actual sensing capability is not checked but the electronics which process the measuring and reference chamber current outputs are verified by inducing signals representative of the sensor trip levels. Reset of a test or actual sensor trip is through a switch also located on Panel L1A1. In this test mode, three conditions must be present to indicate an operable sensor namely: pump running, particle concentration, and the particle rate of change greater than the preset levels.

The Fire Suppression Subsystem consists of three permanently mounted fire suppressant bottles mounted in Avionics Bay 1, 2, and 3. A typical bottle is shown in Figure 13. These bottles are permanently attached within each bay and remotely activated from panel L1A1 since access to the bay is difficult. Activation requires an Arm/Fire sequence from a switch and push-button indicator to a Pyrotechnic Initiator Controller (PIC) that ignites a NASA Standard Initiator (NSI) opening the suppressant container. A pressure switch on the bottle is used to indicate bottle discharge. The power for the system comes through circuit breakers on panels 014, 015, and 16. The agent discharge indication is part of the Push-Button indicator on Panel

L1A1. The PIC capacitor voltage and bottle empty indications are telemetered to the ground. In addition to the permanently mounted bottles, the crew has available portable bottles mounted in the crew compartment. A typical portable bottle is shown in Figure 14. These are used by the crew to dispense suppressant to the source of ignition within the cabin area and behind panels through the fire holes.

4. **Airlock Support System** - The airlock is a modular cylindrical structure with two hatch openings as shown in Figure 15. It provides oxygen, water, and electrical interfaces to accommodate EVA operation. It is also equipped with pressure equalization valves on each hatch and a decompression system. The vacuum vent isolation valve is also included with the airlock analysis even though it is mounted at the Xo576 bulkhead.

The interface between the airlock and an Extravehicular Mobility Unit (EMU) is provided by the Service and Cooling Umbilical (SCU), shown in Figure 16. The SCU is composed of hoses and electrical wiring to supply the oxygen, water, and electricity to the EMU while in the airlock. The SCU also contains valving which allows supply and waste water flow through a single connection at the SCU/EMU interface. The SCU is bolted to the airlock, leak proved and checked prior to launch and is permanently attached for the duration of the mission.

The oxygen interface is used by the crew while in the airlock and it is used to recharge the EMU oxygen tanks. The water in the three EMU tanks can be dumped through the SCU into the orbiter waste water tank and the quantity observed on the orbiter water tank gauge. They are then refilled from tank C of the supply water system. During the refilling process (approximately 15 minutes), the supply water system crossover valve is opened, the FES is disabled and tank C is isolated so the quantity of water loaded into the EMU can be checked by the tank C gauge.

The airlock depressurization is controlled by a three position valve, the valve and system are shown in Figures 16 and 17. The valve is connected to a 2 inch, stainless steel, overboard vacuum vent line. The closed position prevents any airflow from escaping the airlock. The second position, labeled "5", opens the smallest orifice which allows the pressure to decrease to 5 psi at an initial rate of 0.09 psi/sec. The third valve position, labeled "0", reduces the airlock pressure to 0.2 psi. At this pressure the airlock can be opened. When not in use, the valve is covered with a pressure/dust cap. Prior to removing the cap, it is necessary to equalize the pressure across it with the cap vent valve.

The airlock repressurization is controlled by two pressure equalization valves on the hatch to the cabin, a typical set is shown in Figure 17. Normal repressurization is accomplished by placing one valve in the "normal" position. When completed, the airlock and the cabin are pressurized to approximately 14 psia. The orbiter environmental control system will automatically compensate for the lower pressure and repressurize the cabin and airlock to 14.7 psia. The equalization valves on the payload bay hatch may be used to depressurize the airlock in the event of depress valve failure.

The EMU power supply/battery charger provides 17.0 volts dc at 5 amps at the airlock interface. The Electrical System is shown in Figure 18. MAIN Bus A or B must be selected with the bus select switch and the mode selection switch must be in the POWER position to supply the power to the SCU. The mode switch in the POWER position makes the power available at the SCU connector and also closes a circuit that provides a battery feedback voltage charger control. This circuit inhibits EMU power when any discontinuity is sensed in the SCU/EMU circuitry. The mode switch in the POWER position also supplies power through the SCU for the EMU microphone amplifiers for hard-line communication.

The vacuum vent isolation valve is mounted at the Xo576 bulkhead which provides capability to isolate the waste management vent lines and the airlock vent line. However, the valve has an internal bleed port to vent the hydrogen separator and waste collection gases when it is in the closed position. The valve is designed to close within 2 seconds in the event of an excessive cabin pressure loss rate. This is accomplished via the cabin oxygen system 1 and 2 flow sensor circuitry. The valve can also be opened on demand through a bus selection and control switches (S10 & S11) mounted in the panel ML31C and shown in Figure 19.

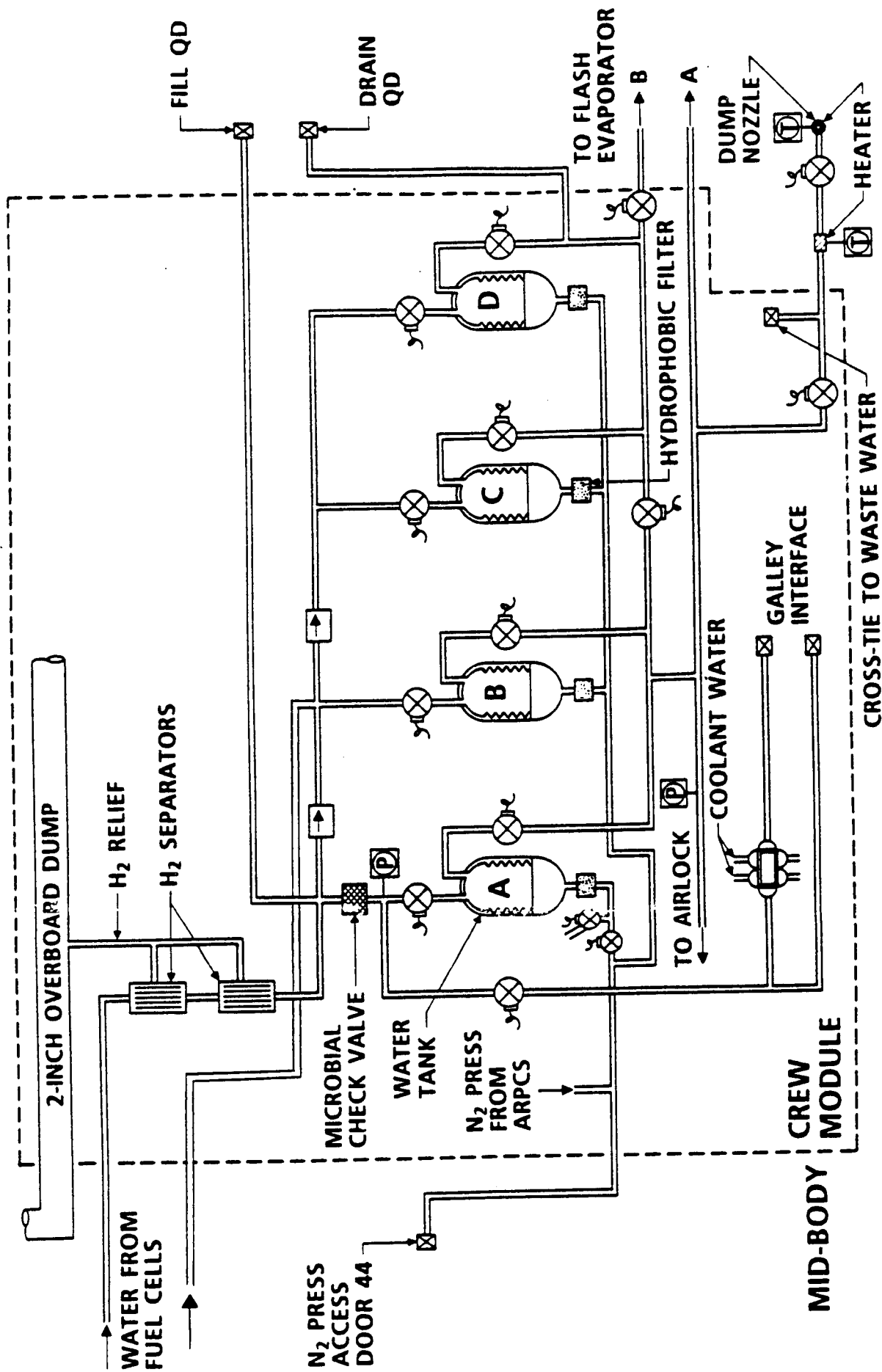


Figure 2 - The Supply Water Subsystem Schematic

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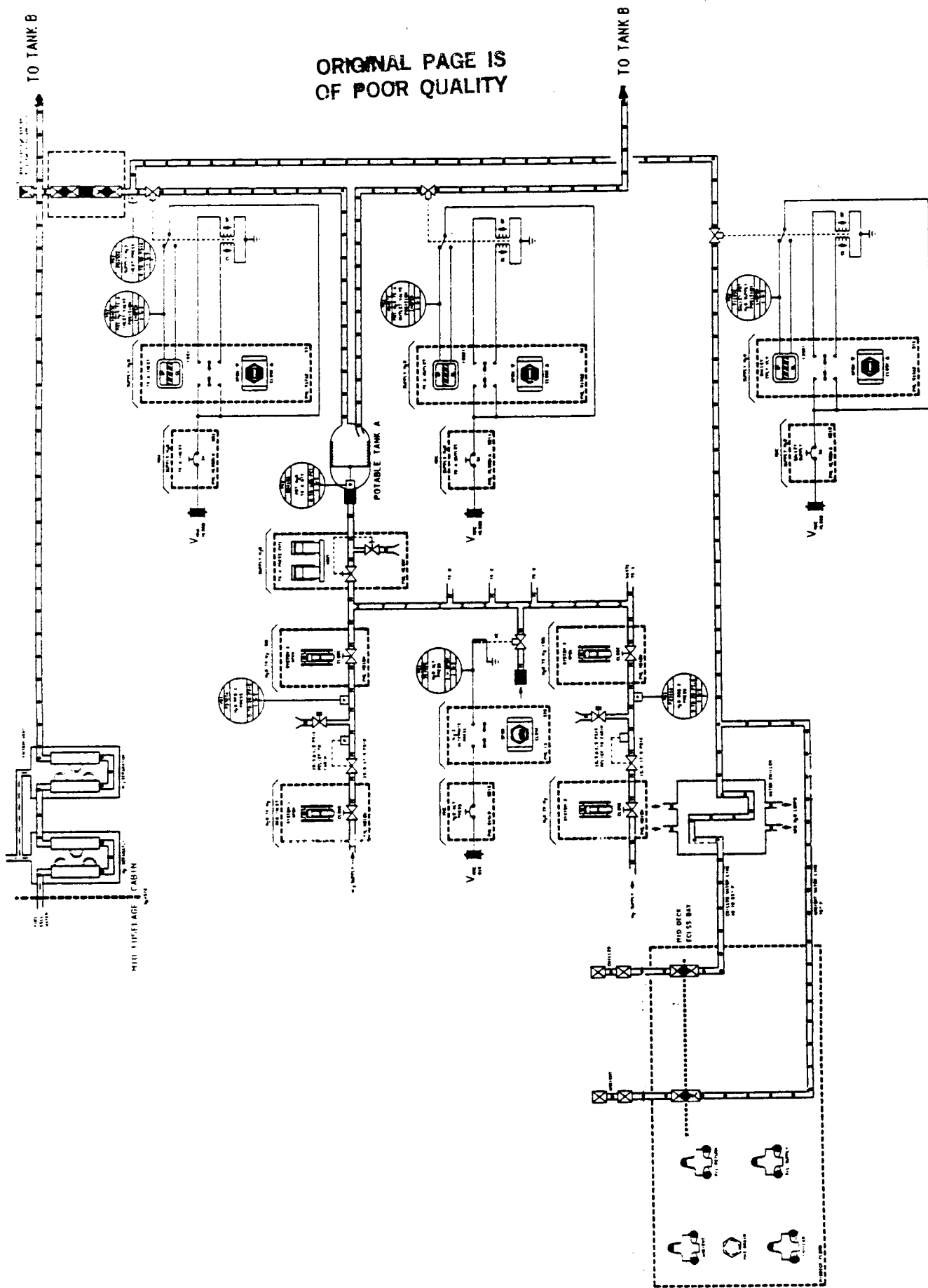


Figure 3 - Supply Water Pressurization and Galley Lines

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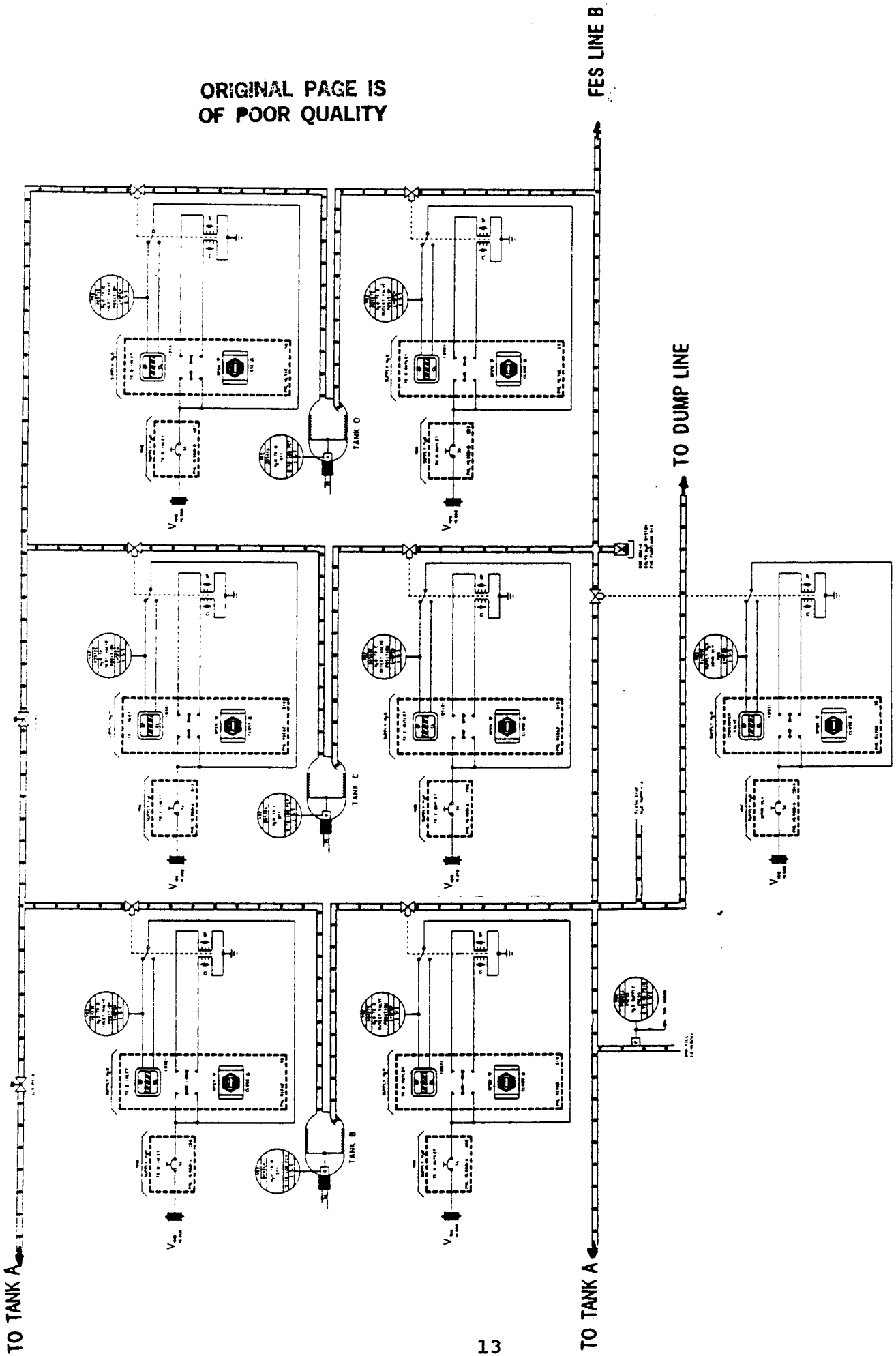


Figure 4 - Supply Water Tanks B, C, and D Configuration

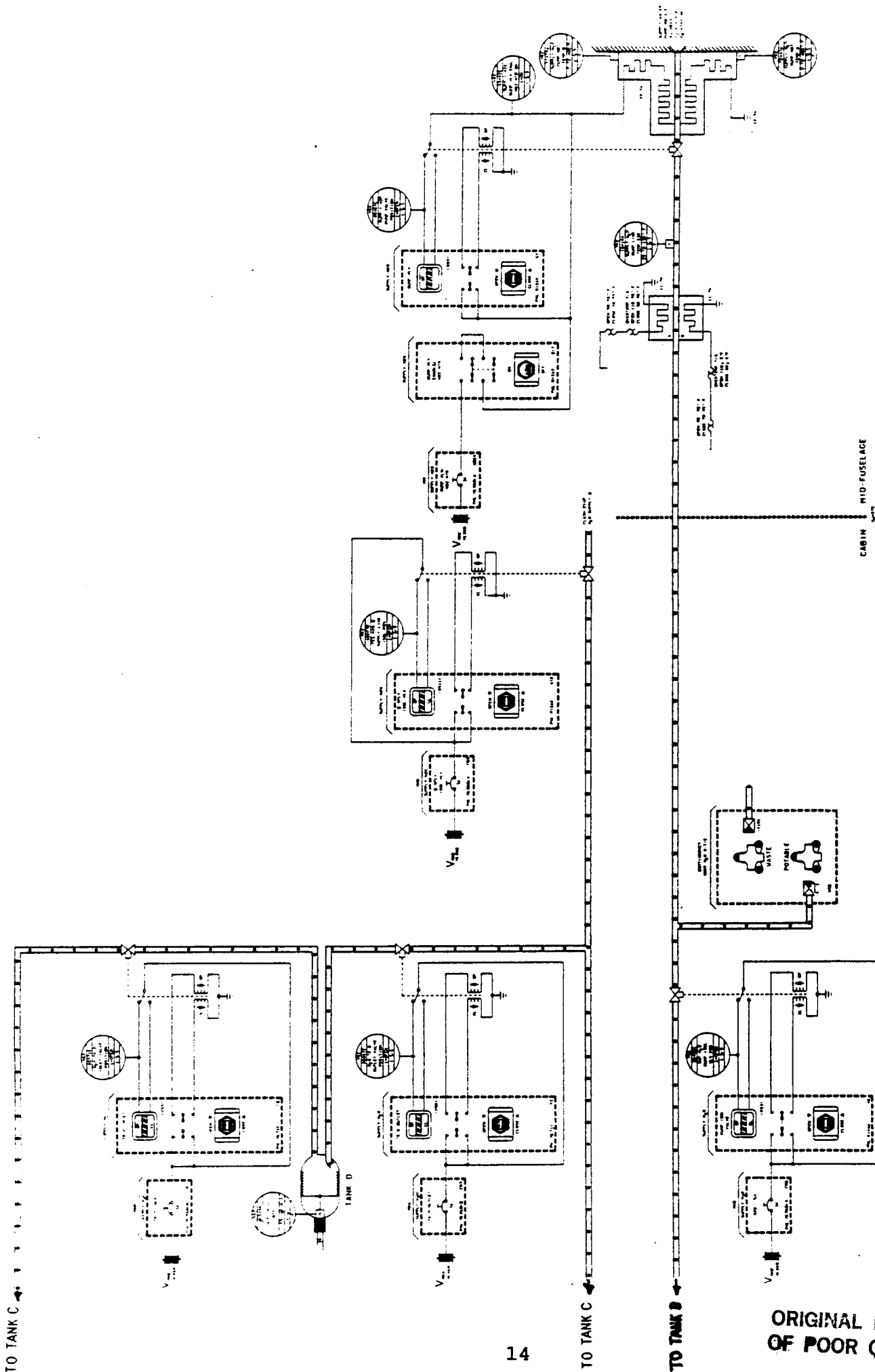


Figure 5 - Supply Water FES and Dump Lines

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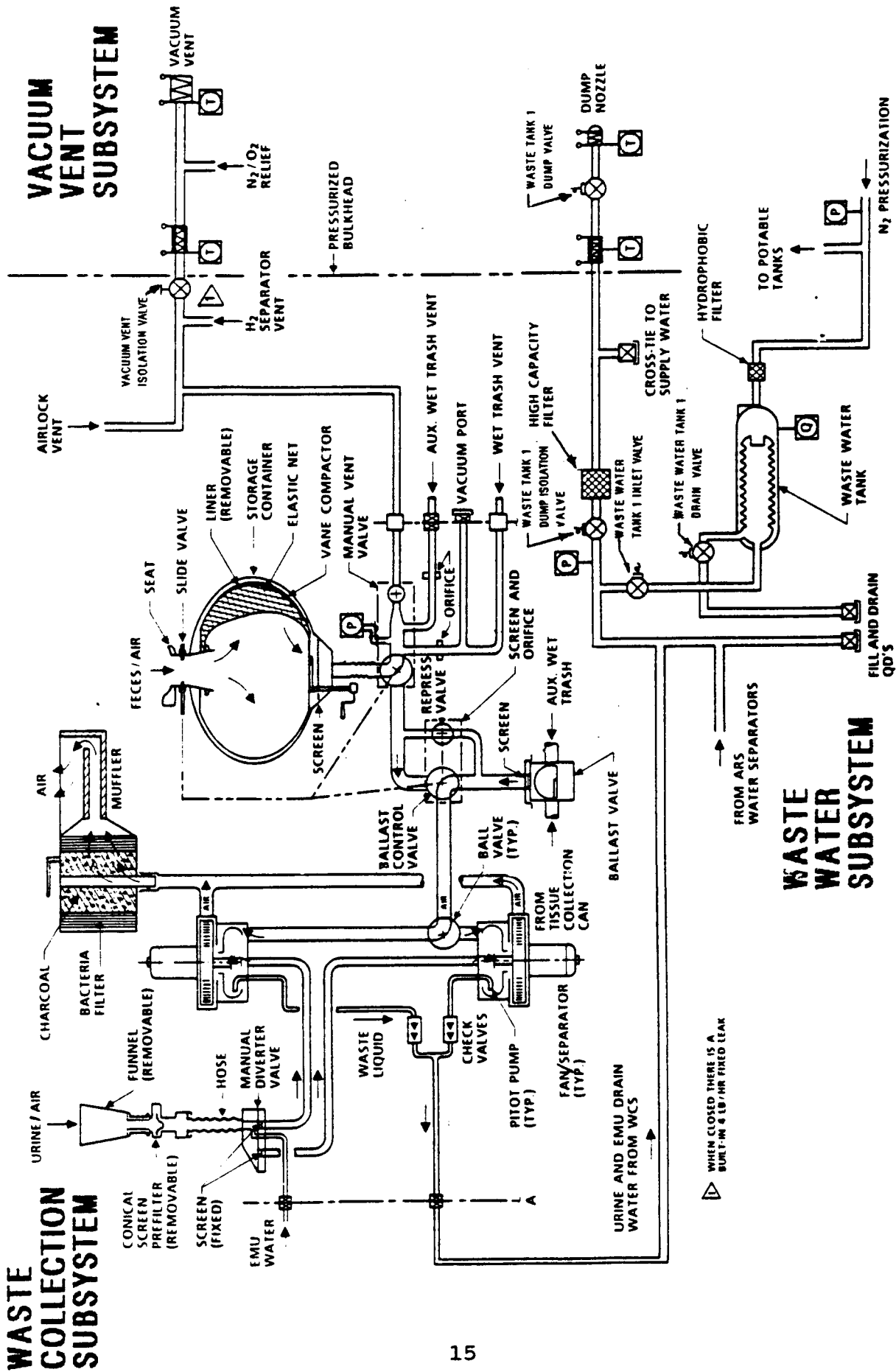


Figure 6 - Waste Management Subsystem Integrated Schematic

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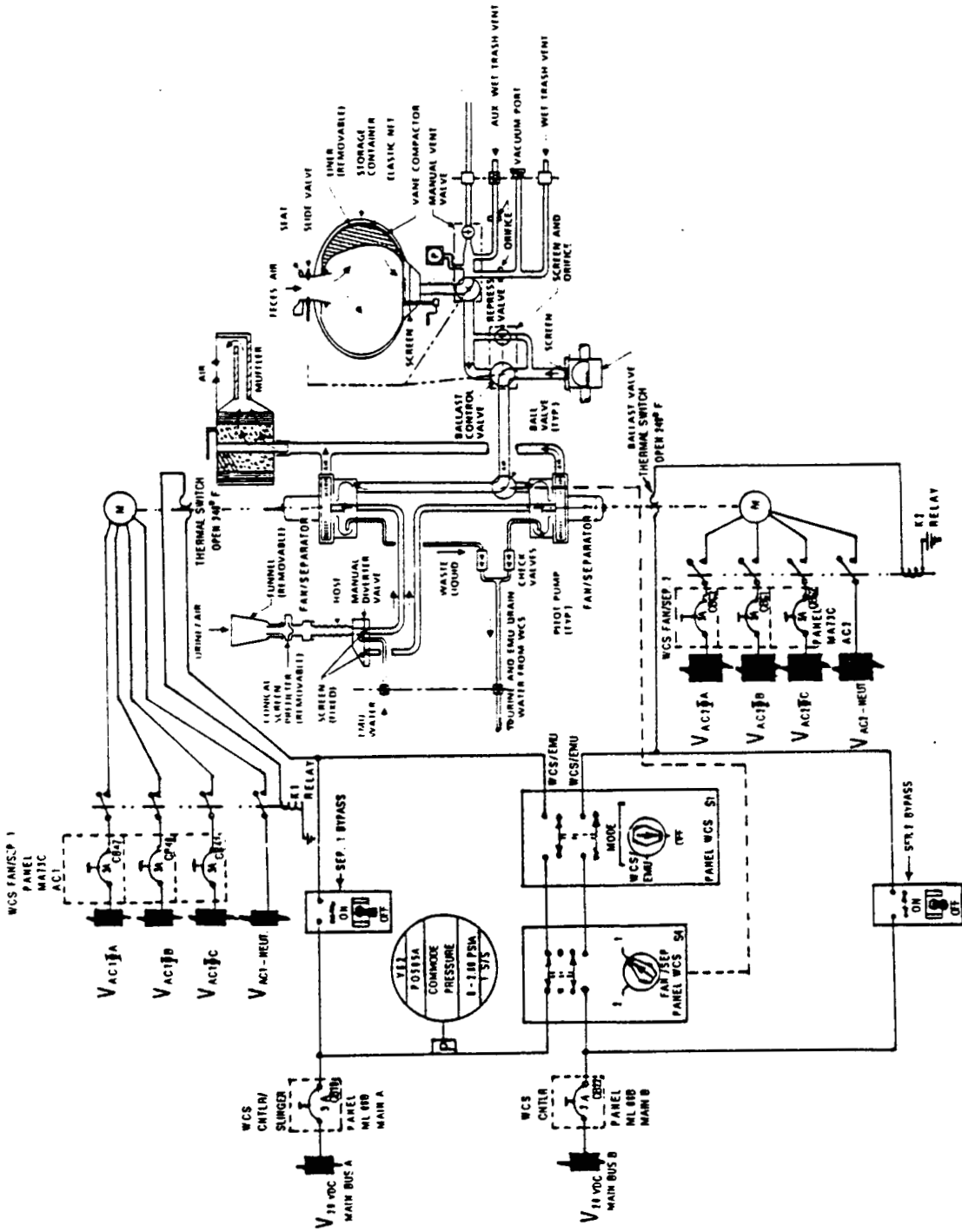


Figure 7 - Waste Collection Subsystem Schematic

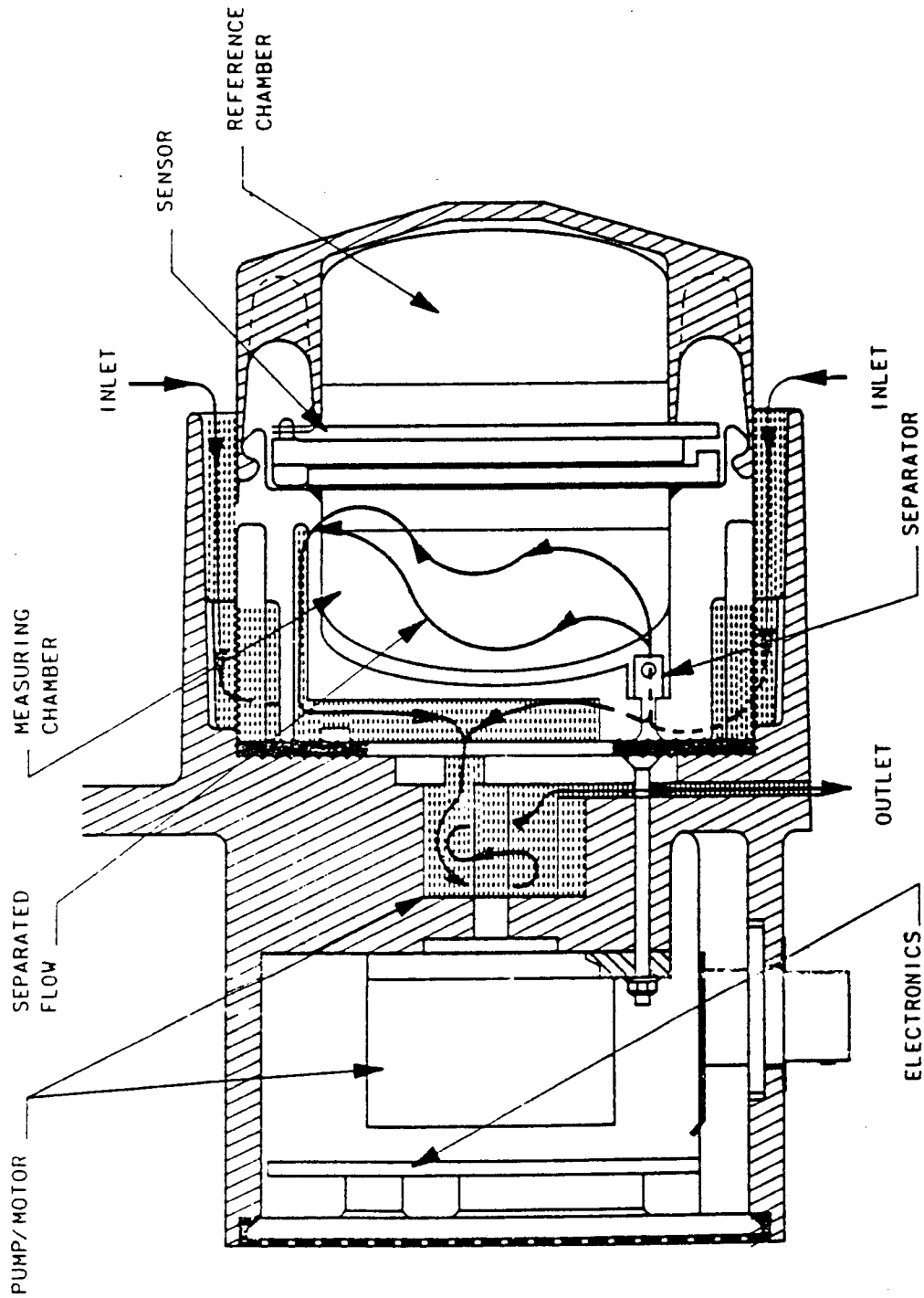
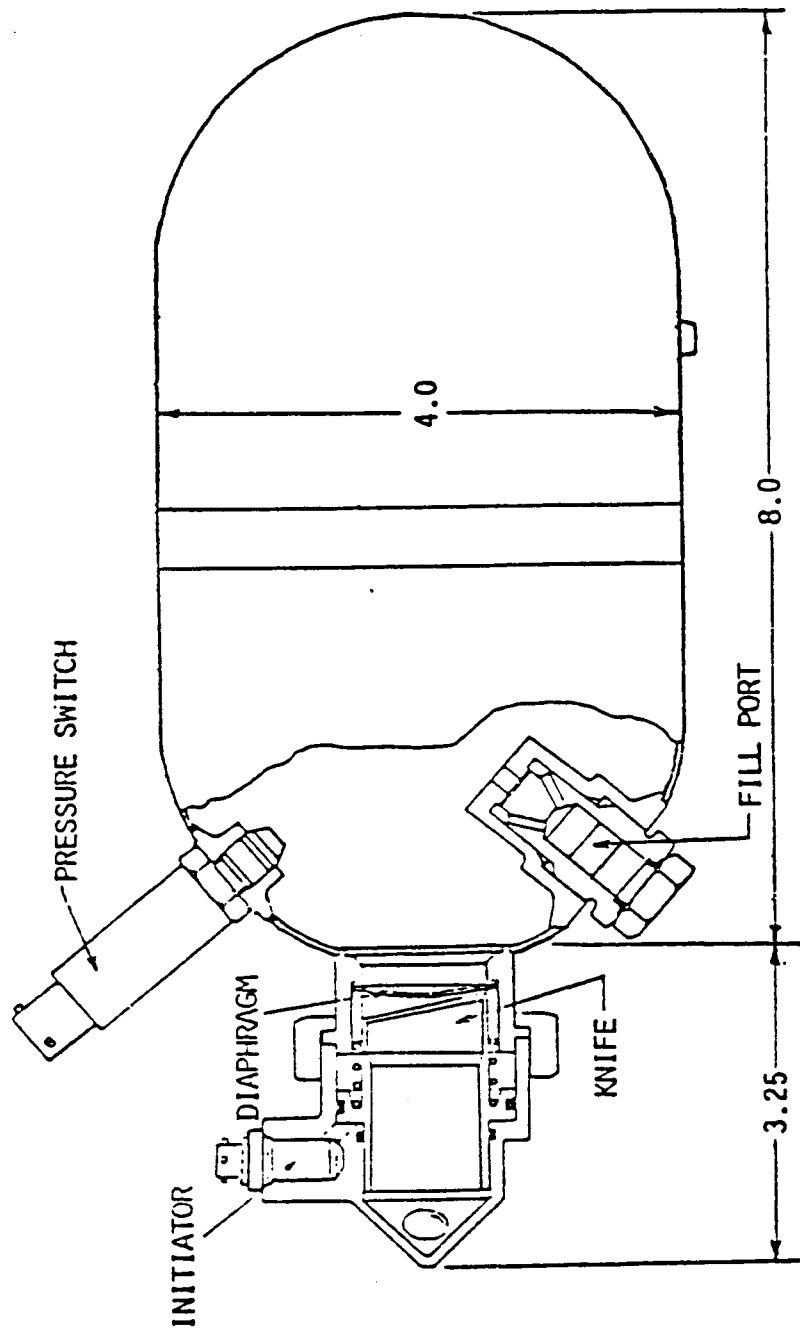


Figure 12 - SD/FS Typical Smoke Detector



CHARGE - 3.75 LBS FE 1301
 DISCHARGE TIME - 1 SEC

Figure 13 - SD/FS Active Fire Suppressant Bottle

PORTABLE FIRE EXTINGUISHER

TOTAL WT. 6.6 LBS

FREON 1301 WT. 2.8 LBS.

BASIC DESIGN MIL-E-52031B (ME)

DISCHARGE TIME

1-G 16 \pm 2 SEC.

0-G 30 \pm 5 SEC.

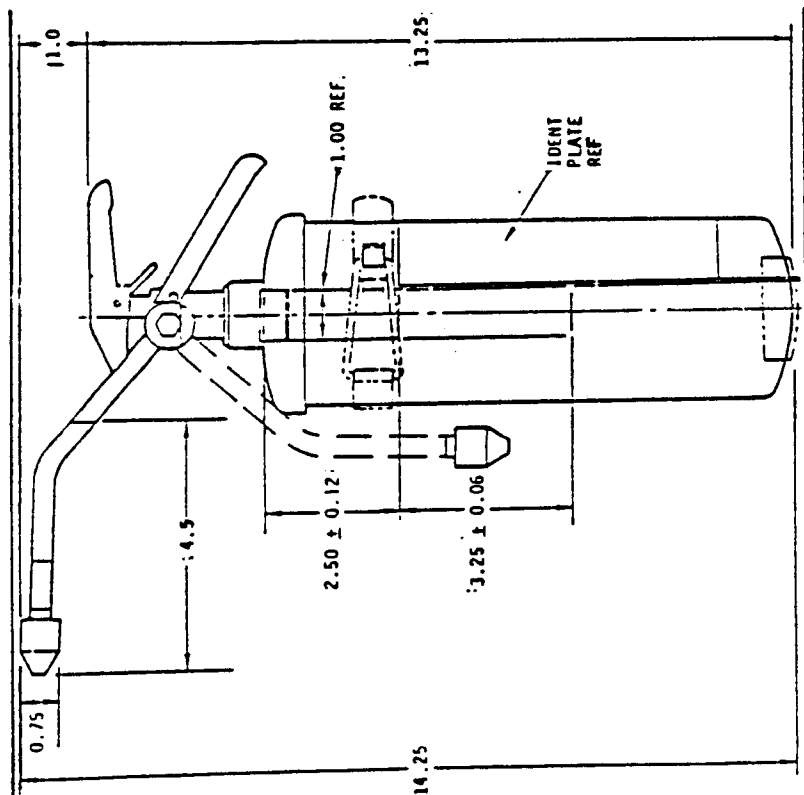


Figure 14 - SD/FS Portable Fire Extinguisher

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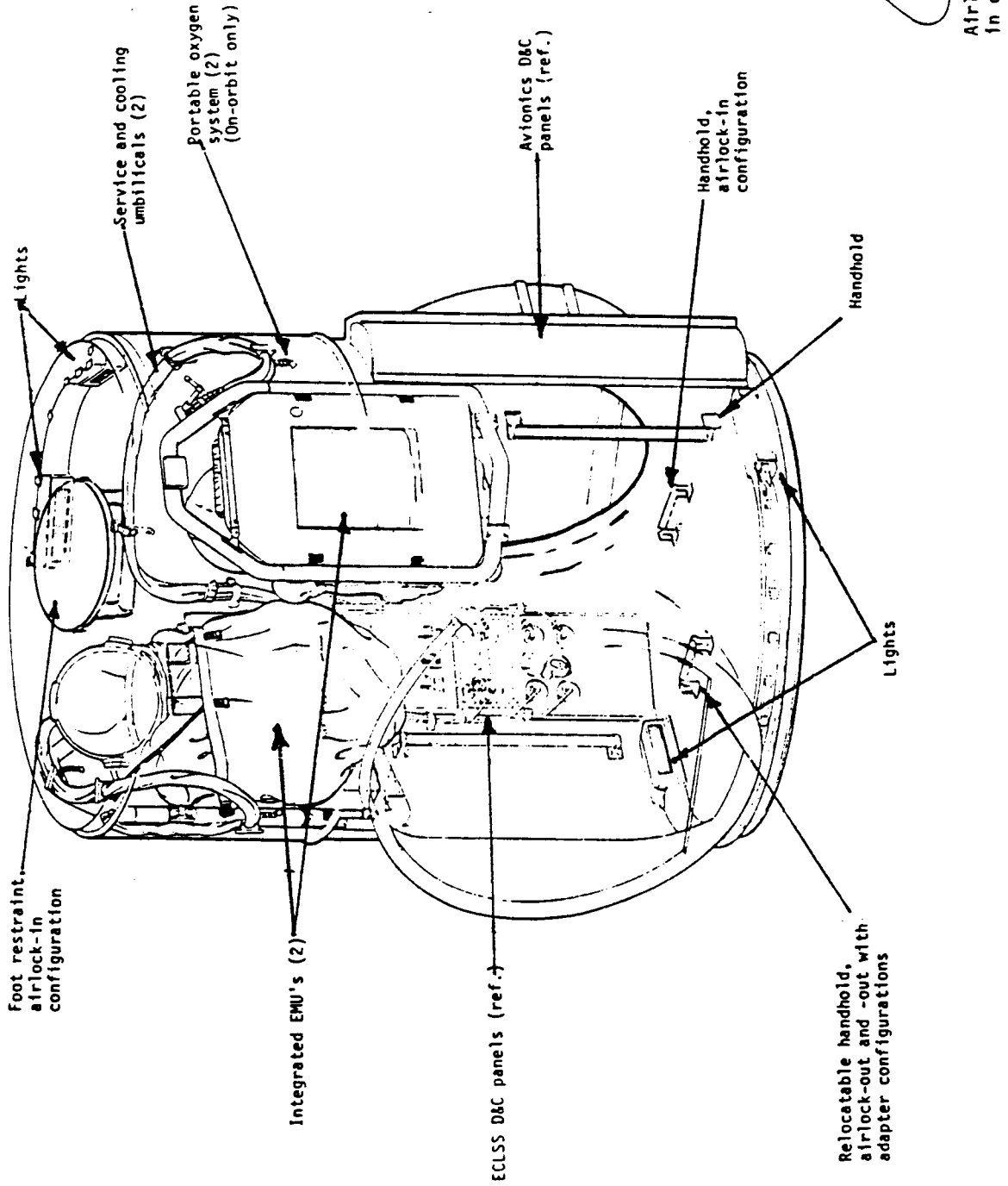


Figure 15 - Airlock Support System

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THE ECLSS/SQU INTERFACES SHOWN ARE FIRED BY-TUBE CONNECTORS
(EXCEPT ELECTRICAL). FOR DETAILS OF THE SQU/SQU INTERFACES,
REFER TO FIG 2-25, VOLUME 19 OF THE DPM

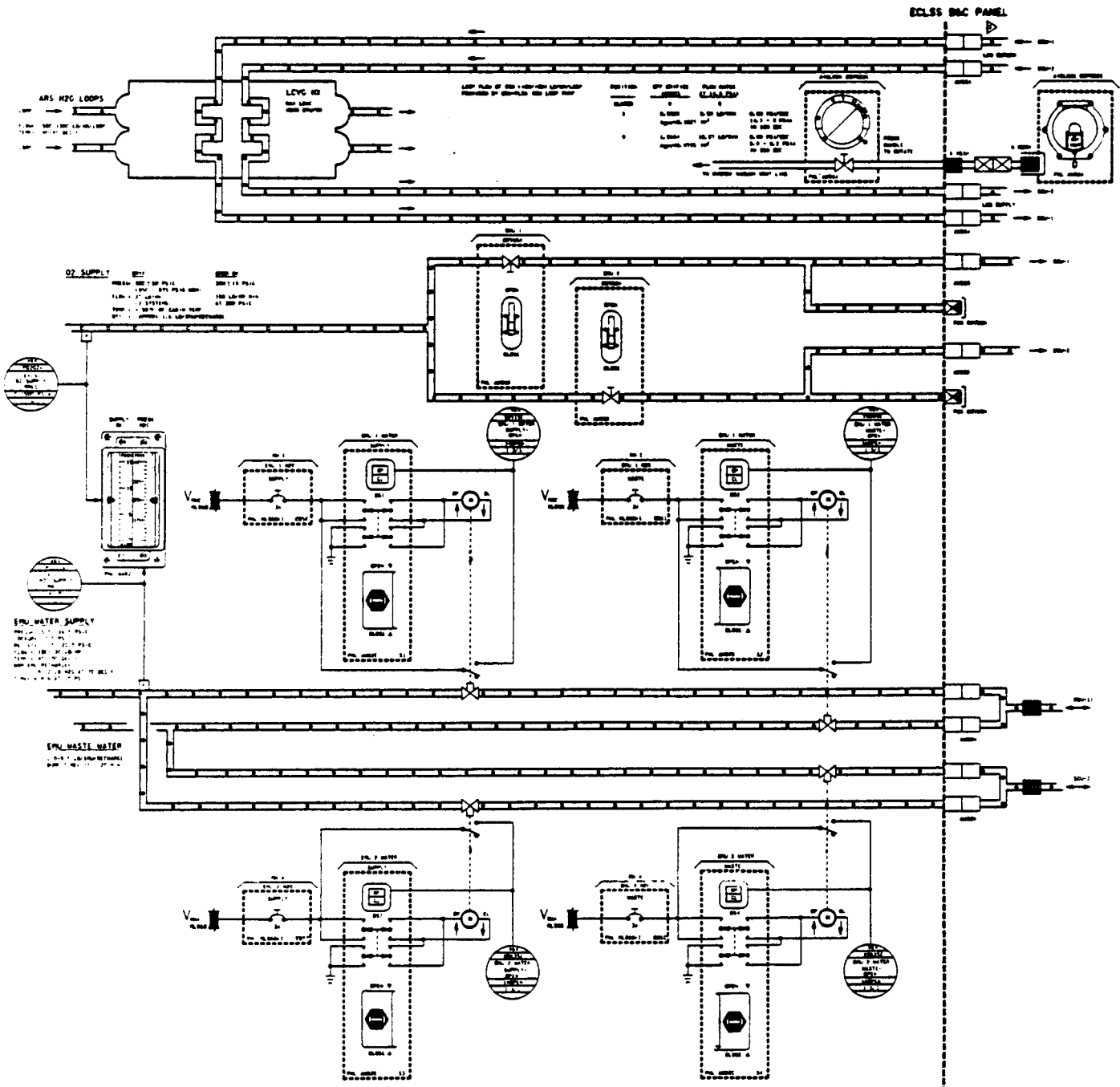
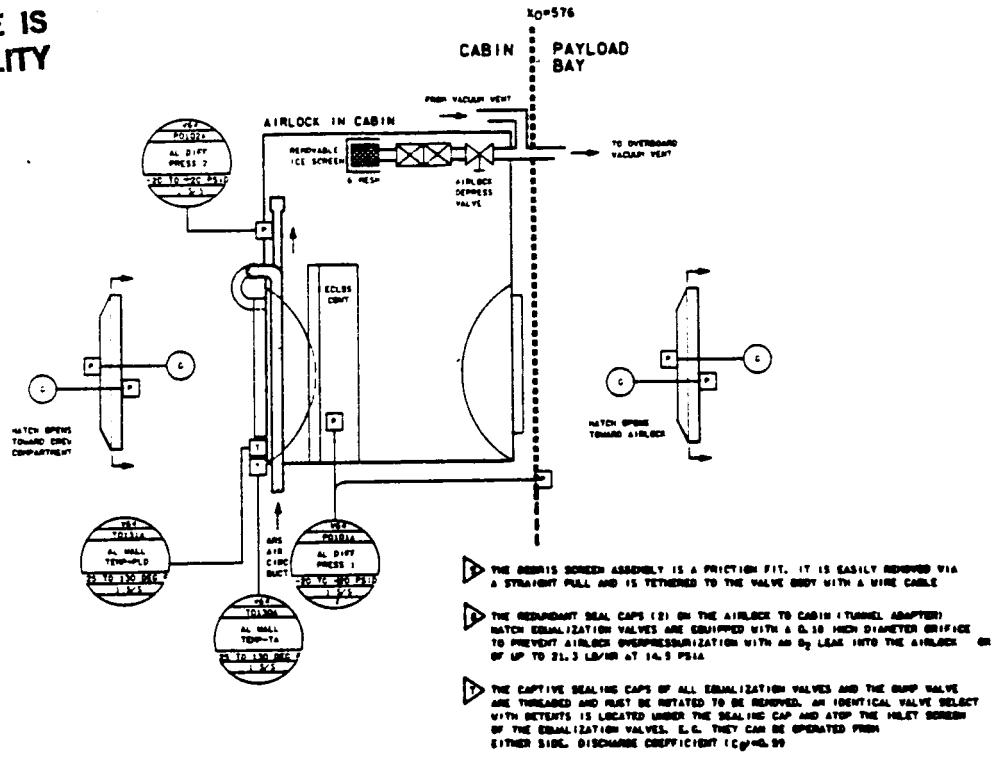


Figure 16 - Airlock Piping And Instrumentation Diagram

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TYPICAL HATCH
FOR ALL THREE AIRLOCK
CONFIGURATIONS SHOWN
EXCEPT VENT CAPS
AS NOTED:

EQUALIZATION VALVE
(2 PER HATCH)

OFF - NO FLOW

HEAVY - 242 LB/HR AT 14.5 PSIA
AIRLOCK PRESSURE IS 0.5 MINIMUM / 100 SEC MIN

EMER - 1004 LB/HR AT 14.5 PSIA
AIRLOCK PRESSURE IS 0.10 SEC / 100 SEC MIN

AL VENT - 153 CU FT
153 CU FT WITH TWO
1-1/2" TED OVERPRESSURES
C=0.6579 AT 13.6 PSIA
0.8553 AT 9.6 PSIA

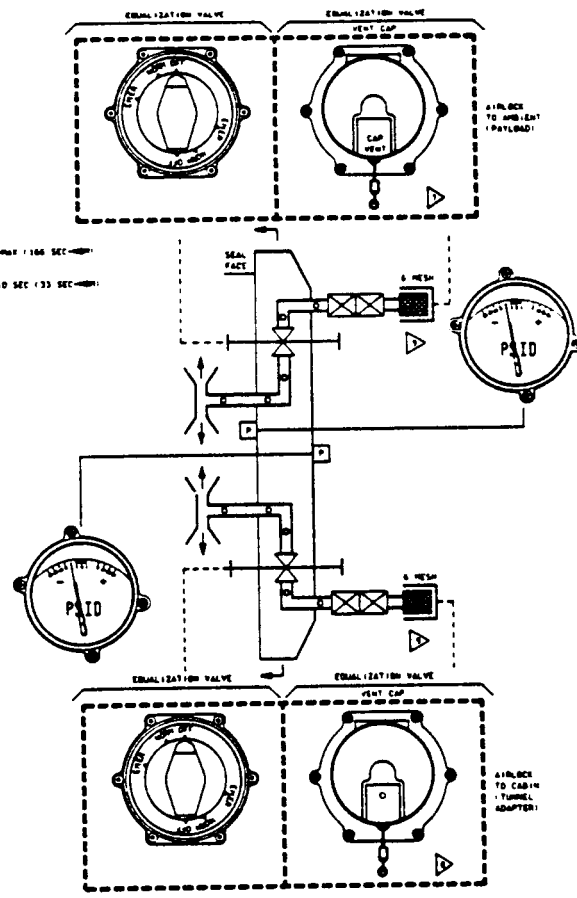


Figure 17 - Airlock Vacuum Vent and Pressure Equalization Valves

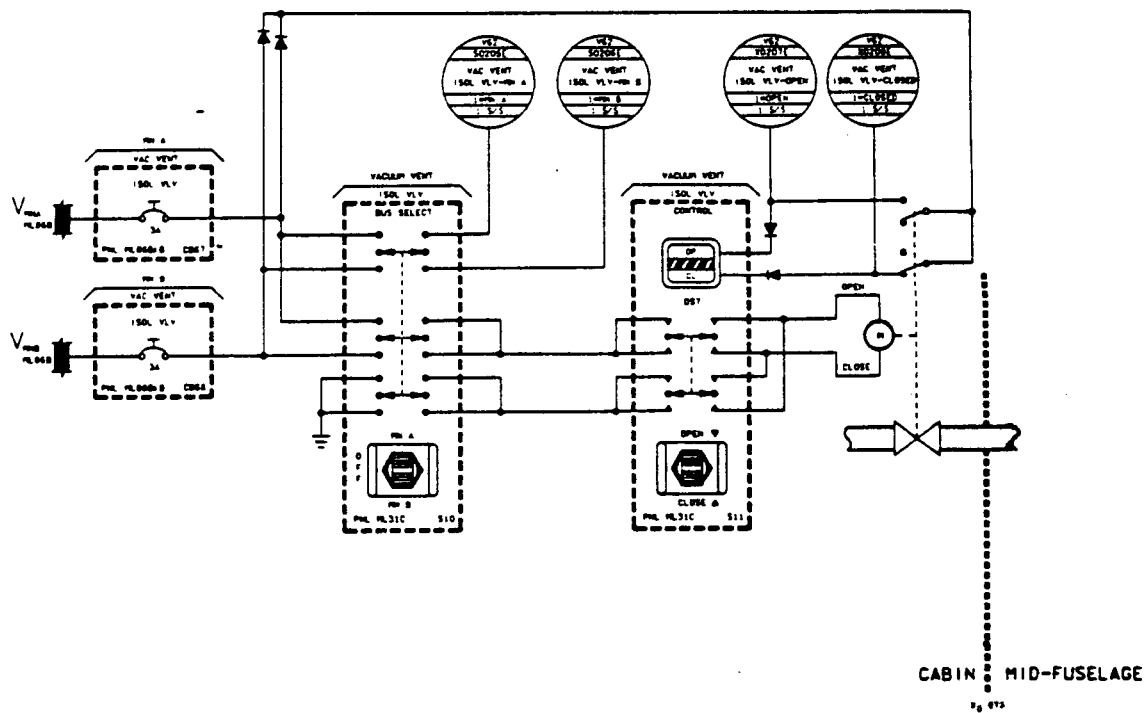


Figure 19 - Vacuum Vent Isolation Valve

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3.2 Interfaces and Locations

The life support and airlock support items are located at various places within the crew compartment, and avionics bays as shown in Figures 20 to 22. The FES and dump nozzles are located outside the payload bay past 576 bulkhead.

The LSS and ALSS interfaces with the adjoining subsystems were identified, and are explained below:

1. EPS - The Electrical Power Subsystem provides bus power to drive valves, switches, instrumentation, and heaters throughout the systems. Also, the EPS recharges the EMU batteries in the airlock at the SCU.
2. ARPCS - Gaseous nitrogen from the ARPCS storage tanks are used to pressurize the supply/waste water tanks. It is also used to recharge the MMU nitrogen tanks. Cabin pressure may be used to maintain pressure in the water tanks in the event that gaseous nitrogen is not available.
3. ARS - The water coolant loops from the ARS chills the potable water through the water chiller heat exchanger. They are also used to cool the EMU suites while in the airlock.
4. ATCS - The Flash Evaporator System (FES) uses water from the water tanks to provide thermal cooling of the freon loops.
5. PRSD - The Power Reactant Storage and Distribution System provides oxygen for recharge of the EMU bottles in the airlock at the SCU interface.
6. EMU - The EMU interfaces with the ALSS through the SCU for water, oxygen, and electrical power recharges.
7. CE - Crew Equipment such as galley or water dispenser is connected to the potable lines at the ECLSS bay in the crew compartment.

3.3 Hierarchy

Figures 23 and 24 illustrates the hierarchy of the LSS and ALSS hardware and the corresponding subcomponents.

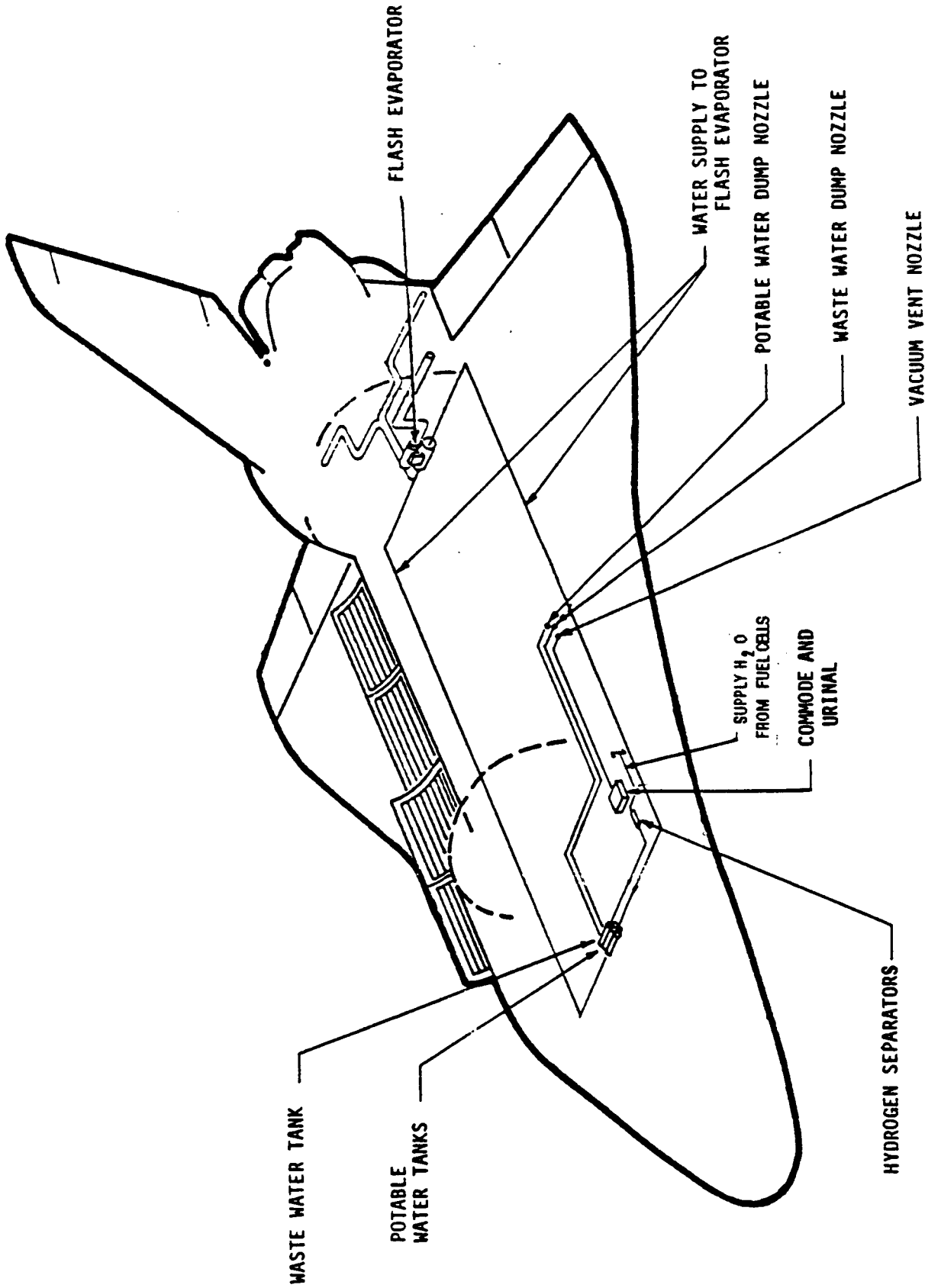


Figure 20 - General Location of the Supply and Waste Management Subsystems

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OF POOR QUALITY

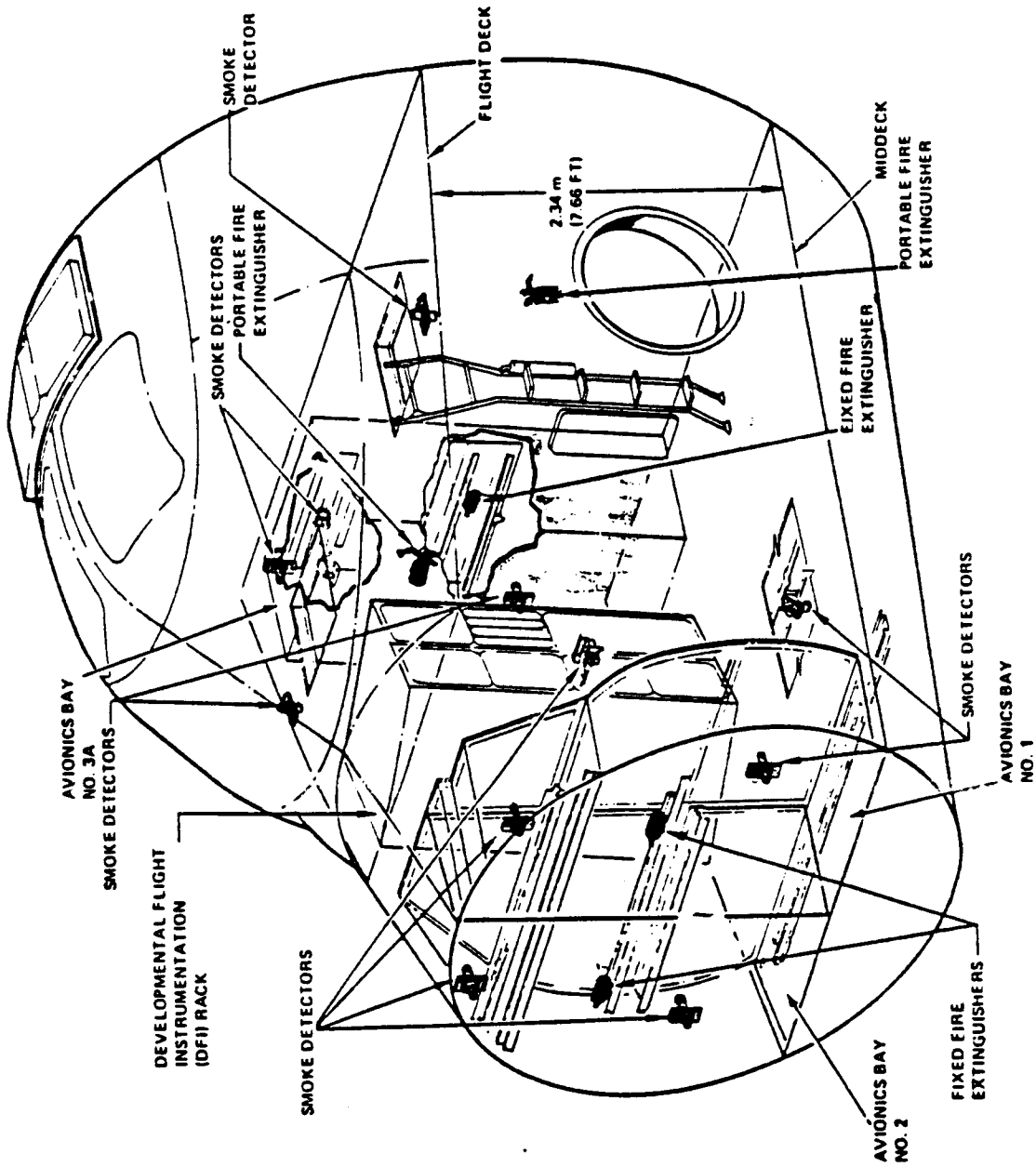


Figure 21 - General Location of the Smoke Detection and Fire suppression Subsystems

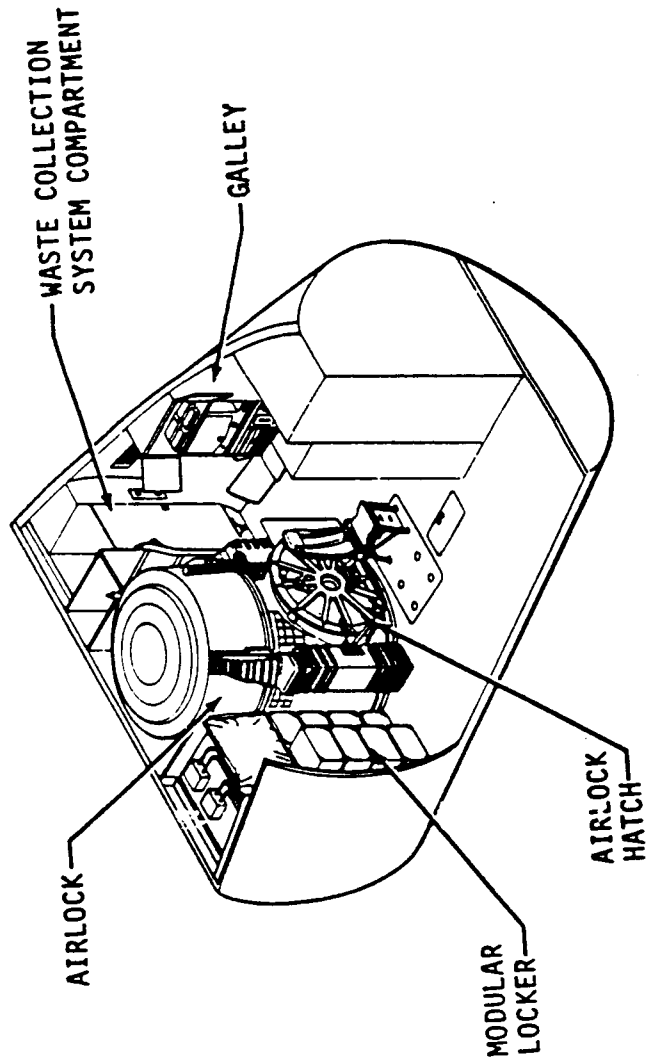


Figure 22 - General Location of Airlock Support System and Waste Collection Subsystem

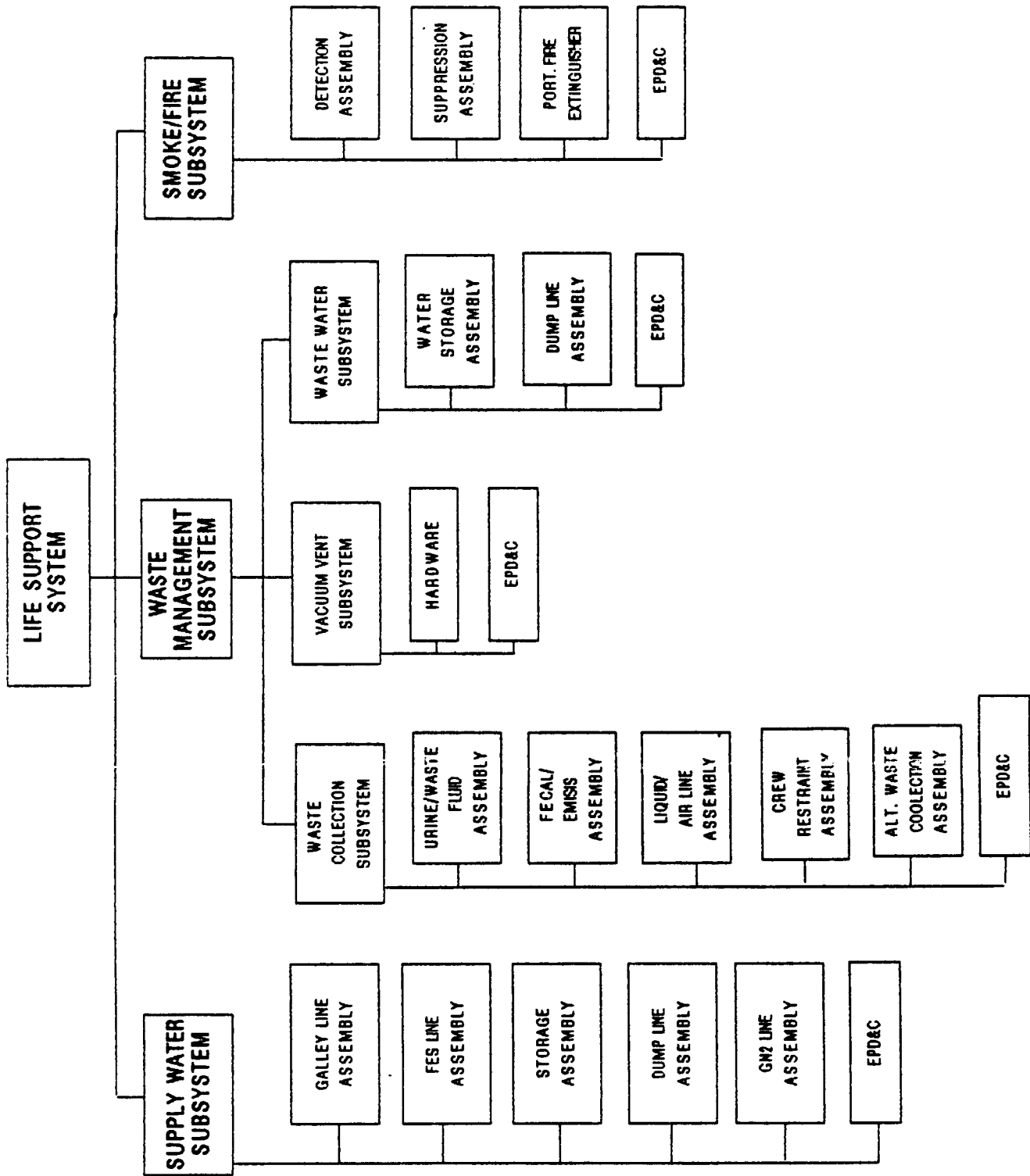


Figure 23 - Life Support System Hierarchy

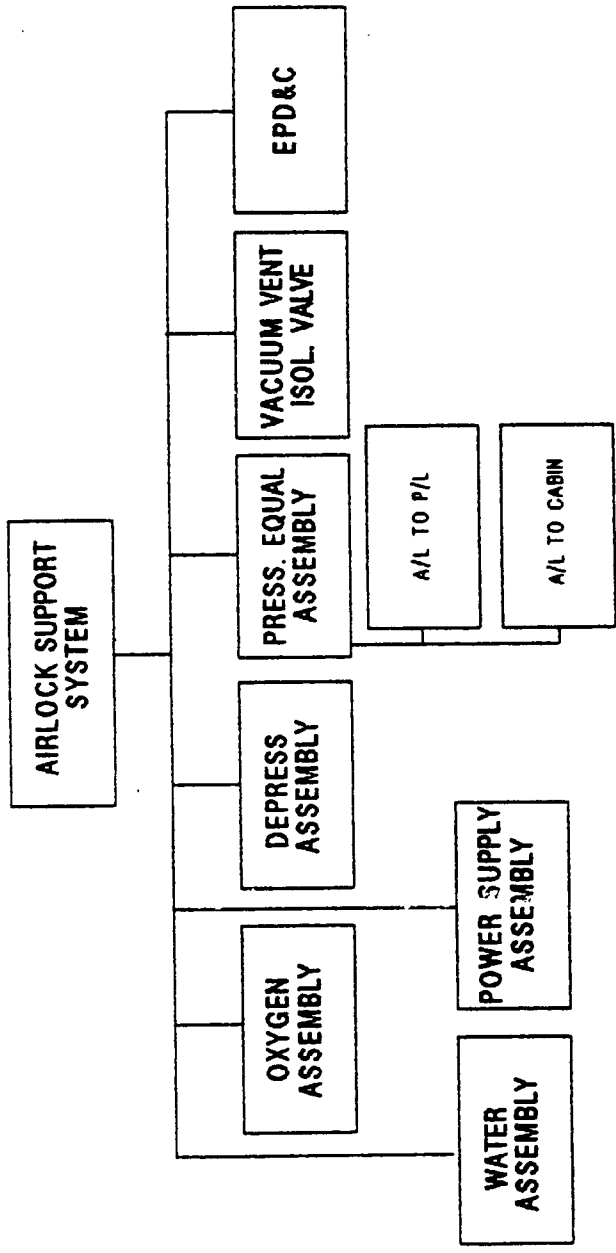


Figure 24 - Airlock Support System Hierarchy

4.0 ASSESSMENT RESULTS

The IOA analysis of the LSS and ALSS hardware initially generated 511 failure mode worksheets and identified 140 Potential Critical Items (PCIs) before starting the assessment process. In order to facilitate comparison, 183 additional failure mode analysis worksheets were generated. These analysis results were compared to the proposed NASA Post 51-L baseline.

The NASA FMEAs and the IOA analyses were matched where possible, however due to the limited information provided in the NASA FMEA summary data packages, no resolution of most of the criticality discrepancies was attempted. In some cases the deliverable #2 IOA analysis (Ref 1.) criticality was revised to reflect the additional information gained in the discussions with the Subsystem Managers during the CCB and PRCB presentation development process.

Thirty-nine failure modes were generated by the IOA analysis that were not covered under the NASA FMEAs. The IOA recommended the addition of these failure modes to the NASA FMEA baseline. It should be noted that several of these failure modes and the respective hardware may be covered under other NASA analysis systems.

In the IOA analysis report the Life Support System included four subsystems according to hardware and function. The sub-divisions in the IOA analysis did not exactly match the corresponding four subsystems analyzed by the NASA FMEA. The vacuum vent isolation valve analysis for the electrical components were analyzed in the Airlock Support System (ALSS) for the IOA analysis, however those components were covered under the NASA Waste Management System EPD&C FMEAs. The circuit breakers which control all of the dump line heaters were analyzed in the NASA Supply Water EPD&C FMEAs, but the same components were covered in the IOA Waste Management Subsystem analysis. Such discrepancies were accounted for in the appropriate subsystem as identified by the NASA analyses.

A summary of the quantity of NASA FMEAs assessed, versus the recommended IOA baseline, and any issues identified is presented in Table I. In the tabulation, the IOA column is the raw number of IOA assessment sheets generated for the assessment process. The "issues" column indicates the number of IOA failure mode assessments where the criticalities either did not match the NASA FMEA or no applicable NASA FMEA was listed.

Table I Summary of IOA FMEA Assessment			
Component	NASA	IOA	Issues
o LSS			
SWS	133	201	113
WMS	189	324	88
SD/FS	60	81	27
o ALSS	74	88	73
TOTAL	456	694	301

A summary of the quantity of NASA CIL items assessed, versus the recommended IOA baseline, and any issues identified is presented in Table II.

Table II Summary of IOA CIL Assessment			
Component	NASA	IOA	Issues
o LSS			
SWS	12	41	22
WMS	36	63	33
SD/FS	28	24	20
o ALSS	25	43	36
TOTAL	101	171	111

Table III presents a summary of the IOA recommended failure criticalities for the Post 51-L FMEA baseline. Further discussion of each of these subdivisions and the applicable failure modes is provided in subsequent paragraphs.

TABLE III Summary of IOA Recommended Failure Criticalities							
Criticality:	1/1	2/1R	2/2	3/1R	3/2R	3/3	TOTAL
o LSS							
SWS	0	7	25	38	72	59	201
WMS	6	12	32	31	163	80	324
SD/FS	12	10	0	24	0	29	75
o ALSS	1	7	33	4	16	27	88
TOTAL	19	36	90	97	251	195	688

Of the failure modes analyzed, 171 were determined to be critical items. A summary of the IOA recommended critical items is presented in Table IV.

TABLE IV Summary of IOA Recommended Critical Items							
Criticality:	1/1	2/1R	2/2	3/1R	3/2R	3/3	TOTAL
o LSS							
SWS	0	7	25	0	9	0	41
WMS	6	12	32	3	10	0	63
SD/FS	12	10	0	2	0	0	24
o ALSS	1	7	33	2	0	0	43
TOTAL	19	36	90	7	19	0	171

The scheme for assigning IOA assessment (Appendix C) and analysis (Appendix E) worksheet numbers is shown in Table V.

Table V IOA Worksheet Numbers	
Component	IOA ID Number
o LSS	
SWS	LS-1000 Series
WMS	LS-2000 Series
SD/FS	LS-3000 Series
o ALSS	LS-5000 Series

Appendix C presents the detailed assessment worksheets for each failure mode identified and assessed. Appendix D highlights the NASA Critical Items and the corresponding IOA worksheet identification. Appendix E contains additional IOA analysis worksheets supplementing previous analysis results reported Reference 1. Appendix F provides a cross reference between the NASA FMEA and corresponding IOA worksheets. IOA recommendations are also summarized.

4.1 SWS Assessment Results

The Supply Water Subsystem (SWS) assessment was done based on the CCB/PRCB presentations and the two criticality summary listings provided informally by the subsystem manager, dated October 1, 1987. The CCB/PRCB data included detailed information on the CIL items which provided for a good comparison of the analyses and assessment of the issues. The two criticality summary listings (Hardware and EPD&C items) showed only the criticality, redundancy screens and failure modes for each item. Without an understanding of the criticality rationale it was difficult to make an adequate assessment between the NASA FMEAs and the IOA analysis. In those cases that a discrepancy was noted, it was flagged as an issue pending discussions with the subsystem manager or receipt of more detailed information. However, due to the termination of the IOA task, adequate time was not available to complete the assessment process.

One of the major discrepancies noted between the NASA FMEA approach and the IOA analysis was the use of multiple failure scenarios and its application in assigning the functional criticalities. The IOA approach was to determine what the redundancies were for the hardware item under study, and then assign the functional criticality consistent with NSTS-22206. The NASA FMEA approach seemed to define the redundancy to the effect after the item had failed. In this fashion, IOA believes that the functional criticalities become so broad that visibility into a particular hardware item will be lost. For example, the NASA FMEA 06-2-1131-2 (GSE Drain QD/Cap for internal leakage) relates the loss of Radiators and the Ammonia Boiler System to the loss of the Flash Evaporator System and assigns a 1R functional criticality due to the total loss of the Active Thermal Control System. On the other hand the IOA analysis considered the QD and Cap as being redundant in preventing the failure mode of internal leakage. If these redundancies were lost, the Flash Evaporator System may be deprived of water which was considered a mission loss condition or a 2R criticality. Loss of the radiators and the ABS is considered unassociated with the functional loss of the QD and Cap in the IOA analysis.

Another major discrepancy between the IOA analysis and the NASA FMEA approaches was over the determination of functional criticality for total loss of all redundancies in conjunction with the failure mode under study. For example, on the fuel cell outlet lines, the NASA FMEA treated the functional loss to receive fuel cell water into the water storage area due to external leakage the same as the case for restricted flow of the line. IOA agreed with the scenario for restricted flow to result in "dead-heading" of the fuel cells, thus potentially a loss of life or vehicle condition. However, the IOA approach for criticality for an external leakage was considered only a mission impact for the functional loss. Please refer to the FMEAs 06-2-1132-1 and 06-2-1132-2 and the other NASA FMEAs for lines and fittings for further discussion of this condition.

4.1 SWS Assessment Results (concluded)

In general the criteria that IOA used in assigning criticalities for the SWS were:

1. Total loss of function to expel the fuel cell generated water is a potential loss of life or vehicle,
2. Total loss of water for flash evaporator operations was a mission loss,
3. Total loss of function to remove hydrogen from the supply water system was a mission loss,
4. Total loss of function to provide water to the galley was a mission loss, and
5. Continuous flow of water into the cabin/mid-body cavity as a result of external leakage was a mission loss.

Please refer to the individual assessment sheets for the detailed information on each item and the failure modes.

4.2 WMS Assessment Results

The Waste Management Subsystem (WMS) assessment was done based on the CCB/PRCB presentation packages and the two criticality summary packages provided informally by the subsystem manager. The summary packages (hardware and EPD&C items) were dated 1 October 1987 with corrections and contained only the criticality, redundancy screens and failure modes for each item. In those cases that a discrepancy between the NASA FMEA and the IOA analysis did occur, a flag was set in the Appendix F listing. The issues were scheduled to be discussed with the appropriate subsystem manager, however due to contract termination there was not sufficient time to resolve the noted issues.

The eighty-eight discrepancy issues were grouped into fifteen categories. The six major categories are discussed in the following text.

1. The IOA analysis of hardware not covered by the NASA FMEA for the WMS. (21 issues)
2. The condition of a potential loss of the WCS was viewed as a 3/2R criticality by IOA for any "off nominal" condition. The condition of "off nominal" was defined as any failure which could potentially require use of contingency waste collection methods if another failure occurred. However the NASA FMEA listed these as non-mission essential failure

4.2 WMS Assessment Results (concluded)

- criticality. In conjunction with this discrepancy issue, it is suggested to increase the UCD supplies on board to enable the continuation of the mission in the event of an WCS failure. This will preclude an early termination of the mission due to loss of the WCS system or any of the redundancy. (15 issues)
3. The disagreement in the redundancy screen settings was due to a lack of detailed discussion in the NASA FMEA summary. (6 issues)
 4. The IOA analysis viewed of loss of the Vacuum Vent Dump line by blockage or by loss of the heaters as a potential loss of life/vehicle condition. A potentially hazardous atmosphere of hydrogen and oxygen could occur in the vacuum vent line if it were blocked by debris or ice. It is recommended to add a redundant line/nozzle heater if the scenario of a blocked vacuum vent line is plausible. (6 issues)
 5. The IOA analysis team could not determine any apparent redundant paths for the functional criticality. However these same analyses were listed as relying on redundant hardware paths in the NASA FMEAs. (6 issues)
 6. There was a disagreement in the hardware criticality for hardware with functional redundancy. IOA analysis viewed the hardware failure to be a non-mission essential criticality, however subsequent failures in the functional path could create major problems. The NASA FMEA criticality viewed the first hardware failure to be at least a mission loss, if not a life threatening condition. (6 issues)

4.3 SD/FS Assessment Results

The Smoke Detection and Fire Suppression (SD/FS) subsystem assessment was based upon multiple data packages. The NASA SD/FS mechanical data was obtained from a criticality summary listing published 1 October 1987 in conjunction with the 2 October 1987 CCB presentation package. The CCB package provided CIL data which the listing substantiated, as well as provided the FMEA criticalities. CCB data for EPD&C as not available for assessment. The NASA data used for the EPD&C assessment was based upon a criticality summary listing also published 1 October 1987 in conjunction with a 19 August 1987 set of boiler room review comments and the pre-51L data package. Since much of the data did not contain the total rationale, it was difficult to make the assessments between the NASA data and the IOA data. As with the water subsystems, discrepancies were flagged as an issue pending discussions with the subsystem manager. Again, termination of the IOA task precluded completion of the assessment processes.

The assessment contains thirty seven (37) matches between the IOA analysis data and the NASA data, eleven (11) IOA failure modes revised to match the associated NASA criticalities, twenty two (22) IOA criticalities recommended over the NASA criticalities, five (5) additions to the IOA failure modes to cover all NASA analysis modes, and six (6) IOA failure modes deleted because the failures are not considered credible for the particular items. Of the twenty two IOA recommended criticalities, ten (10) recommended deletions as CIL items, two (2) recommended CIL item additions, and ten (10) made revisions which did not effect the CIL count.

The major outcome of the analysis and assessment points up the criticality of the Avionics Bay Fire Suppressant containers. The concern of these single string circuits is during the ascent and entry phases when the crew has no opportunity to use the portable extinguishers in the event the primary bottles fail to discharge. Another consideration is the common power source for the smoke detectors and the reset signal. Isolation of the two should increase the possibilities of bypassing a reset circuit problem. As previously stated, the assessment results were not discussed with the subsystem manager and therefore the overall results are incomplete.

4.4 ALSS Assessment Results

The Airlock Support System (ALSS) assessment was attempted based on the data presented by H. Rotter at the December 1987 PRCB, and documented in "SSV-87-92, Airlock Support System" (Ref. 5). Except for the items requiring waivers, the data available for assessment was limited. The pre 51-L FMEAs were available and when necessary for completeness of assessment they were used as the basis for the assessment.

Assessment of those items not found in either document was not made, thus they were left blank (IOA assessment numbers 5022, 5056 through 5064, 5076, 5082 and 5083).

The following is a discussion of the principle reason for assessment discrepancies between the NASA FMEA and the IOA analysis of the ALSS. The Airlock is not, and should not be, a system classified as emergency hardware. It may be true that the crew can use it for emergency EVAs, but this is part of the procedure that has been devised to solve an emergency in another system. To compound that failure, that is, failing the airlock along with the emergency failure, to increase the criticalities is like assigning criticalities to procedures devised to solve the original emergency. With the same logic the EMU suits will have to be declared an emergency system which is also unacceptable because this was not the original intent for either system, Airlock or EMU. As is, without the Airlock being classified as an emergency system, the failure of any item, during an emergency in the payload bay is considered a second failure and not acceptable per NSTS 22206, Paragraphs 2.3.2.d and 2.3.3.f.

5.0 References

Reference documentation available from NASA and Rockwell was used in the analysis. The documentation used included the following:

1. MDAC, 1.0-WP-VA87001-02, Independent Orbiter Assessment Analysis of the Life Support and Airlock Support Systems, M.J. Saiedi, 2 November 1987
2. NASA-CCB presentation, Water Management Subsystem, H. Rotter
3. "Presentation to NSTS Level I/II Review Board: Water Management Subsystem FMEA/CIL Review", (NASA-PRCB presentation), H. Rotter, December 1987
4. "Presentation to NSTS Level I/II Review Board: Waste Collection Subsystem (WCS) FMEA/CIL Review, Hardware and EPD&C," (NASA-PRCB presentation), H.E. Winkler, December 1987
5. "SSV-87-92, Presentation to NSTS Level I/II Review Board: Airlock Support System FMEA/CIL Review", (NASA-PRCB presentation), H. Rotter, December 1987
6. "Presentation to NSTS Level I/II Review Board: Smoke Detection and Fire Suppression Subsystem (SD/FS) FMEA/CIL Review, Hardware," (NASA-PRCB presentation), H. Rotter, October 1987
7. "Accumulated Results from Table Water, Mechanical Hardware FMEA/CIL Summary," (Informal Data for Life Support - Water Management Subsystem), received from J. Betters/ Boeing Reliability, 1 October 1987
8. "Accumulated Results from Table Water, EPD&C Hardware FMEA/CIL Summary," (Informal Data for Life Support - Water Management Subsystem), received from J. Betters/ Boeing Reliability, 1 October 1987
9. "Accumulated Results from Table Waste, Mechanical Hardware FMEA/CIL Summary," (Informal Data for Life Support - Waste Management Subsystem), received from J. Betters/ Boeing Reliability, 1 October 1987
10. "Accumulated Results from Table Waste, EPD&C Hardware FMEA/CIL Summary," (Informal Data for Life Support - Waste Management Subsystem), received from J. Betters/ Boeing Reliability, 1 October 1987
11. "Accumulated Results from Table Smoke, Mechanical Hardware FMEA/CIL Summary," (Informal Data for Life Support - Smoke Detection and Fire Suppression Subsystem), received from J. Betters/ Boeing Reliability, 1 October 1987

5.0 References (Concluded)

12. "Accumulated Results from Table Smoke, EPD&C Hardware FMEA/CIL Summary," (Informal Data for Life Support - Smoke Detection and Fire Suppression Subsystem), received from J. Betters/ Boeing Reliability, 1 October 1987
13. "Accumulated Results from Table Smoke, EPD&C Hardware FMEA/CIL Summary," (Informal Data for Life Support - Smoke Detection and Fire Suppression Subsystem), received from Boeing Reliability, 19 August 1987
14. "Accumulated Results from Table Airlock, Mechanical Hardware FMEA/CIL Summary," (Informal Data for Life Support - Airlock Support Subsystem), received from J. Betters/ Boeing Reliability, 1 October 1987
15. "Accumulated Results from Table Airlock, EPD&C Hardware FMEA/CIL Summary," (Informal Data for Life Support - Airlock Support Subsystem), received from J. Betters/ Boeing Reliability, 1 October 1987

The following references were used in the generation of the IOA analysis worksheets.

16. JSC-ECLSS 2102, Environmental Control and Life Support Systems Workbook, November 21, 1983.
17. JSC-19935, Environmental Systems Console Handbook, Basic Rev A, October 15, 1985.
18. RI-VS70-960102,-960103,-960104, Integrated Systems Schematics.
19. JSC-12820, STS Operational Flight Rules, Final PCN-3, June 28, 1985.
20. JSC-V61-File III, Operations Maintenance Requirements and Specification Document, February 6, 1986.
21. NSTS-22206, Instruction for Preparation of Failure Modes and Effects Analysis (FMEA) and Critical Items List (CIL), October 10, 1986, Changes 1 and 2.
22. JSC-12770, Shuttle Flight Operation Manual, EVA System, Basic Rev A, Volume 15, January 6, 1984.

23. JSC-12770, Shuttle Flight Operation Manual, Crew Systems, Rev A, Volume 12, August 16, 1985.
24. JSC-2102C, Waste Collection System Workbook, November 26, 1984.

**APPENDIX A
ACRONYMS**

A	Amperes
AAP	Airlock Adapter Plate
ABS	Ammonia Boiler Subsystem
ac	Alternating Current
ACA	Annunciator Control Assembly
ADPTR	Adapter
ALSS	Airlock Support System
ALT	Alternate
AOA	Abort Once Around
AOS	Acquisition of Signal
ARPCS	Atmospheric Revitalization Pressure Control System
ARS	Atmospheric Revitalization System
ASSY	Assembly
ATCS	Active Thermal Control System
ATO	Abort to Orbit
AUX	Auxillary
AV	Avionics
CB	Circuit Breaker
CCB	Configuration Control Board
CCH	Commode Control Handle
CDR	Commander
CE	Crew Equipment
CIL	Critical Items List
CL	Close
CNTL	Control
CNTRL	Control
CON	Conical
CONCENT	Concentration
COND	Conditioner
CONT	Contingency
CRIT	Criticality
CRT	Cathode Ray Tube
CV	Check Valve
CWC	Contingency Water Container
C&W	Caution and Warning
CWS	Caution and Warning System
dc	Direct Current
DETN	Detection
DISCH	Discharge
DMP	Dump
ECLSS	Environmental Control and Life Support System
EI	Entry Interface
EMU	Extravehicular Mobility Unit
ENA	Enable
EPDC, or	
EPD&C	Electrical Power Distribution and Control
EPS	Electrical Power Subsystem
EVA	Extravehicular Activity

ACRONYMS (continued)

F	Functional
Fan/Sep	Fan/Separator
FDA	Fault Detection Annunciation
FES	Flash Evaporator System
FLD	Fluid
FLT	Flight
FLTR	Filter
FMEA	Failure Modes and Effects Analysis
FREQ	Frequency
g	grams
G	Gravitational Acceleration
GEN	Generator
GFE	Government Furnished Equipment
GN2	Gaseous Nitrogen
GO2	Gaseous Oxygen
GSE	Ground Support Equipment
HTR	Heater
HW	Hardware
H2	Hydrogen
H2O	Water
INDCTR	Indicator
IOA	Independent Orbiter Assessment
ISOL	Isolation
JUNCT	Junction
JSC	Johnson Space Center
LNS	Lines
LSS	Life Support System
LT	Left
LTS	Lights
LVL	Level
MDAC	McDonnell Douglas Astronautics Company
MECO	Main Engine Cut-off
MET	Mission Elapsed Time
m3	Cubic Meters
MM	Major Mode
MMU	Manned Maneuvering Unit
MN	Main
NA	Not Applicable
NASA	National Aeronautics and Space Administration
NOZ	Nozzle
NSI	NASA Standard Initiator
NSTS	National Space Transportation System
N2	Nitrogen

ACRONYMS (continued)

OP, or	
OPN	Open
OPS	Operations Sequence
P	Pressure Transducer
PCI	Potential Critical Items
PCS	Pressure Control System
PIC	Pyrotechnic Initiator Controller
P/L	Payload
PLB	Payload Bay
PLSS	Portable Life Support Subsystem
PNL	Panel
PORT	Portable
POS	Position
POT	Potable
PRCB	Program Requirements Control Board
PRESS	Pressure
PRSD	Power Reactant Storage and Distribution
psi	Pounds per Square Inch
psia	Pounds per Square Inch, Absolute
psid	Pounds per Square Inch, Differential
psig	Pounds per Square Inch, Gauge
QD	Quick Disconnect
QR	Quick Release
QTY	Quantity
REG	Regulator
REPRES	Repressurization
RESIS	Resistor
RT	Right
RTLS	Return To Landing Site
SCRN	Screen
SCU	Service and Cooling Umbilical
SD/FS	Smoke Detection and Fire Suppression Subsystem
sec	second
SENS	Sensor
SM	System Management
SMK	Smoke
Sol	Solenoid
SOP	Secondary Oxygen Pack
SPLY	Supply
S/S	Samples per Second
STS	Space Transportation System
Suppr	Suppression
SW	Switch
SWS	Supply Water Subsystem

ACRONYMS (continued)

T	Temperature Transducer
TAL	Transoceanic Abort Landing
Temp	Temperature
Thermo	Thermostat
TK	Tank
TM	Telemetry
Typ	Typical
UCD	Urine Collection Device
VAC	Volts - AC
VLV	Valve
VVS	Vacuum Vent Subsystem
WCS	Waste Collection Subsystem
WMS	Waste Management Subsystem
WRS	Waste Removal Subsystem
WTnk	Waste Tank 1
WWS	Waste Water Subsystem
X-DCR	Transducer
XOVR	Cross-over

APPENDIX B

DEFINITIONS, GROUND RULES, AND ASSUMPTIONS

- B.1 Definitions
- B.2 Project Level Ground Rules and Assumptions
- B.3 Subsystem-Specific Ground Rules and Assumptions

**APPENDIX B
DEFINITIONS, GROUND RULES, AND ASSUMPTIONS**

B.1 Definitions

Definitions contained in NSTS 22206, Instructions For Preparation of FMEA/CIL, 10 October 1986, were used with the following amplifications and additions.

INTACT ABORT DEFINITIONS:

RTLS - begins at transition to OPS 6 and ends at transition to OPS 9, post-flight

TAL - begins at declaration of the abort and ends at transition to OPS 9, post-flight

AOA - begins at declaration of the abort and ends at transition to OPS 9, post-flight

ATO - begins at declaration of the abort and ends at transition to OPS 9, post-flight

CREDIBLE (CAUSE) - an event that can be predicted or expected in anticipated operational environmental conditions. Excludes an event where multiple failures must first occur to result in environmental extremes

CONTINGENCY CREW PROCEDURES - procedures that are utilized beyond the standard malfunction procedures, pocket checklists, and cue cards

EARLY MISSION TERMINATION - termination of onorbit phase prior to planned end of mission

EFFECTS/RATIONALE - description of the case which generated the highest criticality

HIGHEST CRITICALITY - the highest functional criticality determined in the phase-by-phase analysis

MAJOR MODE (MM) - major sub-mode of software operational sequence (OPS)

MC - Memory Configuration of Primary Avionics Software System (PASS)

MISSION - assigned performance of a specific Orbiter flight with payload/objective accomplishments including orbit phasing and altitude (excludes secondary payloads such as GAS cans, middeck P/L, etc.)

MULTIPLE ORDER FAILURE - describes the failure due to a single cause or event of all units which perform a necessary (critical) function

OFF-NOMINAL CREW PROCEDURES - procedures that are utilized beyond the standard malfunction procedures, pocket checklists, and cue cards

OPS - software operational sequence

PRIMARY MISSION OBJECTIVES - worst case primary mission objectives are equal to mission objectives

PHASE DEFINITIONS:

PRELAUNCH PHASE - begins at launch count-down Orbiter power-up and ends at moding to OPS Major Mode 102 (liftoff)

LIFTOFF MISSION PHASE - begins at SRB ignition (MM 102) and ends at transition out of OPS 1 (Synonymous with ASCENT)

ONORBIT PHASE - begins at transition to OPS 2 or OPS 8 and ends at transition out of OPS 2 or OPS 8

DEORBIT PHASE - begins at transition to OPS Major Mode 301 and ends at first main landing gear touchdown

LANDING/SAFING PHASE - begins at first main gear touchdown and ends with the completion of post-landing safing operations

**APPENDIX B
DEFINITIONS, GROUND RULES, AND ASSUMPTIONS**

B.2 Project Level Ground Rules and Assumptions

The philosophy embodied in NSTS 22206, Instructions for Preparation of FMEA/CIL, 10 October 1986, was employed with the following amplifications and additions.

1. The operational flight software is an accurate implementation of the Flight System Software Requirements (FSSRs).

RATIONALE: Software verification is out-of-scope of this task.

2. After liftoff, any parameter which is monitored by system management (SM) or which drives any part of the Caution and Warning System (C&W) will support passage of Redundancy Screen B for its corresponding hardware item.

RATIONALE: Analysis of on-board parameter availability and/or the actual monitoring by the crew is beyond the scope of this task.

3. Any data employed with flight software is assumed to be functional for the specific vehicle and specific mission being flown.

RATIONALE: Mission data verification is out-of-scope of this task.

4. All hardware (including firmware) is manufactured and assembled to the design specifications/drawings.

RATIONALE: Acceptance and verification testing is designed to detect and identify problems before the item is approved for use.

5. All Flight Data File crew procedures will be assumed performed as written, and will not include human error in their performance.

RATIONALE: Failures caused by human operational error are out-of-scope of this task.

6. All hardware analyses will, as a minimum, be performed at the level of analysis existent within NASA/Prime Contractor Orbiter FMEA/CILs, and will be permitted to go to greater hardware detail levels but not lesser.

RATIONALE: Comparison of IOA analysis results with other analyses requires that both analyses be performed to a comparable level of detail.

7. Verification that a telemetry parameter is actually monitored during AOS by ground-based personnel is not required.

RATIONALE: Analysis of mission-dependent telemetry availability and/or the actual monitoring of applicable data by ground-based personnel is beyond the scope of this task.

8. The determination of criticalities per phase is based on the worst case effect of a failure for the phase being analyzed. The failure can occur in the phase being analyzed or in any previous phase, whichever produces the worst case effects for the phase of interest.

RATIONALE: Assigning phase criticalities ensures a thorough and complete analysis.

9. Analysis of wire harnesses, cables, and electrical connectors to determine if FMEAs are warranted will not be performed nor FMEAs assessed.

RATIONALE: Analysis was substantially complete prior to NSTS 22206 ground rule redirection.

10. Analysis of welds or brazed joints that cannot be inspected will not be performed nor FMEAs assessed.

RATIONALE: Analysis was substantially complete prior to NSTS 22206 ground rule redirection.

11. Emergency system or hardware will include burst discs and will exclude the EMU Secondary Oxygen Pack (SOP), pressure relief valves and the landing gear pyrotechnics.

RATIONALE: Clarify definition of emergency systems to ensure consistency throughout IOA project.

APPENDIX B
DEFINITIONS, GROUND RULES, AND ASSUMPTIONS

B.3 Subsystem Specific Ground Rules and Assumptions

The IOA analysis was performed to the component or assembly level of the LSS and ALSS subsystem. The analysis considered the worst case effects of the hardware or functional failure on the subsystem, mission, and crew and vehicle safety.

1. The Flash Evaporator System (topper only) was considered an unlike but redundant operation to the supply water dump operation during on-orbit phase.

RATIONALE: Past missions have adequately demonstrated the use of FES for dumping excess water without significant impact to the mission timeline.

2. The fuel cells dedicated dump line was considered an unlike but redundant way of expelling the generated water.

RATIONALE: The fuel cells dedicated line has not been flight tested, but the NSTS-22206 (para 2.3.2.d) considers interfacing subsystems to be operating within their specified tolerances.

3. The cross-tie capability was considered an unlike but redundant to the supply water dump line.

RATIONALE: The use of cross-tie capability is anticipated to be under severe circumstances when no other method is available to expel the water.

4. The newly added water line from the fuel cells to Tank B was considered in this study.

RATIONALE: This line is an approved design change and will be incorporated on all vehicles.

5. The airlock analysis assumed two crewman for a typical EVA activity.

RATIONALE: Rule 2-24 of the JSC-12820, STS Operational Flight Rules.

6. The airlock analysis did not consider emergency EVA to close the payload bay doors.

RATIONALE: The payload bay door failure was considered to constitute a second failure.

7. The Apollo Fecal Bags and the Urine Collection Devices (UCD) are considered as unlike redundant hardware to the WCS.

RATIONALE: The Apollo Fecal Bags or UCD are not employed unless the WMS is non-functional. There are adequate contingency waste collection supplies for every crew member for at least 3 days usage of the UCD and enough Apollo Fecal Bags for the mission life. If there is a generic material failure present in the contingency waste collection supplies, a mission loss would be developed at that time.

8. The Contingency Water Container (CWC) is emergency hardware and if failed requires a change in the mission schedule and loss of waste collection methods.

RATIONALE: The CWC is not employed unless the waste water storage and dump subsystems are inoperative. There is a mission schedule impact.

9. If either the Vacuum Vent line or nozzle heater fails, a mission critical failure is assumed to have occurred.

RATIONALE: If the heaters fail, there is a potential for line or nozzle freezing and the possibility of line blockage due to ice formation. The line blockage would cause H2 contamination of the supply water due to excessive H2 pressure. There could be a life or vehicle critical condition if the hydrogen concentration in the vacuum vent dump line reaches an explosive concentration.

10. Noxious gases released into the cabin atmosphere was not considered a mission loss event.

RATIONALE: There is a crew discomfort judgement and the effects on the crew is to be determined on a real-time basis.

11. The siren is the primary indication of a fire with FDA as a redundant indication.

RATIONALE: The annunciator requires someone at the CDR station to know a fire exists if the siren fails. Telemetry data requires AOS.

12. The Flight Deck RT and LT sensors are parallel redundant to each other and the Cabin sensor is serial redundant to both the RT and LT sensors. The time lag in sensor triggers could be a problem.

RATIONALE: The ECLSS ductwork where the RT, LT and Cabin sensors are located, is such that the other flight deck sensor would not be triggered until the airflow had proceeded to the middeck and back up to the flight deck. By the time the contaminated air reaches the other flight deck sensor, any incipient fire condition could be a well developed fire base, thus producing a possible loss of life condition.

13. The Test and Reset switches were not considered as emergency hardware, i.e., do not need to function during a fire situation.

RATIONALE: The consideration is that once used after lift-off, they could create situations where redundancy was lost and therefore directly affect the emergency system.

14. Loss of fire sensor checkout capabilities was considered a condition for mission termination.

RATIONALE: The fear of a loss of crew as a result of the safety hardware failure.

15. The portable fire-suppression bottles were not considered redundant to the AV Bay bottles during ascent or entry.

RATIONALE: The mission event loads preclude crew motion about the cabin during these mission phases.

16. A ground rule for the SD/FS analysis was that the only failure modes for the portable fire extinguishers were premature operation or inoperative. No component level analysis was performed.

RATIONALE: The details of the portable fire extinguishers were not available at the time the analysis was performed, thus no component analysis was possible.

**APPENDIX C
DETAILED ASSESSMENT**

This section contains the IOA assessment worksheets generated during the assessment of this subsystem. The information on these worksheets facilitates the comparison of the NASA FMEA/CIL (Pre and Post 51-L) to the IOA detailed analysis worksheets included in Appendix E. Each of these worksheets identifies the NASA FMEA being assessed, corresponding MDAC Analysis Worksheet ID (Appendix E), hardware item, criticality, redundancy screens, and recommendations. For each failure mode, the highest assessed hardware and functional criticality is compared and discrepancies noted as "N" in the compare row under the column where the discrepancy occurred.

LEGEND FOR IOA ASSESSMENT WORKSHEETS

Hardware Criticalities:

- 1 = Loss of life or vehicle
- 2 = Loss of mission or next failure of any redundant item (like or unlike) could cause loss of life/vehicle
- 3 = All others

Functional Criticalities:

- 1R = Redundant hardware items (like or unlike) all of which, if failed, could cause loss of life or vehicle
- 2R = Redundant hardware items (like or unlike) all of which, if failed, could cause loss of mission

Redundancy Screens A, B and C:

- P = Passed Screen
- F = Failed Screen
- NA = Not Applicable

NASA Data :

- Baseline = Pre 51-L FMEA/CIL
- New = Proposed Post 51-L FMEA/CIL Changes

CIL Item :

- X = Included in CIL

Compare Row :

- N = Non compare for that column (deviation)

C.1

SUPPLY WATER SUBSYSTEM
ASSESSMENT WORKSHEETS

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1100
 NASA FMEA #: 06-2-1101-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1100
 ITEM: H2 SEPARATOR (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /1R] [P] [P] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

THE CAPABILITY TO REMOVE H2 FROM THE WATER IS LOST, AND THERE IS NO OTHER WAY TO PROVIDE FOR THIS LOSS. THE PRESENCE OF H2 IN THE WATER MAY CAUSE PROBLEMS WITH FES AND DUMP OPERATIONS, AND CREATE CREW ILLNESS. THIS MAY HAVE POTENTIAL MISSION IMPACT SPECIALLY FOR THE EMU/EVA MISSION - RECHARGING THE EMU WATER TANKS WITH THE H2/H2O MIXTURE IS HAZARDOUS AND NOT BE DONE. ALTERNATE WATER LINE PLUS FCP RELIEF LINE ARE AVAILABLE TO EXPEL WATER. LOSS OF ALL REDUNDANCIES WITH THIS FAILURE WILL DEAD-HEAD FUEL CELLS, THUS POTENTIAL LOSS OF LIFE/VEHICLE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1100A
 NASA FMEA #: 06-2-1132-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1100
 ITEM: H2 SEPARATOR (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /1R] [P] [P] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

THE CAPABILITY TO REMOVE H2 FROM THE WATER IS LOST, AND THERE IS NO OTHER WAY TO PROVIDE FOR THIS LOSS. THE PRESENCE OF H2 IN THE WATER MAY CAUSE PROBLEMS WITH FES AND DUMP OPERATIONS, AND CREATE CREW ILLNESS. THIS MAY HAVE POTENTIAL MISSION IMPACT SPECIALLY FOR THE EMU/EVA MISSION - RECHARGING THE EMU WATER TANKS WITH THE H2/H2O MIXTURE IS HAZARDOUS AND NOT BE DONE. ALTERNATE WATER LINE PLUS FCP RELIEF LINE ARE AVAILABLE TO EXPEL WATER. LOSS OF ALL REDUNDANCIES WITH THIS FAILURE WILL DEAD-HEAD FUEL CELLS, THUS POTENTIAL LOSS OF LIFE/VEHICLE. THIS FMEA WAS CONSIDERED SAME AS 06-2-1101-1 FOR THE FAILURE MODE STUDIED, AND MAY THEREFOR BE COMBINED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1101
 NASA FMEA #: 06-2-1101-2

NASA DATA:
 BASELINE [X]
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1101
 ITEM: H2 SEPARATORS (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
 INADEQUATE []

REMARKS:

IOA DOES NOT SEE HOW THE FAILURE OF THIS ITEM WILL HAVE ANY EFFECT ON THE OPERATION OF THE RADIATORS OR AMMONIA BOILER IN ORDER TO LOOSE TOTAL COOLING CAPABILITY. LOSS OF WATER TO REPLENISH THE TANKS, WILL FORCE MISSION TO BE SHORTED (FLIGHT RULE 9-24). SINCE ADDITIONAL WATER WILL NOT BE AVAILABLE FOR ON-ORBIT FES USE AND CREW REQUIREMENT. FUEL CELLS WILL NOT BE DEAD-HEADED SINCE THIS FAILURE WILL ALWAYS RELIEVE THE WATER OUT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1102
 NASA FMEA #: 06-2-1101-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1102
 ITEM: H2 SEPARATORS (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA ASSESSMENT IS BASED ON ASSUMPTION THAT: - WATER WILL FLOW THROUGH TO THE TANKS; - LOSS OF ONE SEPARATOR IS SIGNIFICANT. THE BACKUP SEPARATOR IS NOT ADEQUATE TO REMOVE ALL OF THE HYDROGEN (WORST CASE). THE INABILITY TO REMOVE H2 (WITH WATER FLOWING) WILL HAVE POTENTIAL MISSION IMPACT AS EXPLAINED IN MDAC-1100.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1103
 NASA FMEA #: 06-2-1101-4

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1103
 ITEM: H2 SEPARATORS

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
 INADEQUATE []

REMARKS:

IOA AGREES WITH THE FMEA. LOSS OF CABIN PRESSURE WILL BE DETECTED THRU C&W, AND THE CREW WILL PERFORM NOMINAL PROCEDURE TO ISOLATE AND STOP THE LEAK. IF LEAK PERSISTS, THE MISSION WILL BE SHORTED AND RETURNED. THE VACUUM ISOLATION VALVE POSITION FROM OPEN (5 LB/HR) TO CLOSED (4 LB/HR) WILL HAVE VERY LITTLE IMPACT. POTENTIAL LOSS OF LIFE EXISTS, IF ADEQUATE CONSUMABLE IS NOT AVAILABLE TO MAINTAIN CABIN PRESSURE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1103A
 NASA FMEA #: 06-2-1103-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1103
 ITEM: H2 SEPARATORS

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
 INADEQUATE []

REMARKS:

IOA AGREES WITH THE FMEA. LOSS OF CABIN PRESSURE WILL BE DETECTED THRU C&W, AND THE CREW WILL PERFORM NOMINAL PROCEDURE TO ISOLATE AND STOP THE LEAK. IF LEAK PERSISTS, THE MISSION WILL BE SHORTED AND RETURNED. THE VACUUM ISOLATION VALVE POSITION FROM OPEN (5 LB/HR) TO CLOSED (4 LB/HR) WILL HAVE VERY LITTLE IMPACT. POTENTIAL LOSS OF LIFE EXISTS, IF ADEQUATE CONSUMABLE IS NOT AVAILABLE TO MAINTAIN CABIN PRESSURE. THIS FMEA MAY BE COMBINED WITH THE 06-2-1101-4 FOR THE FAILURE MODE STUDIED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1104
 NASA FMEA #: 06-2-1155-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1104
 ITEM: MICROBIAL FILTER (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

LOSS OF WATER TO REPLENISH TANK A AND SUPPLY GALLEY. LOSS OF MICROBIAL REMOVAL CAPABILITY, HOWEVER THE WATER DISPENSERS HAVE BUILT-IN FILTERS, AND IODINE TABLETS ARE ALSO AVAILABLE. LOSS OF ALL THESE DOES NOT POSE LOSS OF LIFE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1104A
 NASA FMEA #: 06-2-1146-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1104
 ITEM: MICROBIAL FILTER (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

LOSS OF WATER TO REPLENISH TANK A AND SUPPLY GALLEY. LOSS OF MICROBIAL REMOVAL CAPABILITY, HOWEVER THE WATER DISPENSERS HAVE BUILT-IN FILTERS, AND IODINE TABLETS ARE ALSO AVAILABLE. LOSS OF ALL THESE DOES NOT POSE LOSS OF LIFE. THIS FMEA IS COVERED BY INDIVIDUAL COMPONENTS, AND MAY BE DELETED-SEE FMEA 06-2-1146-1, (LS-1104) AND FMEA 06-2-1117-1 (LS-1179).

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1105
 NASA FMEA #: 06-2-1132-2

NASA DATA:
 BASELINE [X]
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1105
 ITEM: MICROBIAL FILTER (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
 INADEQUATE []

REMARKS:
 SEE MDAC-1233. THIS FMEA COVERS SEVERAL ITEMS AS LINES AND FITTINGS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1107
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1107
 ITEM: MICROBIAL FILTER QUICK DISCONNECT

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA WITHDRAWS THIS FAILURE MODE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1109
 NASA FMEA #: 06-2-1106-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1109
 ITEM: TANKS INLET SOLENOID VALVE (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA AGREES WITH THE FMEA, IF LOSS OF FUNCTION IS CONSIDERED TO BE TOTAL LOSS OF ULLAGE TO ACCEPT THE FCP WATER AND NO FCP RELIEF LINE AVAILABLE TO EXPEL THE GENERATED WATER. THE FMEA-1106-1 AND -1106-3 ARE THE SAME AND MAY BE COMBINED. IOA CONSIDERED ALL INLET VALVES IN ONE ANALYSIS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1109B
 NASA FMEA #: 06-2-1106-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1109
 ITEM: TANKS INLET SOLENOID VALVE (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA AGREES WITH THE FMEA, IF LOSS OF FUNCTION IS CONSIDERED TO BE TOTAL LOSS OF ULLAGE TO ACCEPT THE FCP WATER AND NO FCP RELIEF LINE AVAILABLE TO EXPEL THE GENERATED WATER. THE FMEA-1106-1 AND -1106-3 ARE THE SAME AND MAY BE COMBINED. IOA CONSIDERED ALL INLET VALVES IN ONE ANALYSIS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87	NASA DATA:
ASSESSMENT ID: LS-1110	BASELINE []
NASA FMEA #: 06-2-1132-2	NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1110
 ITEM: TANKS INLET ISOLATION VALVE (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /2]	[]	[]	[]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[X]
INADEQUATE	[]

REMARKS:
 SEE MDAC-1233. THIS FMEA COVERS SEVERAL ITEMS AS LINES AND FITTINGS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1111
 NASA FMEA #: 06-2-1107-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1111
 ITEM: TANKS OUTLET ISOLATION VALVE (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

THE FMEA 06-2-1107-2/-3 ARE THE SAME AND MAY BE COMBINED. LOSS OF FUNCTION (INABILITY TO ISOLATE THE TANK) WITH THIS FAILURE WILL HAVE PRESENCE OF N2 GAS INTO THE TANKS. AND, THE TANK CAN STILL BE DRAINED THRU THE NEXT TANKS.
 IOA CONSIDERED ALL VALVES IN ONE ANALYSIS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1111A
 NASA FMEA #: 06-2-1107-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1111
 ITEM: TANKS OUTLET ISOLATION VALVE (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

THE FMEA 06-2-1107-2/-3 ARE THE SAME AND MAY BE COMBINED. LOSS OF FUNCTION (INABILITY TO ISOLATE THE TANK) WITH THIS FAILURE WILL HAVE PRESENCE OF N2 GAS INTO THE TANKS. AND, THE TANK CAN STILL BE DRAINED THRU THE NEXT TANKS.
 IOA CONSIDERED ALL VALVES IN ONE ANALYSIS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1112
 NASA FMEA #: 06-2-1107-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1112
 ITEM: TANKS OUTLET ISOLATION VALVE (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA CONSIDERED ALL OF THE OUTLET VALVES (4) IN ONE ANALYSIS.
 IOA AGREES WITH THE FMEA, WHEN LOSS OF FUNCTION IS CONSIDERED
 TOTAL LOSS OF CAPABILITY TO EXPEL WATER (TANK PLUS FCP RELIEF
 LINE).

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1113
 NASA FMEA #: 06-2-1165-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1113
 ITEM: TANKS OUTLET ISOLATION VALVE (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 SEE MDAC-1235. THIS FMEA COVERS SEVERAL ITEMS AS LINES AND FITTINGS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1114
 NASA FMEA #: 05-6VD-2031-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1114
 ITEM: SWITCH, INLET ISOL VALVE (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1115
 NASA FMEA #: 05-6VD-2031-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1115
 ITEM: SWITCH, INLET ISOL VALVE (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1116
 NASA FMEA #: 05-6VD-2031-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1116
 ITEM: SWITCH, INLET ISOL VALVE (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1117
 NASA FMEA #: 05-6VD-2039-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1117
 ITEM: POSITION INDICATION, ISOL VALVE SWITCH (8)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1117A
 NASA FMEA #: 05-6VD-2039-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1117
 ITEM: POSITION INDICATION, ISOL VALVE SWITCH (8)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1117B
 NASA FMEA #: 05-6VD-2040-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1117
 ITEM: POSITION INDICATION, ISOL VALVE SWITCH (8)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1117C
 NASA FMEA #: 05-6VD-2040-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1117
 ITEM: POSITION INDICATION, ISOL VALVE SWITCH (8)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1119
 NASA FMEA #: 05-6VD-2048-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1119
 ITEM: DIODE, ISOL VALVE SWITCH (8)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

C-2

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1120
 NASA FMEA #: 06-2-1106-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1120
 ITEM: SOLENOID, INLET ISOL VALVE (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [N] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

THE IOA CONSIDERED THIS ITEM SEPARATELY AS PART OF THE EPD&C.
 HOWEVER BASED ON THE ASSESSMENT OF ITS HARDWARE ITEM, THE ABOVE
 RECOMMENDATION IS MADE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1120A
 NASA FMEA #: 06-2-1110-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1120
 ITEM: SOLENOID, INLET ISOL VALVE (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [N] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

THE IOA CONSIDERED THIS ITEM SEPARATELY AS PART OF THE EPD&C.
 HOWEVER BASED ON THE ASSESSMENT OF ITS HARDWARE ITEM, THE ABOVE
 RECOMMENDATION IS MADE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1122
 NASA FMEA #: 06-2-1107-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1122
 ITEM: SOLENOID, OUTLET ISOL VALVE (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

THE IOA CONSIDERED THIS ITEM SEPARATELY AS PART OF THE EPD&C.
 HOWEVER BASED ON THE ASSESSMENT OF ITS HARDWARE ITEM, THE ABOVE
 RECOMMENDATION IS MADE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87	NASA DATA:
ASSESSMENT ID: LS-1122B	BASELINE []
NASA FMEA #: 06-2-1107-2	NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1122
 ITEM: SOLENOID, OUTLET ISOL VALVE (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[P]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

THE IOA CONSIDERED THIS ITEM SEPARATELY AS PART OF THE EPD&C.
 HOWEVER BASED ON THE ASSESSMENT OF ITS HARDWARE ITEM, THE ABOVE
 RECOMMENDATION IS MADE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1123A
 NASA FMEA #: 06-2-1111-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1123
 ITEM: SOLENOID, OUTLET ISOL VALVE (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA AGREES WITH THE FMEA IOA CONSIDERED THIS ITEM SEPARATELY AS PART OF THE EPD&C. HOWEVER, BASED ON THE ASSESSMENT OF ITS HARDWARE ITEM, IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1124
 NASA FMEA #: 05-6VD-2006-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1124
 ITEM: CB, INLET ISOL VALVE (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1125
 NASA FMEA #: 05-6VD-2006-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1125
 ITEM: CB, INLET ISOL VALVE (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1126
 NASA FMEA #: 05-6VD-2007-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1126
 ITEM: CB, OUTLET ISOL VALVE (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1127
 NASA FMEA #: 05-6VD-2007-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1127
 ITEM: CB, OUTLET ISOL VALVE (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1128
 NASA FMEA #: 06-2-1108-4

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1128
 ITEM: TANKS A, B, C AND D (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

LOSS OF FUNCTION (BLADDER AND HYDROPHOBIC FILTER) TO PREVENT WATER TO THE CABIN, WILL BE MISSION LOSS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1129
 NASA FMEA #: 06-2-1108-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1129
 ITEM: TANKS A, B, C AND D (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA IS IN AGREEMENT WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1130
 NASA FMEA #: 06-2-1108-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1130
 ITEM: TANKS A, B, C AND D (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA AGREES WITH THE FMEA, IF NO WATER CAN BE EXPELLED INCLUDING THRU FCP RELIEF LINE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1131
 NASA FMEA #: 06-2-1109-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1131
 ITEM: SENSOR, TANKS QUANTITY (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA IS IN AGREEMENT WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1132
 NASA FMEA #: 06-2-1124-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1132
 ITEM: FILTER, GN2-TANKS INLET (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA AGREES WITH THE FMEA, IF FUNCTIONAL LOSS (INABILITY TO EXPEL WATER) IS CONSIDERED INCLUDING FCP RELIEF LINE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1133
 NASA FMEA #: 06-2-1124-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1133
 ITEM: FILTER, GN2-TANKS INLET (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[F]	[F]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
 INADEQUATE []

REMARKS:

IOA AGREES WITH NASA (IOA DID NOT CONSIDER THE TANK BLADDER TO BE REDUNDANT TO THE FILTER), BUT FEELS THAT THE SCREEN B SHOULD BE "NA". THE HYDROPHOBIC CHARACTER OF THE FILTER IS IN STANDBY UNTIL THE BLADDER RUPTURE OCCURS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1134
 NASA FMEA #: 06-2-1122-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1134
 ITEM: SENSOR, PRESSURE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

LOSS OF SENSOR CAN BE COMPENSATED FOR BY QUANTITY SENSORS IN THE TANK. LOSS OF WATER INSTRUMENTATION MAY BE, AT VERY WORST, MISSION IMPACT. SEE QUANTITY SENSORS, 06-2-1109-1 (LS-1131).

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1135
 NASA FMEA #: 06-2-1123-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1135
 ITEM: RELIEF VALVE, 1.5 PSID (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

LOSS OF LIKE AND UNLIKE REDUNDANCIES (FCP WATER LINES) WITH THIS FAILURE WILL STILL PROVIDE TANK A ULLAGE TO MANAGE THE WATER. MISSION TERMINATION IS EMINENT, RETURN ON TANKS C AND D, OR JUST TANK A. ALTERNATE FCP LINE WILL NOT PROVIDE HYDROGEN REMOVAL. IOA CONSIDERED BOTH RELIEF VALVES IN ONE ANALYSIS-SEE FMEA 06-2-1141 (LS-1135A).

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1135A
 NASA FMEA #: 06-2-1141-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1135
 ITEM: RELIEF VALVE, 1.5 PSID (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

LOSS OF LIKE AND UNLIKE REDUNDANCIES (FCP WATER LINES) WITH THIS FAILURE WILL STILL PROVIDE TANK A ULLAGE TO MANAGE THE WATER. MISSION TERMINATION IS EMINENT, RETURN ON TANKS C AND D, OR JUST TANK A. ALTERNATE FCP LINE WILL NOT PROVIDE HYDROGEN REMOVAL. IOA CONSIDERED BOTH RELIEF VALVES IN ONE ANALYSIS-SEE FMEA 06-2-1123-1 (LS-1135).

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1135B
 NASA FMEA #: 06-2-1156-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1135
 ITEM: RELIEF VALVE, 1.5 PSID (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

LOSS OF LIKE AND UNLIKE REDUNDANCIES (FCP WATER LINES) WITH THIS FAILURE WILL STILL PROVIDE TANK A ULLAGE TO MANAGE THE WATER. MISSION TERMINATION IS EMINENT, RETURN ON TANKS C AND D, OR JUST TANK A. ALTERNATE FCP LINE WILL NOT PROVIDE HYDROGEN REMOVAL. THE FMEA COVERS SEVERAL ITEMS AS ONE LINES & FITTINGS ANALYSIS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1138
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1138
 ITEM: QD, GSE FILL/DRAIN (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

APPLICABLE DURING PRELAUNCH/POSTLANDING ONLY. FMEA DID NOT
 CONSIDER THIS FAILURE MODE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1139
 NASA FMEA #: 06-2-1130-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1139
 ITEM: QD, GSE FILL/DRAIN (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA AGREES WITH THE FMEA. HOWEVER THESE FMEAs MAY BE COMBINED
 AS: 1) 06-2-1130-1 AND 06-2-1162-1 FILL LINE, 2) 06-2-1131-1 AND
 06-2-1164-1 DRAIN LINE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1139A
 NASA FMEA #: 06-2-1131-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1139
 ITEM: QD, GSE FILL/DRAIN (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA AGREES WITH THE FMEA. HOWEVER THESE FMEAs MAY BE COMBINED
 AS: 1) 06-2-1130-1 AND 06-2-1162-1 FILL LINE, 2) 06-2-1131-1 AND
 06-2-1164-1 DRAIN LINE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1139B
 NASA FMEA #: 06-2-1162-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1139
 ITEM: QD, GSE FILL/DRAIN (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA AGREES WITH THE FMEA. HOWEVER THESE FMEAs MAY BE COMBINED
 AS: 1) 06-2-1130-1 AND 06-2-1162-1 FILL LINE, 2) 06-2-1131-1 AND
 06-2-1164-1 DRAIN LINE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1139C
 NASA FMEA #: 06-2-1164-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1139
 ITEM: QD, GSE FILL/DRAIN (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA AGREES WITH THE FMEA. HOWEVER THESE FMEAs MAY BE COMBINED
 AS: 1) 06-2-1130-1 AND 06-2-1162-1 FILL LINE, 2) 06-2-1131-1 AND
 06-2-1164-1 DRAIN LINE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1140
 NASA FMEA #: 06-2-1130-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1140
 ITEM: QD, GSE FILL/DRAIN (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[F]	[F]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [F] [F] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA CONSIDERED LOSS OF REDUNDANCIES TO BE LOSS OF FIRST O-RING (QD) AND SECOND O-RING (CAP) WITH NO OTHER REDUNDANCIES. THE MOST SEVERE EFFECT OF THIS FUNCTIONAL LOSS IS TO LOOSE CAPABILITY TO REPLENISH THE SUPPLY TANKS FOR CONTINUOUS FES USAGE. OPERATIONALLY, TANKS C AND D ARE ISOLATED FOR CONTINGENCY PURPOSES OR UNTIL NOMINAL DEORBIT. THEREFORE, FES IS ONLY PARTIALLY LOST DURING ON-ORBIT WHICH MAY HAVE IMPACT ON THE MISSION (P/L REQUIREMENT, MISSION REQUIREMENT). FAILURE OF THE RADIATOR OR ABS ARE NON-REDUNDANT ITEMS AND UNASSOCIATED WITH THE QD/CAP UNDER ANALYSIS. IOA CONSIDERED QD & CAP SEPARATELY, BUT AGREES TO STUDY THEM AS ONE UNIT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1140A
 NASA FMEA #: 06-2-1131-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1140
 ITEM: QD, GSE FILL/DRAIN (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[F]	[F]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [F] [F] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA CONSIDERED LOSS OF REDUNDANCIES TO BE LOSS OF FIRST O-RING (QD) AND SECOND O-RING (CAP) WITH NO OTHER REDUNDANCIES. THE MOST SEVERE EFFECT OF THIS FUNCTIONAL LOSS IS TO LOOSE CAPABILITY TO REPLENISH THE SUPPLY TANKS FOR CONTINUOUS FES USAGE. OPERATIONALLY, TANKS C AND D ARE ISOLATED FOR CONTINGENCY PURPOSES OR UNTIL NOMINAL DEORBIT. THEREFORE, FES IS ONLY PARTIALLY LOST DURING ON-ORBIT WHICH MAY HAVE IMPACT ON THE MISSION (P/L REQUIREMENT, MISSION REQUIREMENT). FAILURE OF THE RADIATOR OR ABS ARE NON-REDUNDANT ITEMS AND UNASSOCIATED WITH THE QD/CAP UNDER ANALYSIS. IOA CONSIDERED QD & CAP SEPARATELY, BUT AGREES TO STUDY THEM AS ONE UNIT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1141
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1141
 ITEM: QD, GSE FILL/DRAIN (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[N / N]	[]	[]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA WITHDRAWS THIS. IT IS ALREADY COVERED BY LS-1233 AND -1235.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
ASSESSMENT ID: LS-1142
NASA FMEA #: 06-2-1130-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 1142
ITEM: QD, GSE FILL/DRAIN (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[F]	[F]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [F] [F] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE []

REMARKS:

IOA CONSIDERED LOSS OF REDUNDANCIES TO BE LOSS OF FIRST O-RING (QD) AND SECOND O-RING (CAP) WITH NO OTHER REDUNDANCIES. THE MOST SEVERE EFFECT OF THIS FUNCTIONAL LOSS IS TO LOOSE CAPABILITY TO REPLENISH THE SUPPLY TANKS FOR CONTINUOUS FES USAGE. OPERATIONALLY, TANKS C AND D ARE ISOLATED FOR CONTINGENCY PURPOSES OR UNTIL NOMINAL DEORBIT. THEREFORE, FES IS ONLY PARTIALLY LOST DURING ON-ORBIT WHICH MAY HAVE IMPACT ON THE MISSION (P/L REQUIREMENT, MISSION REQUIREMENT). FAILURE OF THE RADIATOR OR ABS ARE NON-REDUNDANT ITEMS AND UNASSOCIATED WITH THE QD/CAP UNDER ANALYSIS. IOA STUDIED FILL AND DRAIN TOGETHER WITH QD & CAP ANALYZED SEPARATELY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1142A
 NASA FMEA #: 06-2-1131-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1142
 ITEM: QD, GSE FILL/DRAIN (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[F]	[F]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [F] [F] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
 INADEQUATE []

REMARKS:

IOA CONSIDERED LOSS OF REDUNDANCIES TO BE LOSS OF FIRST O-RING (QD) AND SECOND O-RING (CAP) WITH NO OTHER REDUNDANCIES. THE MOST SEVERE EFFECT OF THIS FUNCTIONAL LOSS IS TO LOOSE CAPABILITY TO REPLENISH THE SUPPLY TANKS FOR CONTINUOUS FES USAGE. OPERATIONALLY, TANKS C AND D ARE ISOLATED FOR CONTINGENCY PURPOSES OR UNTIL NOMINAL DEORBIT. THEREFORE, FES IS ONLY PARTIALLY LOST DURING ON-ORBIT WHICH MAY HAVE IMPACT ON THE MISSION (P/L REQUIREMENT, MISSION REQUIREMENT). FAILURE OF THE RADIATOR OR ABS ARE NON-REDUNDANT ITEMS AND UNASSOCIATED WITH THE QD/CAP UNDER ANALYSIS. IOA STUDIED FILL AND DRAIN TOGETHER WITH QD & CAP ANALYZED SEPARATELY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1143
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1143
 ITEM: CAP, GSE QD (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

APPLICABLE DURING PRELAUNCH AND POSTLANDING ONLY. FMEA DID NOT COVER THIS FAILURE MODE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1144A
 NASA FMEA #: 06-2-1131-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1144
 ITEM: CAP, GSE QD (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[F]	[F]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [F] [F] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA CONSIDERED LOSS OF REDUNDANCIES TO BE LOSS OF FIRST O-RING (QD) AND SECOND O-RING (CAP) WITH NO OTHER REDUNDANCIES. THE MOST SEVERE EFFECT OF THIS FUNCTIONAL LOSS IS TO LOOSE CAPABILITY TO REPLENISH THE SUPPLY TANKS FOR CONTINUOUS FES USAGE. OPERATIONALLY, TANKS C AND D ARE ISOLATED FOR CONTINGENCY PURPOSES OR UNTIL NOMINAL DEORBIT. THEREFORE, FES IS ONLY PARTIALLY LOST DURING ON-ORBIT WHICH MAY HAVE IMPACT ON THE MISSION (P/L REQUIREMENT, MISSION REQUIREMENT). FAILURE OF THE RADIATOR OR ABS ARE NON-REDUNDANT ITEMS AND UNASSOCIATED WITH THE QD/CAP UNDER ANALYSIS.
 IOA COVERED QD AND CAP SEPARATELY-SEE LS 1140A.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87	NASA DATA:
ASSESSMENT ID: LS-1145	BASELINE []
NASA FMEA #: 06-2-1158-2	NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1145
 ITEM: TANK A PRESSURE CONTROL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA AGREES WITH THE FMEA, IF ANOTHER WAY IS UNAVAILABLE TO ADEQUATELY SUPPLY CREW REQUIREMENT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87	NASA DATA:
ASSESSMENT ID: LS-1146	BASELINE []
NASA FMEA #: 06-2-1158-1	NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1146
 ITEM: TANK A PRESSURE CONTROL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R]	[P]	[P]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

DURING ASCENT (PRE-MECO), THE WATER FROM TANK A MAY BACK FLOW AND CHECK AGAINST THE FCP C. VALVES WITH 3Gs ACTING ON THE LINES (SAME SCENARIO AS 06-2-1123-2, MDAC-1136). FCP RELIEF VALVE MAY BE FORCED OPEN AND RELIEF THE WATER OVERBOARD. WITH SUBSEQUENT FAILURE OF THIS VALVE, THE FCP WILL BE DEAD-HEADED IN VERY SHORT TIME.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1147
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1147
 ITEM: TANK A PRESSURE CONTROL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[N / N]	[]	[]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA WITHDRAWS THIS ANALYSIS-IT IS ALREADY COVERED BY LS-1145.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87	NASA DATA:
ASSESSMENT ID: LS-1148	BASELINE []
NASA FMEA #: 06-2-1158-3	NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1148
 ITEM: TANK A PRESSURE CONTROL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[P]	[P]	[]	
				(ADD/DELETE)	

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

LOSS OF N2 PRESSURIZATION WITH THE BLADDERS EXPOSED TO THE CABIN PRESSURE. NO ADDITIONAL FAILURE IN THE SWS WILL NEGATE THE TANKS PRESSURIZATION BY THE CABIN ATMOSPHERE, UNLESS THE CABIN ATMOSPHERE IS LOST. THIS IS NOT REALISTIC WHEN APPLIED TO THE SWS. LOSS OF BLADDER WILL RESULT IN FLOW OF WATER INTO CABIN - MISSION LOSS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1149
 NASA FMEA #: 06-2-1157-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1149
 ITEM: TANK A VENT VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

CONTINUOUS FLOW OF N2 INTO CABIN UNLESS TANK A PRESSURE VALVE IS CLOSED, THUS LOSS OF PRIMARY PRESSURIZATION SYSTEM. CABIN IS AVAILABLE AS BACK-UP. WITH THE SUBSEQUENT FAILURE OF THE PRESSURE VALVE, THE N2 WILL CONTINUOUSLY FLOW INTO CABIN UNLESS THE REGULATOR INLET VALVE IS CLOSED THUS LOSS OF PRIMARY N2 SYSTEM TO PRESSURIZE ALL TANKS. ALL WATER MANAGEMENT FUNCTIONS ARE STILL AVAILABLE. WATER FLOW TO GALLEY DIMINISHED BADLY AND MAY IMPACT MISSION IF NOT ADEQUATE. ALSO, OPERATIONALLY FLOW OF N2 INTO THE CABIN WILL NEGATE AUTOMATIC O2/N2 CONTROL.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1150
 NASA FMEA #: 06-2-1157-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1150
 ITEM: TANK A VENT VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

LOSS OF CAPABILITY TO VENT TANK A TO CABIN. THIS IS DONE
 PRELAUNCH FOR ASCENT OPERATION. THE UPSTREAM VENT VALVE
 (DOWNSTREAM OF 18 PSIG REG) IS AVAILABLE TO PROVIDE FOR THE LOSS.
 SUBSEQUENT LOSS OF THIS VALVE, WILL PREVENT MOVEMENT OF TANKS
 BLADDER FOR FILLING AND DUMPING UNLESS THE TANKS ARE CONFIGURED
 TO CABIN PRESSURE. FLOW OF WATER FOR GALLEY WILL BE VERY SLOW,
 AND IF NOT ADEQUATE IT MAY HAVE POTENTIAL MISSION IMPACT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
ASSESSMENT ID: LS-1151
NASA FMEA #: 06-2-1157-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 1151
ITEM: TANK A VENT VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

CONTINUOUS FLOW OF N2 INTO CABIN UNLESS TANK A PRESSURE VALVE IS CLOSED, THUS LOSS OF PRIMARY PRESSURIZATION SYSTEM. CABIN IS AVAILABLE AS BACK-UP. WITH THE SUBSEQUENT FAILURE OF THE PRESSURE VALVE, THE N2 WILL CONTINUOUSLY FLOW INTO CABIN UNLESS THE REGULATOR INLET VALVE IS CLOSED THUS LOSS OF PRIMARY N2 SYSTEM TO PRESSURIZE ALL TANKS. ALL WATER MANAGEMENT FUNCTIONS ARE STILL AVAILABLE. WATER FLOW TO GALLEY DIMINISHED BADLY AND MAY IMPACT MISSION IF NOT ADEQUATE. ALSO, OPERATIONALLY FLOW OF N2 INTO THE CABIN WILL NEGATE AUTOMATIC O2/N2 CONTROL.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1152
 NASA FMEA #: 06-2-1139-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1152
 ITEM: CROSSOVER VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

LOSS OF CAPABILITY TO DRAW WATER FROM FOUR TANKS AT ONCE.
 OPERATION OF DUMP AND FES AND WATER MANAGEMENT IS STILL
 MAINTAINED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1152A
 NASA FMEA #: 06-2-1165-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1152
 ITEM: CROSSOVER VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

LOSS OF CAPABILITY TO DRAW WATER FROM FOUR TANKS AT ONCE.
 OPERATION OF DUMP AND FES AND WATER MANAGEMENT IS STILL
 MAINTAINED. THIS FAILURE MODE WAS ALSO COVERED BY THE FMEA 06-2-
 1139-1 (LS-1152).

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1153
 NASA FMEA #: 06-2-1139-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1153
 ITEM: CROSSOVER VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

LOSS OF CAPABILITY TO ISOLATE THE TANKS A/B FROM TANKS C/D UNDER A SUBSEQUENT LEAKAGE OF THE LINE (SEE ALSO 06-2-1165-2, MDAC-1235) RESULTING IN CONTINUOUS FLOW OF WATER INTO CABIN. LOSS OF FES OPERATION (NO WATER) AND PRESENCE OF WATER IN THE CABIN IS MISSION LOSS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1154
 NASA FMEA #: 06-2-1165-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1154
 ITEM: CROSSOVER VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

SEE MDAC-1235 FOR REMARKS. THE FMEA CONSIDERED SEVERAL ITEMS IN ONE LINES AND FITTINGS ANALYSIS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87	NASA DATA:
ASSESSMENT ID: LS-1155	BASELINE []
NASA FMEA #: 06-2-1139-2	NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1155
 ITEM: SOLENOID, XOVR VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[P]	[P]	[] (ADD/DELETE)
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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

THE IOA CONSIDERED THIS ITEM SEPARATELY AS PART OF THE EPD&C.
 HOWEVER, BASED ON THE ASSESSMENT OF ITS HARDWARE ITEM, THE ABOVE
 RECOMMENDATION IS MADE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1156
 NASA FMEA #: 06-2-1139-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1156
 ITEM: SOLENOID, XOVR VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

THE IOA CONSIDERED THIS ITEM SEPARATELY AS PART OF THE EPD&C.
 HOWEVER, BASED ON THE ASSESSMENT OF ITS HARDWARE ITEM, THE ABOVE
 RECOMMENDATION IS MADE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1157
 NASA FMEA #: 05-6VD-2027-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1157
 ITEM: SWITCH, XOVR VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1157A
 NASA FMEA #: 05-6VD-2027-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1157
 ITEM: SWITCH, XOVR VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1158
 NASA FMEA #: 05-6VD-2027-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1158
 ITEM: SWITCH, XOVR VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1159
 NASA FMEA #: 05-6VD-2027-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1159
 ITEM: SWITCH, XOVR VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1161
 NASA FMEA #: 05-6VD-2048-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1161
 ITEM: DIODE, XOVR VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1162
 NASA FMEA #: 05-6VD-2044-1

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1162
 ITEM: RESISTOR, XOVR VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1163
 NASA FMEA #: 05-6VD-2002-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1163
 ITEM: CB, XOVR VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1164
 NASA FMEA #: 05-6VD-2002-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1164
 ITEM: CB, XOVR VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1165
 NASA FMEA #: 06-2-1140-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1165
 ITEM: ISOL VALVE, FES B LINE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA AGREES WITH THE FMEA, IF LOSS OF FUNCTION IS DUMPING
 CAPABILITY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1165A
 NASA FMEA #: 06-2-1165-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1165
 ITEM: ISOL VALVE, FES B LINE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA AGREES WITH THE FMEA, IF LOSS OF FUNCTION IS DUMPING CAPABILITY. THIS FAILURE MODE IS ALREADY COVERED BY THE FMEA 06-2-1140-1 (LS-1165).

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1166
 NASA FMEA #: 06-2-1140-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1166
 ITEM: ISOL VALVE, FES B LINE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

VALVE IS NOMINALLY OPEN, AND NO EFFECT. LOSS OF ALL LIKE AND UNLIKE REDUNDANCIES (FESA, DUMP, X-TIE, FCP RELIEF) WITH THIS FAILURE HAS NO EFFECT SINCE WATER DUMP CAN BE STILL MAINTAINED - A/L SUPPORT MAY BE LOST.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE:	12/28/87	NASA DATA:	
ASSESSMENT ID:	LS-1167	BASELINE	[]
NASA FMEA #:	06-2-1165-2	NEW	[X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 1167
ITEM: ISOL VALVE, FES B LINE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2]	[]	[]	[]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

SEE MDAC-1235 FOR REMARKS. THE FMEA COVERED SEVERAL ITEMS INTO ONE ANALYSIS FOR LINES AND FITTINGS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1168
 NASA FMEA #: 06-2-1140-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1168
 ITEM: SOLENOID, FES ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

THE IOA CONSIDERED THIS ITEM SEPARATELY AS PART OF THE EPD&C.
 HOWEVER, BASED ON THE ASSESSMENT OF ITS HARDWARE ITEM, IOA AGREES
 WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1169
 NASA FMEA #: 06-2-1140-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1169
 ITEM: SOLENOID, FES ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [N] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

THE IOA CONSIDERED THIS ITEM SEPARATELY AS PART OF THE EPD&C.
 HOWEVER, BASED ON THE ASSESSMENT OF ITS HARDWARE ITEM, THE ABOVE
 RECOMMENDATION IS MADE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1170
 NASA FMEA #: 05-6VD-2026-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1170
 ITEM: SWITCH, FES ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1170A
 NASA FMEA #: 05-6VD-2026-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1170
 ITEM: SWITCH, FES ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1171
 NASA FMEA #: 05-6VD-2026-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1171
 ITEM: SWITCH, FES ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1172
 NASA FMEA #: 05-6VD-2026-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1172
 ITEM: SWITCH, FES ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1173
 NASA FMEA #: 05-6VD-2001-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1173
 ITEM: CB, FES ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1174
 NASA FMEA #: 05-6VD-2001-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1174
 ITEM: CB, FES ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1175
 NASA FMEA #: 05-6VD-2036-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1175
 ITEM: POSITION INDICATION, FES ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1175A
 NASA FMEA #: 05-6VD-2036-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1175
 ITEM: POSITION INDICATION, FES ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1176
 NASA FMEA #: 05-6VD-2044-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1176
 ITEM: RESISTOR, FES ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1177
 NASA FMEA #: 05-6VD-2048-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1177
 ITEM: DIODE, FES ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1178
 NASA FMEA #: 06-2-1117-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1178
 ITEM: SUPPLY VALVE, GALLEY (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [N] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

LOSS OF FUNCTION (INABILITY TO ISOLATE THE LINE) WILL RESULT IN CONTINUOUS FLOW OF WATER TO THE CABIN - LOSS OF MISSION. THIS FMEA WITH 1R FUNCTIONAL CRIT SEEMS TO BE INCONSISTENT WITH THE 06-2-1117-1 2R CRIT. IN THE FIRST FMEA, THE FUNCTION OF THE GALLEY IS MAINTAINED, WHEREAS THE SECOND FMEA THE GALLEY IS LOST.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1179
 NASA FMEA #: 06-2-1117-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1179
 ITEM: SUPPLY VALVE, GALLEY (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IF NO OTHER MEANS EXIST TO SUPPLY WATER TO THE GALLEY, THEN THE 2/2 STANDS, OTHERWISE IOA IS IN AGREEMENT WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1179A
 NASA FMEA #: 06-2-1163-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1179
 ITEM: SUPPLY VALVE, GALLEY (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IF NO OTHER MEANS EXIST TO SUPPLY WATER TO THE GALLEY, THEN THE 2/2 STANDS, OTHERWISE IOA IS AGREEMENT WITH THE FMEA. THIS FMEA IS FOR LINES AND FITTINGS WHICH IS COVERED UNDER INDIVIDUAL ITEMS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1179B
 NASA FMEA #: 06-2-1155-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1179
 ITEM: SUPPLY VALVE, GALLEY (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IF NO OTHER MEANS EXIST TO SUPPLY WATER TO THE GALLEY, THEN THE 2/2 STANDS, OTHERWISE IOA IS AGREEMENT WITH THE FMEA. THIS FAILURE MODE IS ALREADY COVERED BY THE FMEA 06-2-1163-1 (LS-1179).

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1180
 NASA FMEA #: 06-2-1163-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1180
 ITEM: SUPPLY VALVE, GALLEY (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

FMEA COVERED AS PART OF THE LINES/FITTINGS ANALYSIS. IF NO OTHER MEANS EXIST TO SUPPLY WATER TO THE GALLEY, THEN THE 2/2 STANDS, OTHERWISE IOA IS IN AGREEMENT WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1181
 NASA FMEA #: 06-2-1117-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1181
 ITEM: SOLENOID, GALLEY VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [N] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

THE IOA CONSIDERED THIS ITEM SEPARATELY AS PART OF THE EPD&C.
 HOWEVER, BASED ON THE ASSESSMENT OF ITS HARDWARE ITEM, THE ABOVE
 RECOMMENDATION IS MADE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1182
 NASA FMEA #: 06-2-1117-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1182
 ITEM: SOLENOID, GALLEY VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

THE IOA CONSIDERED THIS ITEM SEPARATELY AS PART OF THE EPD&C.
 HOWEVER, BASED ON THE ASSESSMENT OF ITS HARDWARE ITEM, IOA AGREES
 WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1183
 NASA FMEA #: 05-6VD-2033-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1183
 ITEM: SWITCH, GALLEY VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
ASSESSMENT ID: LS-1183A
NASA FMEA #: 05-6VD-2033-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 1183
ITEM: SWITCH, GALLEY VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1184
 NASA FMEA #: 05-6VD-2033-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1184
 ITEM: SWITCH, GALLEY VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1185
 NASA FMEA #: 05-6VD-2033-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1185
 ITEM: SWITCH, GALLEY VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
ASSESSMENT ID: LS-1186
NASA FMEA #: 05-6VD-2042-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 1186
ITEM: POSITION INDICATION, GALLEY VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1186A
 NASA FMEA #: 05-6VD-2042-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1186
 ITEM: POSITION INDICATION, GALLEY VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1187
 NASA FMEA #: 05-6VD-2048-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1187
 ITEM: DIODE, GALLEY VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1188
 NASA FMEA #: 05-6VD-2044-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1188
 ITEM: RESISTOR, GALLEY VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1189
 NASA FMEA #: 05-6VD-2005-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1189
 ITEM: CIRCUIT BREAKER, GALLEY VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1190
 NASA FMEA #: 05-6VD-2005-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1190
 ITEM: CIRCUIT BREAKER, GALLEY VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1191
 NASA FMEA #: 06-2-1115-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1191
 ITEM: DUMP ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[F]	[]
COMPARE	[/N]	[]	[]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA IS IN AGREEMENT WITH THE FMEA. FCP RELIEF VALVE/LINE IS ALSO AVAILABLE TO EXPEL WATER.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1191A
 NASA FMEA #: 06-2-1161-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1191
 ITEM: DUMP ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[F]	[]
COMPARE	[/N]	[]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA IS IN AGREEMENT WITH THE FMEA. FCP RELIEF VALVE/LINE IS ALSO AVAILABLE TO EXPEL WATER. THIS ITEM IS ALSO COVERED BY THE FMEA 06-2-1165-1 (LS-1191B).

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1191B
 NASA FMEA #: 06-2-1165-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1191
 ITEM: DUMP ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[F]	[]
COMPARE	[/N]	[]	[]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA IS IN AGREEMENT WITH THE FMEA. FCP RELIEF VALVE/LINE IS ALSO AVAILABLE TO EXPEL WATER. THIS FMEA IS SAME AS THE 06-2-1161-1 FOR THIS ITEM AND FAILURE MODE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1192
 NASA FMEA #: 06-2-1115-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1192
 ITEM: DUMP ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

THERE IS NO SIGNIFICANT EFFECT, EXCEPT FOR WANTING TO ISOLATE THE LINE DOWNSTREAM DUE TO LEAKAGE FOR EXAMPLE. LOSS OF FUNCTION (INABILITY TO ISOLATE THE LINE UNDER LEAKAGE) WILL RESULT IN LOSS OF WATER FROM TANK B (TANK A AND X-OVER VALVES ARE OPERATIONALLY CLOSED). PRESENCE OF WATER AND/OR AVAILABILITY OF TWO TANKS ONLY ARE CONSIDERED MISSION LOSS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1193
 NASA FMEA #: 06-2-1165-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1193
 ITEM: DUMP ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /1R]	[P]	[P]	[F]	[X]
COMPARE	[N /]	[]	[]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

CONTINUOUS FLOW OF WATER INTO THE CREW MODULE OR OUTSIDE TO THE MIDBODY UNLESS THE LEAK IS STOPPED BY SHUTTING OFF THE TANKS A AND B OUTLET VALVES AND X-OVER VALVE. IN THIS CASE, THE USE OF A/L SUPPORT (EVA MISSION) AND TWO TANKS ARE LOST FROM THE WATER MANAGEMENT - MISSION IMPACT. NO REDUNDANCY EXISTS TO COMPENSATE FOR THE LOSS. ALSO, LOSS OF LIKE AND UNLIKE REDUNDANCIES (FESB, FCP RELIEF) WITH THIS FAILURE RESULTS IN CONTINUOUS FLOW OF WATER INTO CABIN - FCP OPERATING. THIS FMEA INCLUDES SEVERAL ITEMS INTO ONE ANALYSIS FOR LINES AND FITTINGS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87	NASA DATA:
ASSESSMENT ID: LS-1194	BASELINE []
NASA FMEA #: 06-2-1115-2	NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 1194
ITEM: SOLENOID, DUMP ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
		NASA [3 /1R]	[P]	[N]	
IOA [3 /3]	[]	[]	[]	[]	
COMPARE [/N]	[N]	[N]	[N]	[]	

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[NA]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

THE IOA CONSIDERED THIS ITEM SEPARATELY AS PART OF THE EPD&C.
HOWEVER, BASED ON THE ASSESSMENT OF ITS HARDWARE ITEM, THE ABOVE
RECOMMENDATION IS MADE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1195
 NASA FMEA #: 06-2-1115-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1195
 ITEM: SOLENOID, DUMP ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

THE IOA CONSIDERED THIS ITEM SEPARATELY AS PART OF THE EPD&C.
 HOWEVER, BASED ON THE ASSESSMENT OF ITS HARDWARE ITEM, IOA AGREES
 WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1196
 NASA FMEA #: 05-6VD-2030-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1196
 ITEM: SWITCH, DUMP ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1196A
 NASA FMEA #: 05-6VD-2030-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1196
 ITEM: SWITCH, DUMP ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1197
 NASA FMEA #: 05-6VD-2030-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1197
 ITEM: SWITCH, DUMP ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1198
 NASA FMEA #: 05-6VD-2030-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1198
 ITEM: SWITCH, DUMP ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
ASSESSMENT ID: LS-1199
NASA FMEA #: 05-6VD-2041-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 1199
ITEM: POSITION INDICATION, DUMP ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1199A
 NASA FMEA #: 05-6VD-2041-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1199
 ITEM: POSITION INDICATION, DUMP ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1200
 NASA FMEA #: 05-6VD-2048-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1200
 ITEM: DIODE, DUMP ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1201
 NASA FMEA #: 05-6VD-2044-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1201
 ITEM: RESISTOR, DUMP ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1202
 NASA FMEA #: 05-6VD-2008-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1202
 ITEM: CB, DUMP ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1203
 NASA FMEA #: 05-6VD-2008-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1203
 ITEM: CB, DUMP ISOL VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1204
 NASA FMEA #: 06-2-1133-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1204
 ITEM: DUMP VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[F]	[]
COMPARE	[/N]	[]	[]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1204A
 NASA FMEA #: 06-2-1161-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1204
 ITEM: DUMP VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[F]	[]
COMPARE	[/N]	[]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA AGREES WITH THE FMEA. THIS FMEA INCLUDES SEVERAL ITEMS INTO ONE ANALYSIS FOR LINES AND FITTINGS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1205
 NASA FMEA #: 06-2-1133-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1205
 ITEM: DUMP VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[F]	[X]
COMPARE	[/N]	[]	[]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

LOSS OF LIKE AND UNLIKE REDUNDANCIES WITH THIS FAILURE IS MISSION LOSS SINCE THE DUMP CAPABILITY CAN STILL BE ACCOMPLISHED. SUBSEQUENT FAILURE OF THE DUMP ISOL VALVE WILL FORCE ISOLATING TANKS A& B, THEREBY LOSS OF A/L SUPPORT, FES A, X-TIE, AND PRIMARY DUMP LINE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1206
 NASA FMEA #: 06-2-1161-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1206
 ITEM: DUMP VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[F]	[X]
COMPARE	[/N]	[]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

LOSS OF LIKE AND UNLIKE REDUNDANCIES (FES, FCP LINE) WITH THIS FAILURE WILL RESULT IN CONTINUOUS FLOW OF WATER INTO THE CABIN. THIS FMEA INCLUDES SEVERAL ITEMS INTO ONE ANALYSIS FOR LINES AND FITTINGS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1208
 NASA FMEA #: 06-2-1133-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1208
 ITEM: SOLENOID, DUMP VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

THE IOA CONSIDERED THIS ITEM SEPARATELY AS PART OF THE EPD&C.
 HOWEVER, BASED ON THE ASSESSMENT OF ITS HARDWARE ITEM, THE ABOVE
 RECOMMENDATION IS MADE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1209
 NASA FMEA #: 05-6VD-2028-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1209
 ITEM: SWITCH, DUMP VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1210
 NASA FMEA #: 05-6VD-2028-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1210
 ITEM: SWITCH, DUMP VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[2 /1R]	[P]	[F]	[P]	[X]
COMPARE	[N /]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1211
 NASA FMEA #: 05-6VD-2028-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1211
 ITEM: SWITCH, DUMP VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1212
 NASA FMEA #: 05-6VD-2029-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1212
 ITEM: SWITCH, DUMP NOZZLE HEATER (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1213
 NASA FMEA #: 05-6VD-2029-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1213
 ITEM: SWITCH, DUMP NOZZLE HEATER (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA - EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1214
 NASA FMEA #: 05-6VD-2029-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1214
 ITEM: SWITCH, DUMP NOZZLE HEATER (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1215
 NASA FMEA #: 05-6VD-2004-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1215
 ITEM: CIRCUIT BREAKER, DUMP VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1216
 NASA FMEA #: 05-6VD-2004-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1216
 ITEM: CIRCUIT BREAKER, DUMP VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1217
 NASA FMEA #: 05-6VD-2038-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1217
 ITEM: POSITION INDICATION, DUMP VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1217A
 NASA FMEA #: 05-6VD-2038-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1217
 ITEM: POSITION INDICATION, DUMP VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1218
 NASA FMEA #: 05-6VD-2044-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1218
 ITEM: RESISTOR, DUMP VALVE (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1219
 NASA FMEA #: 05-6VD-2048-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1219
 ITEM: DIODE, DUMP VALVE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1220
 NASA FMEA #: 06-2-1118-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1220
 ITEM: SENSOR, NOZZLE TEMPERATURE (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 2R]	[P]	[P]	[P]	[]
COMPARE	[/ N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA AGREES WITH THE FMEA. HOWEVER, MISSION TIMELINE COULD BE SIGNIFICANTLY IMPACTED WHEN A DUMP IS ATTEMPTED WITHOUT SENSORS (OR ERRONEOUS READING) AND FREEZING OCCURS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1221
 NASA FMEA #: 06-2-1120-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1221
 ITEM: NOZZLE HEATER (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1222
 NASA FMEA #: 06-2-1120-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1222
 ITEM: NOZZLE HEATER (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1223
 NASA FMEA #: 06-2-1116-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1223
 ITEM: DUMP NOZZLE

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA AGREES WITH THE FMEA, IF LOSS OF FUNCTION IS CONSIDERED
 INABILITY TO EXPEL FUEL CELLS WATER.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1224
 NASA FMEA #: 06-2-1114-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1224
 ITEM: DUMP LINE HEATER (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA AGREES WITH THE FMEA, IF LOSS OF FUNCTION (INABILITY TO EXPEL WATER) IS CONSIDERED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1225
 NASA FMEA #: 06-2-1114-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1225
 ITEM: DUMP LINE HEATER (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1226
 NASA FMEA #: 06-2-1120-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1226
 ITEM: THERMOSTAT, LINE HEATER (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87	NASA DATA:
ASSESSMENT ID: LS-1228	BASELINE []
NASA FMEA #: 06-2-1135-2	NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1228
 ITEM: QD, CONTINGENCY CROSS-TIE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[F]	[F]	[P]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[F]	[F]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[X]
INADEQUATE	[]

REMARKS:

IOA DID NOT KNOW OF THE CAP. BASED ON THE SAME RATIONING AS 06-2-1124-2, HYDROPHOBIC FILTER, FOR WHICH THE WATER WILL LEAK INTO THE CABIN, THIS SHOULD BE 3/2R. LOSS OF FUNCTION WITH NO CREW INTERVENTION WILL RESULT IN CONTINUOUS FLOW OF WATER (TANK B ONLY) INTO THE CABIN. ALSO, THE DUMP WITH X-TIE CAN STILL BE ACHIEVED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1228A
 NASA FMEA #: 06-2-1162-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1228
 ITEM: QD, CONTINGENCY CROSS-TIE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [F] [F] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
 INADEQUATE []

REMARKS:

IOA DID NOT KNOW OF THE CAP. BASED ON THE SAME RATIONING AS 06-2-1124-2, HYDROPHOBIC FILTER, FOR WHICH THE WATER WILL LEAK INTO THE CABIN, THIS SHOULD BE 3/2R. LOSS OF FUNCTION WITH NO CREW INTERVENTION WILL RESULT IN CONTINUOUS FLOW OF WATER (TANK B ONLY) INTO THE CABIN. ALSO, THE DUMP WITH X-TIE CAN STILL BE ACHIEVED. THIS FMEA INCLUDES SEVERAL ITEMS INTO LINES AND FITTINGS ANALYSIS-SEE FMEA 06-2-1135-2 (LS-1228).

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87	NASA DATA:
ASSESSMENT ID: LS-1229	BASELINE []
NASA FMEA #: 06-2-1135-1	NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1229
 ITEM: QD, CONTINGENCY CROSS-TIE (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1231
 NASA FMEA #: 06-2-1150-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1231
 ITEM: QD, ECLSS BAY (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[F]	[X]
COMPARE	[/]	[]	[]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1232
 NASA FMEA #: 06-2-1150-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1232
 ITEM: QD, GALLEY/DISPENSER (2)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[F]	[X]
COMPARE	[/]	[]	[]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1233
 NASA FMEA #: 06-2-1132-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1233
 ITEM: LINES AND FITTINGS

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
 INADEQUATE []

REMARKS:

IOA DOES NOT AGREE WITH THE FMEA ABOUT THE FAILURES OF THE RADIATOR AND ABS. THESE ITEMS ARE NOT ASSOCIATED WITH THE ITEM BEING STUDIED. CONTINUOUS FLOW OF WATER INTO THE MID-BODY OR CREW MODULE - LEAK CANNOT BE ISOLATED WITHOUT SHUTTING DOWN THE FCP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1233A
 NASA FMEA #: 06-2-1162-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1233
 ITEM: LINES AND FITTINGS

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
 INADEQUATE []

REMARKS:

IOA DOES NOT AGREE WITH THE FMEA, ABOUT THE FAILURES OF THE RADIATOR AND ABS. THESE ITEMS ARE NOT ASSOCIATED WITH THE ITEM BEING STUDIED. CONTINUOUS FLOW OF WATER INTO THE MID-BODY OR CREW MODULE - LEAK CANNOT BE ISOLATED WITHOUT SHUTTING DOWN THE FCP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1234
 NASA FMEA #: 06-2-1156-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1234
 ITEM: LINES AND FITTINGS

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

FOR LEAKAGE BETWEEN THE A/B AND B/C RELIEF VALVES: 1) CONTINUOUS FLOW OF FCP (PRIME/ALTER) TO CREW CABIN - NO WAY TO ISOLATE LEAK WITHOUT SHUTTING DOWN THE FUEL CELLS, 2) TANKS C/D AVAILABLE FOR RETURN WITH EXISTING LEAK.

FOR LEAKAGE DOWNSTREAM OF THE B/C RELIEF VALVE: - TANKS C AND D COULD BE ISOLATED, AND TANK B KEPT LOW IN ORDER TO ISOLATE THE LEAKAGE - LESS SEVERE THAN PREVIOUS CASE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1235
 NASA FMEA #: 06-2-1165-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1235
 ITEM: LINES AND FITTINGS

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

LEAKAGE UPSTREAM OF THE X-OVER VALVE: - TANKS C/D TO BE SHUT DOWN IN ORDER TO STOP THE LEAK; - LOSS OF FES FEEDLINE B, AND TWO TANKS RESERVE; - TANKS A AND B AND FES FEEDLINE A AVAILABLE.
 LEAKAGE DOWNSTREAM OF THE X-OVER VALVE: - TANKS A AND B TO BE SHUTDOWN IN ORDER TO STOP THE LEAK; - LOSS OF FES FEEDLINE A, PRIMARY DUMP, X-TIE FUNCTION, AND A/L SUPPORT; - ONLY TWO TANKS AVAILABLE PLUS FES FEEDLINE B.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1235A
 NASA FMEA #: 06-2-1164-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1235
 ITEM: LINES AND FITTINGS

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

LEAKAGE UPSTREAM OF THE X-OVER VALVE: - TANKS C/D TO BE SHUT DOWN IN ORDER TO STOP THE LEAK; - LOSS OF FES FEEDLINE B, AND TWO TANKS RESERVE; - TANKS A AND B AND FES FEEDLINE A AVAILABLE.
 LEAKAGE DOWNSTREAM OF THE X-OVER VALVE: - TANKS A AND B TO BE SHUTDOWN IN ORDER TO STOP THE LEAK; - LOSS OF FES FEEDLINE A, PRIMARY DUMP, X-TIE FUNCTION, AND A/L SUPPORT; - ONLY TWO TANKS AVAILABLE PLUS FES FEEDLINE B.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1236
 NASA FMEA #: 06-2-1163-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1236
 ITEM: LINES AND FITTINGS

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA AGREES WITH THE FMEA, IF ANOTHER WAY IS AVAILABLE TO
 ADEQUATELY SUPPORT GALLEY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1236A
 NASA FMEA #: 06-2-1155-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1236
 ITEM: LINES AND FITTINGS

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

THIS FMEA IS SAME AS 06-2-1163-2 (LS-1236) IN WHICH THE TANK A MUST BE ISOLATED (DISCONNECTING THE MICROBIAL CHECK VALVE QD'S) IN ORDER TO STOP THE LEAK. IF OTHER MEANS TO PROVIDE FOR GALLEY REQUIREMENT FAILS, THEN MISSION WILL BE LOST.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1237
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1237
 ITEM: WATER CHILLER (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[2 /1R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA WILL MAKE AN ASSESSMENT BASED ON ARS-FMEA (06-1-0530) WHEN IT IS RELEASED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1238
 NASA FMEA #: 06-2-1119-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1238
 ITEM: WATER CHILLER (1)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[F]	[X]
COMPARE	[/]	[]	[]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1250X
 NASA FMEA #: 06-2-1124-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1250
 ITEM: FILTER, TANKS N2 INLET (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

LOSS OF N2 PRESSURIZATION WITH THE BLADDERS EXPOSED TO THE CABIN PRESSURE. NO ADDITIONAL FAILURE IN THE SWS WILL NEGATE THE TANKS PRESSURIZATION BY THE CABIN ATMOSPHERE, UNLESS THE CABIN ATMOSPHERE IS LOST. THIS IS NOT REALISTIC WHEN APPLIED TO THE SWS. LOSS OF BLADDER WILL RESULT IN FLOW OF WATER INTO CABIN - MISSION LOSS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1251X
 NASA FMEA #: 06-2-1126-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1251
 ITEM: LINES/FITTINGS AND QD, FCP ALTERNATE LINE

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /1R]	[P]	[NA]	[P]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA AGREES WITH THE FMEA, SEE ALSO LS-1252X (06-2-1128-1). THE TWO FMEAS MAY BE COMBINED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1252X
 NASA FMEA #: 06-2-1128-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1252
 ITEM: LINES/FITTINGS AND QD, FCP ALTERNATE LINE

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /1R]	[P]	[NA]	[P]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA AGREES WITH THE FMEA.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
ASSESSMENT ID: LS-1253X
NASA FMEA #: 06-2-1126-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 1253
ITEM: LINES/FITTINGS AND QD, FCP ALTERNATE LINE

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[NA]	[P]	[]
COMPARE	[/N]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [N] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THE FUNCTIONAL LOSS WITH THIS FAILURE MODE, DOES NOT DEAD-HEAD THE FUEL CELLS, SINCE THE WATER WILL BE CONTINUOUSLY LEAKING OUT. ALSO SEE LS-1254X (06-2-1128-2)-THESE TWO FMEAS MAY BE COMBINED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1254X
 NASA FMEA #: 06-2-1128-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1254
 ITEM: LINES/FITTINGS AND QD, FCP ALTERNATE LINE

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[NA]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [N] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

THE FUNCTIONAL LOSS WITH THIS FAILURE MODE, DOES NOT DEAD-HEAD THE FUEL CELLS, SINCE THE WATER WILL BE CONTINUOUSLY LEAKING OUT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1255X
 NASA FMEA #: 06-2-1103-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1255
 ITEM: LINES AND FITTINGS, H2 VENT

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

THE LOSS OF FUNCTION PLUS THIS FAILURE WILL ONLY RESULT IN
 INABILITY TO REMOVE H2 FROM WATER - WATER FROM FCP STILL FLOWS TO
 THE TANKS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1256X
 NASA FMEA #: 06-2-1166-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1256
 ITEM: LINES AND FITTINGS, A/L TO EMU

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[NA]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [N] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

LOSS OF A/L SUPPORT FUNCTION WILL ONLY NEGATE THE EMU ACTIVITIES
 - MISSION LOSS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1257X
 NASA FMEA #: 06-2-1166-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1257
 ITEM: LINES AND FITTINGS, A/L TO EMU

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[NA]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [N] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

CONTINUOUS FLOW OF WATER UNLESS TANKS A/B ARE ISOLATED. TWO TANKS (C AND D) ARE REMAINING TO SUPPORT NOMINAL MISSION. LOSS OF A/L SUPPORT FOR EMU ACTIVITY AND FES A, AND DUMP CAPABILITY. LOSS OF ALL REDUNDANCIES AND THIS FAILURE WILL RESULT IN MISSION TERMINATION AND RETURN ON TANKS C AND D WITH CONTINUOUS FLOW OF WATER FROM TANK B INTO THE CABIN.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1258X
 NASA FMEA #: 05-6VD-2032-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1258
 ITEM: SWITCH, OUTLET ISOL VALVE (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/28/87
 ASSESSMENT ID: LS-1259X
 NASA FMEA #: 05-6VD-2032-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 1259
 ITEM: SWITCH, OUTLET ISOL VALVE (4)

LEAD ANALYST: M.J. SAIIDI

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

BASED ON VERY LIMITED FMEA-EPD&C DATA (ONLY A CRIT SUMMARY WAS AVAILABLE), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

C.2

WASTE MANAGEMENT SUBSYSTEM

ASSESSMENT WORKSHEETS

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2001
 NASA FMEA #: 06-2-0109-4

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2001
 ITEM: URINAL, MALE AND FEMALE (1 TYPE PER CREW MEMBER)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2002
 NASA FMEA #: 06-2-0116-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2002
 ITEM: URINAL, MALE AND FEMALE (1 TYPE PER CREW MEMBER)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[NA]	[P]	[] (ADD/DELETE)
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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS TO LATCH
 NASA FM: INABILITY TO MATE
 IOA COMMENT: IF THE URINAL ADAPTER FAILS TO LATCH THIS REQUIRES THE USE OF THE UCD SUPPLIES. THERE ARE ONLY 3 DAYS SUPPLY OF UCDs PER CREW MEMBER AND USE OF THEM MAY PRODUCE AN EARLY TERMINATION OF THE MISSION. CHANGE IOA CRITICALITY TO 3/2R PNP. A POTENTIAL LOSS OF THE WCS WAS VIEWED AS A 3/2R CRITICALITY BY THE IOA FOR ANY "OFF NOMINAL" CONDITION. "OFF NOMINAL" WAS DEFINED AS ANY FAILURE WHICH COULD REQUIRE USE OF CONTINGENCY WASTE COLLECTION METHODS IF ANOTHER FAILURE OCCURRED. HOWEVER, THE NASA FMEA LISTED THESE AS A NON-MISSION ESSENTIAL FAILURE CRITICALITY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2002A
 NASA FMEA #: 06-2-0116-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2002
 ITEM: URINAL, MALE AND FEMALE (1 TYPE PER CREW MEMBER)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)
 [3 /2R] [P] [NA] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA FM: FAILS TO LATCH
 NASA FM: INABILITY TO DEMATE
 IOA COMMENT: IF THE URINAL ADAPTER FAILS TO LATCH THIS REQUIRES THE USE OF THE UCD SUPPLIES. THERE ARE ONLY 3 DAYS SUPPLY OF UCDs PER CREW MEMBER AND USE OF THEM MAY PRODUCE AN EARLY TERMINATION OF THE MISSION. CHANGE IOA CRITICALITY TO 3/2R PNP. A POTENTIAL LOSS OF THE WCS WAS VIEWED AS A 3/2R CRITICALITY BY THE IOA FOR ANY "OFF NOMINAL" CONDITION. "OFF NOMINAL" WAS DEFINED AS ANY FAILURE WHICH COULD REQUIRE USE OF CONTINGENCY WASTE COLLECTION METHODS IF ANOTHER FAILURE OCCURRED. HOWEVER, THE NASA FMEA LISTED THESE AS A NON-MISSION ESSENTIAL FAILURE CRITICALITY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2003
 NASA FMEA #: 06-2-0109-4

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2003
 ITEM: URINAL COUPLER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: EXTERNAL LEAKAGE, PHYSICAL BINDING/JAMMING
 NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2006
 NASA FMEA #: 06-2-0109-4

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2006
 ITEM: URINAL HOSE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2007
 NASA FMEA #: 06-2-0101-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2007
 ITEM: URINAL HOSE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: RESTRICTED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2009
 NASA FMEA #: 06-2-0109-4

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2009
 ITEM: URINAL ADAPTER QUICK RELEASE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2010
 NASA FMEA #: 06-2-0109-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2010
 ITEM: URINAL HOSE CLAMP (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: IMPROPER CLAMPING FORCE
 NASA FM: INABILITY TO ATTACH
 IOA COMMENT: IF DEVELOP EXTERNAL LEAKAGE DUE TO MISALIGNMENT,
 COULD POTENTIALLY ALLOW RELEASE OF BACTERIAL GROWTH INTO CABIN
 ATMOSPHERE. THE SPILL WOULD BE CONTAINABLE, AND CLEANABLE, BUT
 MAY REQUIRE THE USE OF THE UCDS WITH THE RISK OF LOSS OF
 MISSION DUE TO SUPPLY LIMITATIONS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2010A
 NASA FMEA #: 06-2-0109-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2010
 ITEM: URINAL HOSE CLAMP (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: IMPROPER CLAMPING FORCE

NASA FM: INABILITY TO REMOVE

IOA COMMENT: IF DEVELOP EXTERNAL LEAKAGE DUE TO MISALIGNMENT,
 COULD POTENTIALLY ALLOW RELEASE OF BACTERIAL GROWTH INTO CABIN
 ATMOSPHERE. THE SPILL WOULD BE CONTAINABLE AND CLEANABLE, BUT
 MAY REQUIRE THE USE OF THE UCDS WITH THE RISK OF LOSS OF MISSION
 DUE TO SUPPLY LIMITATIONS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2011
 NASA FMEA #: 06-2-0109-4

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2011
 ITEM: URINAL DYNATUBE (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2012
 NASA FMEA #: 06-2-0101-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2012
 ITEM: URINAL DYNATUBE (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: RESTRICTED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2013
 NASA FMEA #: 06-2-0109-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2013
 ITEM: TUBE, EMU EXTENSION (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: RESTRICTED FLOW
 IOA COMMENT: THE IFM #026 ALLOWS A WORK-AROUND FOR THE CASE OF A
 CLOGGED EMU DRAIN LINE AND CHANGES THE CRITICALITY TO 3/2R PNP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2013A
 NASA FMEA #: 06-2-0444-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2013
 ITEM: TUBE, EMU EXTENSION (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: RESTRICTED FLOW
 IOA COMMENT: THE IFM #026 ALLOWS A WORK-AROUND FOR THE CASE OF A
 CLOGGED EMU DRAIN LINE AND CHANGES THE CRITICALITY TO 3/2R PNP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2014
 NASA FMEA #: 06-2-0444-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2014
 ITEM: TUBE, EMU EXTENSION (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[F]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [F] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: EXTERNAL LEAKAGE
 IOA COMMENT: THE IFM #026 ALLOWS A WORK-AROUND FOR THE CASE OF A
 CLOGGED EMU DRAIN LINE AND CHANGES THE CRITICALITY TO 3/2R PFP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2015
 NASA FMEA #: 06-2-0444-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2015
 ITEM: EMU QD (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[F]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [F] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: EXTERNAL LEAKAGE
 IOA COMMENT: THE IFM #26 BYPASSES THE EMU QD ENTIRELY SO THE
 CRITICALITY SHOULD BE 3/2R PFP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2016
 NASA FMEA #: 06-2-0203-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2016
 ITEM: COMMODE STORAGE CONTAINER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: EXTERNAL LEAKAGE

NASA FM: LEAKAGE

IOA COMMENT: IF AN EXTERNAL LEAKAGE DEVELOPS IN THE TANK AND IF
 LEAKS DEVELOP IN THE COMMODE CONTROL VALVE AND THE MANUAL VACUUM
 VENT VALVE THEN AN UNCONTROLLED ATMOSPHERE LOSS WOULD BE
 POSSIBLE, THUS THE 3/1R PNP CRITICALITY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2017
 NASA FMEA #: 06-2-0206-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2017
 ITEM: COMMODE/LINER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /2]	[]	[]	[]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: INTERNAL LEAKAGE, OPEN
 NASA FM: DAMAGED BAG
 IOA COMMENT: THE POTENTIAL FOR BACTERIAL GROWTH IS A MISSION
 CRITICAL CONDITION AND SHOULD RESULT IN A MISSION LOSS DUE TO
 POTENTIAL CREW DANGER.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2018
 NASA FMEA #: 06-2-0206-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2018
 ITEM: COMMODE UPPER RING (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /2]	[]	[]	[]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: INTERNAL LEAKAGE
 NASA FM: DAMAGED BAG
 IOA COMMENT: THE POTENTIAL BACTERIA GROWTH IS A MISSION CRITICAL
 CONDITION AND SHOULD RESULT IN A MISSION LOSS DUE TO POTENTIAL
 CREW DANGER.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2019
 NASA FMEA #: 06-2-0202-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2019
 ITEM: COMMODE SLIDE VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: INTERNAL LEAKAGE, FAILS TO CLOSE

NASA FM: FAILS TO CLOSE

IOA COMMENT: IF BOTH THE COMMODE OUTLET AND MANUAL VACUUM VENT VALVES DEVELOP INTERNAL LEAKS, THEN A CABIN PRESSURE LOSS WOULD RESULT IN CONJUNCTION WITH THE COMMODE SLIDE VALVE EXTERNAL LEAKAGE. THIS WOULD BE A LIFE THREATENING CONDITION, FOR A 3/1R PNP CRITICALITY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2019A
 NASA FMEA #: 06-2-0202-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2019
 ITEM: COMMODE SLIDE VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: INTERNAL LEAKAGE, FAILS TO CLOSE
 NASA FM: LEAKAGE

IOA COMMENT: IF BOTH THE COMMODE OUTLET AND MANUAL VACUUM VENT VALVES DEVELOP INTERNAL LEAKS, THEN A CABIN PRESSURE LOSS WOULD RESULT IN CONJUNCTION WITH THE COMMODE SLIDE VALVE EXTERNAL LEAKAGE. THIS WOULD BE A LIFE THREATENING CONDITION, FOR A 3/1R PNP CRITICALITY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2020
 NASA FMEA #: 06-2-0202-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2020
 ITEM: COMMODE SLIDE VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: FAILS TO OPEN

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2021
 NASA FMEA #: 06-2-0219-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2021
 ITEM: COMPACTOR DRIVE UNIT (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: PHYSICAL BINDING
 NASA FM: JAMMED MID-STROKE
 IOA COMMENT: IF THE TANK BECOMES TO FAIL DUE TO LOSS OF
 COMPACTOR, THEN THE CREW MUST RESORT TO FCB, WHICH MAY PRODUCE AN
 ALTERATION IN THE MISSION TIME-LINE DUE TO CREW INCONVENIENCE,
 AND NECESSITATING A 3/2R PNP CRITICALITY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2022
NASA FMEA #: 06-2-0203-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2022
ITEM: COMPACTOR DRIVE UNIT (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [NA] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA FM: EXTERNAL LEAKAGE

NASA FM: LEAKAGE

IOA COMMENT: IF BOTH THE COMMODE OUTLET AND MANUAL VACUUM VENT VALVES DEVELOP INTERNAL LEAKS, THEN A CABIN PRESSURE LOSS WOULD RESULT IN CONJUNCTION WITH THE COMPACTOR DRIVE UNIT EXTERNAL LEAKAGE. THIS WOULD BE A LIFE THREATENING CONDITION, FOR A 3/1R PNP CRITICALITY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2023
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2023
 ITEM: COMPACTOR DRIVE UNIT (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/NA] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA COMMENT: THIS FAILURE COVERED WAS UNDER MDAC ID 2021.
 DELETE ANALYSIS SHEET 2023.

c-4

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2024
 NASA FMEA #: 06-2-0203-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2024
 ITEM: COMMODE BOTTOM FLANGE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: EXTERNAL LEAKAGE

NASA FM: LEAKAGE

IOA COMMENT: IF BOTH THE COMMODE CUTLET AND MANUAL VACUUM VENT VALVES DEVELOP INTERNAL LEAKS, AS WELL AS THE EXTERNAL LEAK OF THE COMMODE BOTTOM FLANGE, THEN A CABIN PRESSURE LOSS WOULD RESULT. THIS WOULD BE A LIFE THREATENING CONDITION, FOR A 3/1R PNP CRITICALITY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2025
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2025
 ITEM: COMMODE BOTTOM FLANGE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/ NA] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA COMMENT: THIS FAILURE MODE WAS COVERED UNDER MDAC ID 2024.
 DELETE ANALYSIS SHEET 2025.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87	NASA DATA:
ASSESSMENT ID: LS-2026	BASELINE []
NASA FMEA #: 06-2-0218-2	NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2026
 ITEM: COMMODE EXIT, MESH SCREEN (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[NA]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

IOA/NASA FM: RESTRICTED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2027
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2027
 ITEM: COMMODE EXIT, MESH SCREEN (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/NA] [] [] [] [] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

DELETE FAILURE MODE OF "FAIL OPEN". THIS WAS DETERMINED TO BE "NON-CREDIBLE" AT CCB FOR NASA FMEA 06-2C-0218-1.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE:	12/22/87	NASA DATA:	
ASSESSMENT ID:	LS-2028	BASELINE	[]
NASA FMEA #:	06-2-0219-1	NEW	[X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2028
ITEM: COMMODE MOVEABLE AND STATIONARY VANES (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[NA]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

IOA FM: RUPTURE
NASA FM: FAILS TO COMPACT, TORN NET
IOA COMMENT: THIS FAILURE IS SIMILAR TO THE JAMMED COMPACTOR DRIVER MECHANISM (MDAC ID 2021) IN THAT THE SOLID WASTE CANNOT BE PACKED WITH POTENTIAL LOSS OF THE COMMODE IS A RESULT AND FCB SUPPLIES MUST BE USED. POTENTIAL MISSION TIME LINE EFFECT DUE TO CREW INCONVENIENCE AND A CRITICALITY 3/2R PNP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2029
 NASA FMEA #: 06-2-0403-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2029
 ITEM: AUX. WET TRASH VENT LINE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAK

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2031
 NASA FMEA #: 06-2-0403-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2031
 ITEM: VACUUM PORT LINE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2033
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2033
ITEM: VACUUM PORT QD AND PLUG (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA FM: FAILS TO OPEN, RESTRICTED FLOW

THERE WAS NO NASA WMS FMEA WHICH MATCHED THE IOA DESCRIPTION.
THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2034
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2034
ITEM: VACUUM PORT QD AND PLUG (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA FM: FAILS TO MATE/DEMATE

THERE WAS NO NASA WMS FMEA WHICH MATCHED THE IOA DESCRIPTION.
THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2035
 NASA FMEA #: 06-2-0404-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2035
 ITEM: WET TRASH VENT LINE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: EXTERNAL LEAKAGE
 IOA COMMENT: IF AN INTERNAL LEAK DEVELOPS IN THE MANUAL VACUUM
 VENT VALVE AS WELL AS THE EXTERNAL LEAKAGE IN THE WET TRASH VENT
 LINE WOULD PRODUCE AN UNRESTRICTED CABIN PRESSURE LOSS WHICH
 COULD RESULT IN LOSS OF LIFE AND A CRITICALITY 3/1R PNP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2036
 NASA FMEA #: 06-2-0403-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2036
 ITEM: WET TRASH VENT LINE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2037
 NASA FMEA #: 06-2-0403-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2037
 ITEM: WET TRASH VENT QD (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2038
 NASA FMEA #: 06-2-0101-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2038
 ITEM: URINE COLLECTION HOSES (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: RESTRICTED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2039
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2039
ITEM: URINE COLLECTION HOSES

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA FM: EXTERNAL LEAKAGE

THERE WAS NO NASA WMS FMEA WHICH MATCHED THE IOA DESCRIPTION.
THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2040
NASA FMEA #: 06-2-0435-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2040
ITEM: WCS TO WWS QD (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /2]	[]	[]	[]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA FM: RESTRICTED FLOW

NASA FM: RESTRICTED FLOW BUT ALSO INCLUDES ARS LINES.

IOA COMMENT: THE LOSS OF THE QD BY RESTRICTED FLOW ONLY RESTRICTS THE USE OF THE WCS, IN WHICH CASE THE FCB AND UCD SUPPLIES MUST BE USED. THE FCB AND UCD SUPPLIES MAY BE INSUFFICIENT FOR MISSION DURATION, THUS CREATING A MISSION LOSS CRITICALITY 3/2R PNP.

THOSE NASA FMEA WHICH INCLUDE A COLLECTION OF HARDWARE ITEMS MAY NOT MATCH THE IOA ANALYSIS. THE IOA ANALYSES PROVIDED SEPARATE ANALYSES FOR EACH PIECE OF EQUIPMENT. THE BASIC PREMISE OF THE NASA FMEA DID AGREE WITH THE IOA ANALYSIS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2040A
 NASA FMEA #: 06-2-0443-1

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2040
 ITEM: WCS TO WWS QD (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /2]	[]	[]	[]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: RESTRICTED FLOW
 IOA COMMENT: THE LOSS OF THE QD BY RESTRICTED FLOW ONLY
 RESTRICTS THE USE OF THE WCS, IN WHICH CASE THE FCB AND UCD
 SUPPLIES MUST BE USED. THE FCB AND UCD SUPPLIES MAY BE
 INSUFFICIENT FOR MISSION DURATION, THUS CREATING A MISSION LOSS
 CRITICALITY 3/2R PNP.

THOSE NASA FMEA WHICH INCLUDE A COLLECTION OF HARDWARE ITEMS MAY
 NOT MATCH THE IOA ANALYSIS. THE IOA ANALYSES PROVIDED SEPARATE
 ANALYSES FOR EACH PIECE OF EQUIPMENT. THE BASIC PREMISE OF THE
 NASA FMEA DID AGREE WITH THE IOA ANALYSIS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2041
 NASA FMEA #: 06-2-0435-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2041
 ITEM: WCS TO WWS QD (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2041A
 NASA FMEA #: 06-2-0443-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2041
 ITEM: WCS TO WWS QD (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2042
 NASA FMEA #: 06-2-0435-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2042
 ITEM: WCS TO WWS LINE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2042A
 NASA FMEA #: 06-2-0435-2

NASA DATA:
 BASELINE [X]
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2042
 ITEM: WCS TO WWS LINE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2043
 NASA FMEA #: 06-2-0435-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2043
 ITEM: WCS TO WWS DYNATUBE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2043A
 NASA FMEA #: 06-2-0443-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2043
 ITEM: WCS TO WWS DYNATUBE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2044
NASA FMEA #: 06-2-0435-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2044
ITEM: WCS TO WWS DYNATUBE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 / 2R] [P] [NA] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA/NASA FM: RESTRICTED FLOW
IOA COMMENT: THE LOSS OF THE DYNATUBE BY RESTRICTED FLOW ONLY RESTRICTS THE USE OF THE WCS, IN WHICH CASE THE FCB AND UCD SUPPLIES MUST BE USED. THE FCB AND UCD SUPPLIES MAY BE INSUFFICIENT FOR MISSION DURATION, THUS CREATING A MISSION LOSS CRITICALITY 3/2R PNP.

THOSE NASA FMEA WHICH INCLUDE A COLLECTION OF HARDWARE ITEMS MAY NOT MATCH THE IOA ANALYSIS. THE IOA ANALYSES PROVIDED SEPARATE ANALYSES FOR EACH PIECE OF EQUIPMENT. THE BASIC PREMISE OF THE NASA FMEA DID AGREE WITH THE IOA ANALYSIS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2044A
 NASA FMEA #: 06-2-0443-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2044
 ITEM: WCS TO WWS DYNATUBE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 / 2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: RESTRICTED FLOW

IOA COMMENT: THE LOSS OF THE DYNATUBE BY RESTRICTED FLOW ONLY RESTRICTS THE USE OF THE WCS, IN WHICH CASE THE FCB AND UCD SUPPLIES MUST BE USED. THE FCB AND UCD SUPPLIES MAY BE INSUFFICIENT FOR MISSION DURATION, THUS CREATING A MISSION LOSS CRITICALITY 3/2R PNP.

THOSE NASA FMEA WHICH INCLUDE A COLLECTION OF HARDWARE ITEMS MAY NOT MATCH THE IOA ANALYSIS. THE IOA ANALYSES PROVIDED SEPARATE ANALYSES FOR EACH PIECE OF EQUIPMENT. THE BASIC PREMISE OF THE NASA FMEA DID AGREE WITH THE IOA ANALYSIS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2045
 NASA FMEA #: 06-2-0216-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2045
 ITEM: COMMODE CONTROL HANDLE LINKAGE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS TO SWITCH, LOSS OF OUTPUT, BINDING
 NASA FM: JAMMED LINKAGE, VACUUM VENT POSITION
 IOA COMMENT: CHANGE SCREEN B IN THE MDAC ANALYSIS TO N/A BECAUSE
 FCBS ARE AN OFF-LINE REDUNDANT SYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87	NASA DATA:
ASSESSMENT ID: LS-2045A	BASELINE []
NASA FMEA #: 06-2-0216-2	NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2045
ITEM: COMMODE CONTROL HANDLE LINKAGE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R]	[P]	[NA]	[P]	[]
(ADD/DELETE)				

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

IOA FM: FAILS TO SWITCH, LOSS OF OUTPUT, BINDING
 NASA FM: JAMMED LINKAGE, MID-STROKE POSITION
 IOA COMMENT: THE JAMMED LINKAGE IS A POTENTIAL FOR LOSS OF CABIN
 ATMOSPHERE IF A SECOND FAILURE OCCURS, THUS THE 3/1R CRITICALITY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2045B
 NASA FMEA #: 06-2-0216-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2045
 ITEM: COMMODE CONTROL HANDLE LINKAGE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS TO SWITCH, LOSS OF OUTPUT, BINDING
 NASA FM: JAMMED LINKAGE, FECAL COLLECTION POSITION
 IOA COMMENT: IF THE LINKAGE IS JAMMED IN THIS POSITION HOW IS IT POSSIBLE TO CLOSE THE GATE VALVE, WHICH WOULD BE A 3/2R PNP CRITICALITY?
 A POTENTIAL LOSS OF THE WCS WAS VIEWED AS A 3/2R CRITICALITY BY THE IOA FOR ANY "OFF NOMINAL" CONDITION. "OFF NOMINAL" WAS DEFINED AS ANY FAILURE WHICH COULD REQUIRE USE OF CONTINGENCY WASTE COLLECTION METHODS IF ANOTHER FAILURE OCCURRED. HOWEVER, THE NASA FMEA LISTED THESE AS A NON-MISSION ESSENTIAL FAILURE CRITICALITY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2045D
 NASA FMEA #: 06-2-0216-5

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2045
 ITEM: COMMODE CONTROL HANDLE LINKAGE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS TO SWITCH, LOSS OF OUTPUT, BINDING
 NASA FM: BROKEN LINKAGE TO REPRESS AND BALLAST VALVE (VACUUM
 VENT POSITION)

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87	NASA DATA:
ASSESSMENT ID: LS-2045E	BASELINE []
NASA FMEA #: 06-2-0216-6	NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2045
 ITEM: COMMODE CONTROL HANDLE LINKAGE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY	SCREENS		CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[NA]	[P]	[]	(ADD/DELETE)
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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

IOA FM: FAILS TO SWITCH, LOSS OF OUTPUT, BINDING
 NASA FM: BROKEN LINKAGE TO REPRESS AND BALLAST VALVE (VACUUM VENT POSITION)

IOA COMMENT: IF THE LINKAGE IS JAMMED IN THIS POSITION HOW IS IT POSSIBLE TO CLOSE THE GATE VALVE, WHICH WOULD BE A 3/1R PNP CRITICALITY?

A POTENTIAL LOSS OF THE WCS WAS VIEWED AS A 3/2R CRITICALITY BY THE IOA FOR ANY "OFF NOMINAL" CONDITION. "OFF NOMINAL" WAS DEFINED AS ANY FAILURE WHICH COULD REQUIRE USE OF CONTINGENCY WASTE COLLECTION METHODS IF ANOTHER FAILURE OCCURRED. HOWEVER, THE NASA FMEA LISTED THESE AS A NON-MISSION ESSENTIAL FAILURE CRITICALITY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2046
 NASA FMEA #: 06-2-0401-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2046
 ITEM: MANUAL VENT VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS TO OPEN, RESTRICTED FLOW
 NASA FM: INABILITY TO OPEN, RESTRICTED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2047
 NASA FMEA #: 06-2-0401-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2047
 ITEM: MANUAL VENT VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: FAILS TO CLOSE, INTERNAL LEAK
 IOA COMMENT: WITH AN INTERNAL LEAK OF THE MANUAL VACUUM VENT VALVE THERE IS POTENTIAL FOR LOSS OF LIFE DUE TO CABIN DEPRESSURIZATION IF A SEAL ON THE COMMODE CONTROL VALVE GOES "BAD" AND LEAKS. THE CRITICALITY BECOMES 3/1R PNP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2048
 NASA FMEA #: 06-2-0401-4

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2048
 ITEM: MANUAL VENT VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[]	[]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: EXTERNAL LEAKAGE

IOA COMMENT: IF THE VALVE EXTERNAL LEAKAGE DEVELOPS SUCH THAT THE AIR FLOW IS DOWNSTREAM OF THE VALVE CONTROLLER (PAST 2 SEALS) THEN A POTENTIAL LOSS OF LIFE WOULD BE POSSIBLE DUE TO UNCONTROLLED CABIN PRESSURE LOSS IF THE VACUUM VENT ISOLATION VALVE DID NOT FUNCTION TO RESTRICT THE AIR FLOW. THE RECOMMENDED CRITICALITY WOULD BE 3/1R PNP.

THE IOA ANALYSIS VIEWED THE FIRST FAILURE TO BE A NON-MISSION ESSENTIAL CRITICALITY, HOWEVER SECONDARY FAILURES COULD CREATE MAJOR PROBLEMS. THE NASA FMEA CRITICALITY VIEWED THE FIRST FAILURE TO BE AT LEAST A MISSION LOSS, IF NOT A LIFE THREATENING CONDITION.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2050A
 NASA FMEA #: 06-2-0208-4

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2050
 ITEM: COMMODE OUTLET CONTROL VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS TO CLOSE, INTERNAL LEAKAGE
 NASA FM: LEAKAGE
 IOA COMMENT: IF THE COMMODE OUTLET CONTROL VALVE AND THE MANUAL
 VACUUM VENT VALVE BOTH DEVELOP INTERNAL LEAKAGES THEN A POTENTIAL
 LOSS OF LIFE DUE TO CABIN DE-PRESSURIZATION IS POSSIBLE. THE
 RECOMMENDED CRITICALITY CHANGE IN THE IOA ANALYSIS IS
 3/1R PNP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2052
 NASA FMEA #: 06-2-0209-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2052
 ITEM: COMMODE PRESSURIZATION VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: RESTRICTED FLOW, FAILS TO OPEN
 NASA FM: INABILITY TO OPEN, STUCK IN FECAL POSITION
 IOA COMMENT: CHANGE B SCREEN ON THE IOA ANALYSIS TO N/A

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2052A
 NASA FMEA #: 06-2-0209-4

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2052
 ITEM: COMMODE PRESSURIZATION VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: RESTRICTED FLOW
 IOA COMMENT: CHANGE B SCREEN ON THE IOA ANALYSIS TO N/A

THE DISAGREEMENT IN THE REDUNDANCY SCREENS WAS DUE TO NO DETAILED DISCUSSION WITH THE NASA SUBSYSTEM MANAGERS REGARDING THE REDUNDANT PATHS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87	NASA DATA:
ASSESSMENT ID: LS-2053	BASELINE []
NASA FMEA #: 06-2-0209-1	NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2053
 ITEM: COMMODE PRESSURIZATION VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[NA]	[P]	[] (ADD/DELETE)
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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

IOA FM: FAILS TO CLOSED, INTERNAL LEAKAGE
 NASA FM: INABILITY TO CLOSED, STUCK IN REPRESS POSITION
 IOA COMMENT: IF THE VALVE DOES NOT ALLOW COMPLETE FLOW TO THE FAN/SEPARATOR, HAVE SUSTAINED A POTENTIAL LOSS OF EFFICEINCY AND THE FCB AND UCD SUPPLIES MUST BE USED. THERE IS A POTENTIAL FOR INSUFFICEINT SUPPLIES FOR MISSION DURATION, THUS LOSS OF MISSION POTENTIAL. THE CRITICALITY SHOULD BE 3/2R PNP. A POTENTIAL LOSS OF THE WCS WAS VIEWED AS A 3/2R CRITICALITY BY THE IOA FOR ANY "OFF NOMINAL" CONDITION. "OFF NOMINAL" WAS DEFINED AS ANY FAILURE WHICH COULD REQUIRE USE OF CONTINGENCY WASTE COLLECTION METHODS IF ANOTHER FAILURE OCCURRED. HOWEVER, THE NASA FMEA LISTED THESE AS A NON-MISSION ESSENTIAL FAILURE CRITICALITY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2055
 NASA FMEA #: 06-2-0213-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2055
 ITEM: BALLAST AIR CONTROL VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: RESTRICTED FLOW
 NASA FM: INABILITY TO TRANSFER, STUCK IN VACUUM VENT POSITION.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2055A
 NASA FMEA #: 06-2-0213-4

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2055
 ITEM: BALLAST AIR CONTROL VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: RESTRICTED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2056A
 NASA FMEA #: 06-2-0213-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2056
 ITEM: BALLAST AIR CONTROL VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS TO CLOSE, INTERNAL LEAKAGE
 NASA FM: INTERNAL OR EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2057
 NASA FMEA #: 06-2-0213-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2057
 ITEM: BALLAST AIR CONTROL VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: EXTERNAL LEAKAGE
 NASA FM: INTERNAL OR EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2058
 NASA FMEA #: 06-2-0214-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2058
 ITEM: FAN/SEPARATOR VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS TO OPEN, RESTRICTED FLOW
 NASA FM: STUCK IN EITHER SEPARATOR POSITION

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2058A
 NASA FMEA #: 06-2-0214-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2058
 ITEM: FAN/SEPARATOR VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: RESTRICTED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2059
 NASA FMEA #: 06-2-0214-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2059
 ITEM: FAN/SEPARATOR VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS TO CLOSE, INTERNAL LEAKAGE
 NASA FM: STUCK IN EITHER SEPARATOR POSITION
 IOA COMMENT: IF UNABLE TO SWITCH TO ALTERNATE FAN/SEPARATOR
 POSITION, MUST RESORT TO FCB AND UCD SUPPLIES. THE FCB AND UCD
 SUPPLIES MAY NOT BE SUFFICIENT FOR LIFE OF MISSION, THUS
 CRITICALITY CHANGE OF THE IOA ANALYSIS TO 3/2R PNP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2060
 NASA FMEA #: 06-2-0214-4

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2060
 ITEM: SEPARATOR VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2061
 NASA FMEA #: 06-2-0110-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2061
 ITEM: FAN/SEPARATORS (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: INTERNAL LEAKAGE
 NASA FM: INABILITY TO SEPARATE OR PROCESS LIQUIDS

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2062
 NASA FMEA #: 06-2-0110-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2062
 ITEM: FAN/SEPARATORS (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: RESTRICTED WATER FLOW
 NASA FM: INABILITY TO PROCESS LIQUIDS

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2062A
 NASA FMEA #: 06-2-0110-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2062
 ITEM: FAN/SEPARATORS (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: RESTRICTED WATER FLOW
 NASA FM: FAN INOPERABLE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2062B
 NASA FMEA #: 06-2-0110-4

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2062
 ITEM: FAN/SEPARATORS (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: RESTRICTED WATER FLOW
 NASA FM: INABILITY TO REACH SPEED

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2063
 NASA FMEA #: 06-2-0110-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2063
 ITEM: FAN/SEPARATORS (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA FM: PHYSICAL BINDING/JAMMING
 NASA FM: INABILITY TO OPERATE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2063A
 NASA FMEA #: 06-2-0110-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2063
 ITEM: FAN/SEPARATORS (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: PHYSICAL BINDING/JAMMING
 NASA FM: INABILITY TO SEPARATE OR PROCESS LIQUIDS

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2063B
 NASA FMEA #: 06-2-0110-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2063
 ITEM: FAN/SEPARATORS (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA FM: PHYSICAL BINDING/JAMMING
 NASA FM: FAN INOPERABLE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2063C
 NASA FMEA #: 06-2-0110-4

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2063
 ITEM: FAN/SEPARATORS (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: PHYSICAL BINDING/JAMMING
 NASA FM: INABILITY TO REACH SPEED

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2064
 NASA FMEA #: 06-2-0442-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2064
 ITEM: FAN/SEPARATORS (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[F]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [F] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2065
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2065
ITEM: FAN/SEPARATOR TEST PORTS (4)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA FM: FAILS TO OPEN, PHYSICAL BINDING/JAMMING

THERE WAS NO NASA WMS FMEA WHICH MATCHED THE IOA DESCRIPTION.
THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2066
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2066
 ITEM: FAN/SEPARATOR TEST PORTS (4)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA FM: RESTRICTED FLOW

THERE WAS NO NASA WMS FMEA WHICH MATCHED THE IOA DESCRIPTION.
 THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
 REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2068
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2068
ITEM: FAN/SEPARATOR INLET HOSE FROM URINAL (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:
IOA FM: EXTERNAL LEAKAGE

THERE WAS NO NASA WMS FMEA WHICH MATCHED THE IOA DESCRIPTION.
THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2069
 NASA FMEA #: 06-2-0101-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2069
 ITEM: FAN/SEPARATOR INLET HOSE FROM URINAL (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: RESTRICTED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2070
 NASA FMEA #: 06-2-0302-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2070
 ITEM: DUAL CHECK VALVES (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[F]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [F] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: INTERNAL LEAKAGE, FAILS TO REMAIN CLOSED
 IOA COMMENT: THE LOSS OF THE FIRST SINGLE CHECK VALVE (CV) IS NOT A MISSION IMPACT, HOWEVER IF THE SECOND CV FAILS TO CLOSE, THEN THERE IS POTENTIAL CONTAMINATION OF THE WCS OUTLET DUCT AND MUFFLER THROUGH THE OFF-LINE FAN/SEPARATOR BECAUSE OF THE WASTE TANK PRESSURIZATION SYSTEM. MUST RESORT TO FCB AND UCD SUPPLIES WHICH MAY NOT LAST MISSION DURATION - CRITICALITY 3/2R PNP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2071
 NASA FMEA #: 06-2-0443-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2071
 ITEM: DUAL CHECK VALVES (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /2]	[]	[]	[]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: EXTERNAL LEAKAGE
 IOA COMMENT: IF THE EXTERNAL LEAK DEVELOPS THERE IS A POTENTIAL FOR BACTERIAL GROWTH WHICH COULD BE HAZARDOUS TO THE CREW AND REQUIRING AN EARLY MISSION TERMINATION. CHANGE IOA ANALYSIS CRITICALITY TO 2/2.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2072
 NASA FMEA #: 06-2-0302-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2072
 ITEM: DUAL CHECK VALVES (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: FAILS TO OPEN, RESTRICTED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2073
 NASA FMEA #: 06-2-0442-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2073
 ITEM: HOSE ASSEMBLY, SEPARATOR TO CHECK VALVE (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[F]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[X]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [F] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2074
 NASA FMEA #: 06-2-0442-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2074
 ITEM: MUFFLER HOUSING INLET DUCT (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[F]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [F] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: EXTERNAL LEAKAGE, POTENTIAL FOR BACTERIAL INFECTIONS
 IOA COMMENT: IF THE EXTERNAL LEAK DEVELOPS THERE IS A POTENTIAL FOR BACTERIAL GROWTH WHICH COULD BE HAZARDOUS TO THE CREW AND REQUIRING AN EARLY MISSION TERMINATION. CHANGE IOA ANALYSIS CRITICALITY TO 3/2R PNP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2075
 NASA FMEA #: 06-2-0115-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2075
 ITEM: BACTERIA FILTER (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/NA]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[N /N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/NA] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: OPEN; INTERNAL LEAKAGE
 IOA COMMENT: DETERMINED TO BE "NON-CREDIBLE" BY THE CCB

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2076
 NASA FMEA #: 06-2-0211-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2076
 ITEM: BALLAST VALVE SCREEN (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: RESTRICTED FLOW, BLOCKED
 IOA COMMENT: UNABLE TO REPRESSURIZE COMMODE AND NO BALLAST FLOW
 FOR URINAL REQUIRES USE OF FCB AND UCD SUPPLIES. THERE MAY NOT
 BE SUFFICIENT SUPPLIES FOR MISSION DURATION THUS CRITICALITY 3/2R
 PNP.

THE DISAGREEMENT IN THE REDUNDANCY SCREENS WAS DUE TO NO DETAILED
 DISCUSSION WITH THE NASA SUBSYSTEM MANAGERS REGARDING THE
 REDUNDANT PATHS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2077
 NASA FMEA #: 06-2-0119-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2077
 ITEM: BALLAST VALVE ASSEMBLY (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS MID-TRAVEL, PHYSICAL BINDING/JAMMING, RESTRICTED FLOW
 NASA FM: RESTRICTED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2077A
 NASA FMEA #: 06-2-0119-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2077
 ITEM: BALLAST VALVE ASSEMBLY (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS MID-TRAVEL, PHYSICAL BINDING/JAMMING, RESTRICTED
 NASA FM: FAILED IN TRASH CAN POSITION
 NOTE: IF GET A RESTRICTED FLOW THEN MAY GET A MISSION CRITICAL
 CONDITION DUE TO NOXIOUS FUMES OR BACTERIAL GROWTH.
 IOA COMMENT: A POTENTIAL LOSS OF THE WCS WAS VIEWED AS A 3/2R
 CRITICALITY BY THE IOA FOR ANY "OFF NOMINAL" CONDITION. "OFF
 NOMINAL" WAS DEFINED AS ANY FAILURE WHICH COULD REQUIRE USE OF
 CONTINGENCY WASTE
 COLLECTION METHODS IF ANOTHER FAILURE OCCURRED. HOWEVER, THE
 NASA FMEA LISTED THESE AS A NON-MISSION ESSENTIAL FAILURE
 CRITICALITY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2077B
 NASA FMEA #: 06-2-0119-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2077
 ITEM: BALLAST VALVE ASSEMBLY (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS MID-TRAVEL, PHYSICAL BINDING/JAMMING, RESTRICTED FLOW

NASA FM: FAILED IN TRASH CAN POSITION

NOTE ON IOA FMEA: IF GET A RESTRICTED FLOW THEN MAY GET A MISSION CRITICAL CONDITION DUE TO NOXIOUS FUMES OR BACTERIAL GROWTH.

IOA COMMENT: A POTENTIAL LOSS OF THE WCS WAS VIEWED AS A 3/2R CRITICALITY BY THE IOA FOR ANY "OFF NOMINAL" CONDITION. "OFF NOMINAL" WAS DEFINED AS ANY FAILURE WHICH COULD REQUIRE USE OF CONTINGENCY WASTE

COLLECTION METHODS IF ANOTHER FAILURE OCCURRED. HOWEVER, THE NASA FMEA LISTED THESE AS A NON-MISSION ESSENTIAL FAILURE CRITICALITY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2079
 NASA FMEA #: 06-2-0201-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2079
 ITEM: COMMODE SEAT (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: STRUCTURAL FAILURE
 NASA FM: INABILITY TO LATCH

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2080
 NASA FMEA #: 06-2-0201-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2080
 ITEM: COMMODE SEAT (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: PHYSICAL BINDING/JAMMING

NASA FM: INABILITY TO LATCH

IOA COMMENT: IF COMMODE SEAT CAN NOT BE MOVED INTO POSITION THEN POTENTIAL LOSS OF WCS COMMODE USAGE AND A CRITICALITY OF 3/2R PNP.

A POTENTIAL LOSS OF THE WCS WAS VIEWED AS A 3/2R CRITICALITY BY THE IOA FOR ANY "OFF NOMINAL" CONDITION. "OFF NOMINAL" WAS DEFINED AS ANY FAILURE WHICH COULD REQUIRE USE OF CONTINGENCY WASTE COLLECTION METHODS IF ANOTHER FAILURE OCCURRED. HOWEVER, THE NASA FMEA LISTED THESE AS A NON-MISSION ESSENTIAL FAILURE CRITICALITY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2081
 NASA FMEA #: 06-2-0201-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2081
 ITEM: SEAT BASE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: RESTRICTED/BLOCKED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2082
 NASA FMEA #: 06-2-0502-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2082
 ITEM: THIGH BAR RESTRAINT (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS TO CLOSE
 NASA FM: FAILED IN "NON-USE" POSITION

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2083
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2083
 ITEM: VELCRO RESTRAINT HARNESS (THIGH) (4)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA FM: CLIP FAILURE

THERE WAS NO NASA WMS FMEA WHICH MATCHED THE IOA DESCRIPTION.
 THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
 REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2084
 NASA FMEA #: 06-2-0503-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2084
 ITEM: FOOT RESTRAINT (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILED IN "STOWED" POSITION
 NASA FM: FAILED IN "UP" POSITION
 IOA COMMENT: PROBABLY CREW INCONVENIENCE, BUT NOT IMPOSSIBLE TO
 USE COMMODE. CHANGE IOA ANALYSIS CRITICALITY TO 3/3.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2085
 NASA FMEA #: 06-2-0503-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2085
 ITEM: FOOT RESTRAINT (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILED IN DEPLOYED POSITION
 NASA FM: FAILED IN "DOWN" POSITION

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2086
 NASA FMEA #: 06-2-0504-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2086
 ITEM: TOE BAR RESTRAINT (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS TO REMAIN IN OPERABLE POSITION, FAILS CLOSED
 NASA FM: JAMMED

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2087
 NASA FMEA #: 06-2-0504-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2087
 ITEM: TOE BAR RESTRAINT (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILED IN DEPLOYED POSITION
 NASA FM: JAMMED

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2088
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2088
 ITEM: APOLLO FECAL BAG (MISSION LIFE SUPPLY)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA FM: EXTERNAL LEAKAGE

THERE WAS NO NASA WMS FMEA WHICH MATCHED THE IOA DESCRIPTION.
 THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
 REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2089
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2089
ITEM: URINE COLLECTION DEVICE (3 DAYS SUPPLY PER CREWMEMBER)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA FM: EXTERNAL LEAKAGE

THERE WAS NO NASA WMS FMEA WHICH MATCHED THE IOA DESCRIPTION.
THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87	NASA DATA:
ASSESSMENT ID: LS-2092	BASELINE []
NASA FMEA #: 06-2-0117-2	NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2092
 ITEM: WCS FAN/SEPARATOR SWITCH (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[NA]	[P]	[X]
COMPARE	[/N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[NA]	[P]	[A] (ADD/DELETE)
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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

IOA FM: SHORTED CONTACT
 NASA FM: FAILS CLOSED

IOA COMMENT: A POTENTIAL LOSS OF THE WCS WAS VIEWED AS A 3/2R CRITICALITY BY THE IOA FOR ANY "OFF NOMINAL" CONDITION. "OFF NOMINAL" WAS DEFINED AS ANY FAILURE WHICH COULD REQUIRE USE OF CONTINGENCY WASTE COLLECTION METHODS IF ANOTHER FAILURE OCCURRED. HOWEVER, THE NASA FMEA LISTED THESE AS A NON-MISSION ESSENTIAL FAILURE CRITICALITY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2093
 NASA FMEA #: 06-2-0117-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2093
 ITEM: WCS FAN/SEPARATOR SWITCH (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: FAILS OPEN
 IOA COMMENT: IN THE EVENT OF A SUBSEQUENT FAILURE IN THE
 FAN/SEPARATOR MOTOR OR THERMOSTATIC SWITCH, THE WCS FUNCTION
 COULD BE LOST THUS FCB AND UCD SUPPLIES MUST BE USED. THERE MAY
 NOT BE SUFFICIENT SUPPLIES FOR MISSION DURATION AND CRITICALITY
 CHANGE OF THE IOA ANALYSIS TO 3/2R PNP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2094
 NASA FMEA #: 06-2-0117-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2094
 ITEM: WCS MODE SWITCH (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS MID-TRAVEL, PHYSICAL BINDING/JAMMING

NASA FM: FAILS OPEN

IOA COMMENT: IN THE EVENT OF A SUBSEQUENT FAILURE IN THE FAN/SEPARATOR MOTOR OR THERMOSTATIC SWITCH, THE WCS FUNCTION COULD BE LOST THUS FCB AND UCD SUPPLIES MUST BE USED. THERE MAY NOT BE SUFFICIENT SUPPLIES FOR MISSION DURATION AND CRITICALITY CHANGE TO THE IOA ANALYSIS TO 3/2R PNP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2095
 NASA FMEA #: 06-2-0117-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2095
 ITEM: WCS MODE SWITCH (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: SHORTED
 NASA FM: FAILS CLOSED

IOA COMMENT: A POTENTIAL LOSS OF THE WCS WAS VIEWED AS A 3/2R CRITICALITY BY THE IOA FOR ANY "OFF NOMINAL" CONDITION. "OFF NOMINAL" WAS DEFINED AS ANY FAILURE WHICH COULD REQUIRE USE OF CONTINGENCY WASTE COLLECTION METHODS IF ANOTHER FAILURE OCCURRED. HOWEVER, THE NASA FMEA LISTED THESE AS A NON-MISSION ESSENTIAL FAILURE CRITICALITY.

C - 5

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2096
 NASA FMEA #: 06-2-0117-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2096
 ITEM: WCS MODE SWITCH (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: OPEN

NASA FM: FAILS OPEN

IOA COMMENT: IN THE EVENT OF A SUBSEQUENT FAILURE IN THE FAN/SEPARATOR MOTOR OR THERMOSTATIC SWITCH, THE WCS FUNCTION COULD BE LOST THUS FCB AND UCD SUPPLIES MUST BE USED. THERE MAY NOT BE SUFFICIENT SUPPLIES FOR MISSION DURATION AND CRITICALITY CHANGE TO THE IOA ANALYSIS TO 3/2R PNP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2097
 NASA FMEA #: 06-2-0118-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2097
 ITEM: WCS FAN/SEPARATOR RELAY (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: OPEN (ELECTRICAL)
 NASA FM: FAILS OPEN

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87	NASA DATA:
ASSESSMENT ID: LS-2098	BASELINE []
NASA FMEA #: 06-2-0118-2	NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2098
ITEM: WCS FAN/SEPARATOR RELAY (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	A	B	C	CIL ITEM
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[NA]	[P]	[A] (ADD/DELETE)
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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

IOA FM: SHORTED
NASA FM: FAILS CLOSED
IOA COMMENT: IF THE RELAY FAILS, THEN MUST RESORT TO THE ALTERNATE FAN/SEPARATORS. IF THE ALTERNATE FAN/SEPERATOR FAILS THEN MUST RESORT TO FCB AND UCD SUPPLIES. THE FCB AND UCD SUPPLIES MAY NOT BE SUFFICEINT FOR MISSION DURATION. A POTENTIAL LOSS OF THE WCS WAS VIEWED AS A 3/2R CRITICALITY BY THE IOA FOR ANY "OFF NOMINAL" CONDITION. "OFF NOMINAL" WAS DEFINED AS ANY FAILURE WHICH COULD REQUIRE USE OF CONTINGENCY WASTE COLLECTION METHODS IF ANOTHER FAILURE OCCURRED. HOWEVER, THE NASA FMEA LISTED THESE AS A NON-MISSION ESSENTIAL FAILURE CRITICALITY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2099
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2099
 ITEM: FAN/SEPARATOR NOISE SUPPRESSION CIRCUIT (4)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA FM: OPEN (ELECTRICAL)

THERE WAS NO NASA WMS FMEA WHICH MATCHED THE IOA DESCRIPTION.
 THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
 REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2100
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2100
ITEM: FAN/SEPARATOR NOISE SUPPRESSION CIRCUIT(4)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[NA]	[P]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:
IOA FM: SHORTED

THERE WAS NO NASA WMS FMEA WHICH MATCHED THE IOA DESCRIPTION.
THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2101
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2101
 ITEM: FAN/SEPARATOR MOTOR THERMOSTATIC SWITCH (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA FM: FAILS TO OPEN

THERE WAS NO NASA WMS FMEA WHICH MATCHED THE IOA DESCRIPTION.
 THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
 REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87	NASA DATA:
ASSESSMENT ID: LS-2102	BASELINE []
NASA FMEA #: 06-2-0110-1	NEW [X]
SUBSYSTEM: LIFE SUPPORT	
MDAC ID: 2102	
ITEM: FAN/SEPARATOR MOTOR THERMOSTATIC SWITCH (2)	
LEAD ANALYST: K. BARICKMAN	

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[NA]	[P]	[A] (ADD/DELETE)
-----------	-------	--------	-------	-----------------------

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

IOA FM: FAILS TO REMAIN CLOSED
NASA FM: INABILITY TO OPERATE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2102A
 NASA FMEA #: 06-2-0110-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2102
 ITEM: FAN/SEPARATOR MOTOR THERMOSTATIC SWITCH (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS TO REMAIN CLOSED
 NASA FM: FAN INOPERABLE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2103
NASA FMEA #: 06-2-0505-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2103
ITEM: FAN/SEPARATOR BYPASS SWITCH (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA FM: FAILS TO CLOSE
NASA FM: FAILED "OFF", SHORT OR OPEN

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2104
 NASA FMEA #: 06-2-0505-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2104
 ITEM: FAN/SEPARATOR BYPASS SWITCH (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS TO OPEN
 NASA FM: FAILED IN "ON" POSITION, INADVERTENT OPERATION

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2105
NASA FMEA #: 05-6VC-2008-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2105
ITEM: CIRCUIT BREAKER, WCS CNTLR (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA FM: FAILS TO REMAIN CLOSED
NASA FM: LOSS OF OUTPUT, FAILS TO CONDUCT, OPENS

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2106
 NASA FMEA #: 05-6VC-2008-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2106
 ITEM: CIRCUIT BREAKER, WCS CNTLR (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS TO OPEN
 NASA FM: FAILS TO OPEN MANUALLY
 IOA COMMENT: IF A CIRCUIT BREAKER FAILS TO OPEN, EITHER MANUALLY
 OR AUTOMATICALLY, THE CURRENT LIMITING EFFECT WOULD BE LOST.
 THEREFORE A POTENTIALLY LIFE THREATENING CONDITION WOULD EXIST IF
 AN ELECTRICAL SHORT OCCURRED. THERE WOULD BE A POTENTIAL FOR
 FIRE, WHICH IS A LIFE THREATENING CONDITION. THUS THE 1R STATUS
 FOR THE IOA ANALYSIS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2107
 NASA FMEA #: 06-2-0110-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2107
 ITEM: FAN/SEPARATOR MOTOR (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: OPEN (ELECTRICAL)
 NASA FM: INABILITY TO OPERATE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2107A
 NASA FMEA #: 06-2-0110-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2107
 ITEM: FAN/SEPARATOR MOTOR (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: OPEN (ELECTRICAL)
 NASA FM: INABILITY TO SEPARATE OR PROCESS LIQUIDS

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2107B
 NASA FMEA #: 06-2-0110-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2107
 ITEM: FAN/SEPARATOR MOTOR (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: OPEN (ELECTRICAL)
 NASA FM: FAN INOPERABLE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2107C
 NASA FMEA #: 06-2-0110-4

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2107
 ITEM: FAN/SEPARATOR MOTOR (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: OPEN (ELECTRICAL)
 NASA FM: INABILITY TO REACH SPEED

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2108
 NASA FMEA #: 06-2-0110-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2108
 ITEM: FAN/SEPARATOR MOTOR (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: SHORT
 NASA FM: INABILITY TO OPERATE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2108A
 NASA FMEA #: 06-2-0110-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2108
 ITEM: FAN/SEPARATOR MOTOR (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: SHORT
 NASA FM: INABILITY TO SEPARATE OR PROCESS LIQUIDS

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2108B
 NASA FMEA #: 06-2-0110-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2108
 ITEM: FAN/SEPARATOR MOTOR (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA FM: SHORTED
 NASA FM: FAN INOPERABLE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2108C
 NASA FMEA #: 06-2-0110-4

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2108
 ITEM: FAN/SEPARATOR MOTOR (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: SHORTED
 NASA FM: INABILITY TO REACH SPEED

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2109
 NASA FMEA #: 05-6VC-2007-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2109
 ITEM: CIRCUIT BREAKER, WCS FAN/SEPARATOR, AC BUS,
 SINGLE PHASE (6)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS TO REMAIN CLOSED
 NASA FM: OPEN

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2110
 NASA FMEA #: 05-6VC-2007-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2110
 ITEM: CIRCUIT BREAKER, WCS FAN/SEPARATOR, AC BUS,
 SINGLE PHASE (6)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS TO OPEN
 NASA FM: FAILS TO OPEN MANUALLY
 IOA COMMENT: IF A CIRCUIT BREAKER FAILS TO OPEN, EITHER MANUALLY
 OR AUTOMATICALLY, THE CURRENT LIMITING EFFECT WOULD BE LOST.
 THEREFORE A POTENTIALLY LIFE THREATENING CONDITION WOULD EXIST IF
 AN ELECTRICAL SHORT OCCURRED. THERE WOULD BE A POTENTIAL FOR
 FIRE, WHICH IS A LIFE THREATENING CONDITION. THUS THE 1R STATUS
 FOR THE IOA ANALYSIS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2111
 NASA FMEA #: 06-2-0435-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2111
 ITEM: WWS LINE, UNIONS, AND JUNCTIONS

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2112
 NASA FMEA #: 06-2-0435-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2112
 ITEM: WWS LINE, UNIONS, AND JUNCTIONS

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: RESTRICTED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2114
 NASA FMEA #: 06-2-0435-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2114
 ITEM: ARS CONDENSATE SUPPLY TUBE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: RESTRICTED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2115
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2115
 ITEM: CONTINGENCY WATER CONTAINER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: EXTERNAL LEAKAGE, STRUCTURAL FAILURE

THERE WAS NO NASA WMS FMEA WHICH MATCHED THE IOA DESCRIPTION.
 THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
 REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2116
 NASA FMEA #: 06-2-0311-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2116
 ITEM: WASTE TANK 1 INLET VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2118
 NASA FMEA #: 06-2-0311-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2118
 ITEM: WAIST TANK 1 INLET VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: RESTRICTED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2119
 NASA FMEA #: 06-2-0312-4

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2119
 ITEM: WASTE TANK 1 (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: INTERNAL LEAKAGE (WATER TO NITROGEN)

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2120
 NASA FMEA #: 06-2-0312-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2120
 ITEM: WASTE TANK 1 (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2121
 NASA FMEA #: 06-2-0312-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2121
 ITEM: WASTE TANK 1 LINER (BELLOWS) (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: PHYSICAL BINDING/JAMMING
 NASA FM: INABILITY TO OPEN, RESTRICTED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2123A
 NASA FMEA #: 06-2-0437-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2123
 ITEM: WASTE TANK 1 OUTLET LINES AND COUPLINGS

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[F]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [F] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: EXTERNAL LEAKAGE

IOA COMMENT: THE REDUNDANT HARDWARE, THE OUTLET DRAIN VALVE, IS OFF LINE UNTIL POWERED UP, THUS A B SCREEN N/A.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2124
 NASA FMEA #: 06-2-0313-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2124
 ITEM: WASTE TANK FLUID LEVEL TRANSDUCER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: PHYSICAL BINDING/JAMMING, LOSS OF OUTPUT
 NASA FM: OPEN (ELECTRICAL), SHORTED, OUT OF TOLERANCE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2125
 NASA FMEA #: 06-2-0312-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2125
 ITEM: WASTE TANK N2 LINE AND COUPLINGS

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [P] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2125A
 NASA FMEA #: 06-2-0314-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2125
 ITEM: WASTE TANK N2 LINE AND COUPLINGS

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2129
 NASA FMEA #: 06-2-0315-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2129
 ITEM: WASTE TANK 1 DRAIN VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: FAILS TO OPEN, RESTRICTED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2130
 NASA FMEA #: 06-2-0420-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2130
 ITEM: GSE FILL QD AND PLUG (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: FAILS TO OPEN, RESTRICTED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2131
 NASA FMEA #: 06-2-0420-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2131
 ITEM: GSE FILL AND PLUG (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[F]	[F]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [F] [F] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: FAILS TO CLOSE
 IOA COMMENT: IF THE LEAKAGE DEVELOPS AFTER GROUND SERVICING AND THE CAP, AS SECONDARY SEAL, ALSO FAILS, THEN A POTENTIAL FOR LOSS OF LIFE OCCURS DUE TO CABIN PRESSURE LOSS FOR A CRITICALITY OF 3/1R FFP.
 THE IOA ANALYSIS VIEWED THE CONDITION OF A POTENTIAL CABIN ATMOSPHERE LEAK, IF A SECOND FAILURE OCCURED IN THE REDUNDANCY STREAM, TO BE A LIFE CRITICAL CONDITION.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2132
 NASA FMEA #: 06-2-0435-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2132
 ITEM: GSE FILL QD AND PLUG (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: EXTERNAL LEAKAGE
 IOA COMMENT: FAILURE CREATES POTENTIAL FOR LOSS OF MISSION
 BECAUSE OF INABILITY TO ISOLATE THE QD TO PREVENT LEAKAGE INTO
 CREW CABIN AND POTENTIAL CREW HAZARD.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2133
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2133
 ITEM: GSE DRAIN QD AND PLUG (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

GROUND SERVICING CASE ONLY.
 IOA FM: FAILS TO OPEN, RESTRICTED FLOW

THERE WAS NO NASA WMS FMEA WHICH MATCHED THE IOA DESCRIPTION.
 THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
 REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2134
 NASA FMEA #: 06-2-0432-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2134
 ITEM: GSE DRAIN QD AND PLUG (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[F]	[NA]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [F] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: INTERNAL LEAKAGE, FAILS TO CLOSE
 IOA COMMENT: IF THE DRAIN QD DEVELOPS AN INTERNAL LEAKAGE AFTER
 GROUND SERVICING AS WELL AS THE CAP THEN A POTENTIAL LOSS OF
 MISSION WOULD DEVELOP IF AN EXTERNAL LEAKAGE IN THE LINES AND
 FITTINGS, OR AN INTERNAL LEAK IN THE DRAIN VALVE WHEREBY THE WCS
 SYSTEM MUST BE SHUT-DOWN. THE FCB AND UCD SUPPLIES MAY CAUSE
 LOSS OF MISSION DUE TO INSUFFICIENT SUPPLIES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2135
 NASA FMEA #: 06-2-0437-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2135
 ITEM: GSE DRAIN QD AND PLUG (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[F]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [F] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: EXTERNAL LEAKAGE
 IOA COMMENT: IF BOTH SEALS ON QD AND PLUG FAIL THEN MUST RELY ON
 DRAIN VALVE TO MINIMIZE LOSS OF CABIN ATMOSPHERE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2136
 NASA FMEA #: 06-2-0438-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2136
 ITEM: DUMP LINES, FITTINGS, JOINTS AND UNIONS

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: EXTERNAL LEAKAGE
 IOA COMMENT: THE EXTERNAL LEAKAGE OF THE DUMP LINE PRODUCES A
 LOSS OF MISSION WITH NO CHANGE IN CRITICAL EVENTS.

THE IOA ANALYSIS TEAM COULD NOT DETERMINE ANY APPARENT REDUNDANT
 PATHS FOR THIS HARDWARE OR FUNCTION

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2137
 NASA FMEA #: 06-2-0438-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2137
 ITEM: DUMP LINES, FITTINGS AND CONNECTIONS

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[NA]	[P]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: RESTRICTED/BLOCKED FLOW.
 IOA COMMENT: THE RESTRICTED FLOW OF THE DUMP LINE PRODUCES A LOSS OF MISSION WITH NO CHANGE IN CRITICAL EVENTS.

THE IOA ANALYSIS TEAM COULD NOT DETERMINE ANY APPARENT REDUNDANT PATHS FOR THIS HARDWARE OR FUNCTION

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2138
 NASA FMEA #: 06-2-0411-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2138
 ITEM: WASTE TANK 1 DUMP ISOLATION VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2139
 NASA FMEA #: 06-2-0411-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2139
 ITEM: WASTE TANK 1 DUMP ISOLATION VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: RESTRICTED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2140
 NASA FMEA #: 06-2-0411-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2140
 ITEM: WASTE TANK 1 DUMP ISOLATION VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: FAILS TO CLOSE, INTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2142
 NASA FMEA #: 06-2-0423-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2142
 ITEM: HIGH CAPACITY FILTER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: RESTRICTED/BLOCKED FLOW
 NASA: WHY ARE 06-2-0423-1 AND 06-2-0438-1 NOT CONSISTENT FOR
 CRITICALITY?

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2142A
 NASA FMEA #: 06-2-0438-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2142
 ITEM: HIGH CAPACITY FILTER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[NA]	[P]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: RESTRICTED/BLOCKED FLOW
 NOTE TO NASA: WHY ARE 06-2-0423-1 AND 06-2-0438-1 NOT CONSISTENT
 FOR CRITICALITY?

THE IOA ANALYSIS TEAM COULD NOT DETERMINE ANY APPARENT REDUNDANT
 PATHS FOR THIS HARDWARE OR FUNCTION

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2143
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2143
 ITEM: HIGH CAPACITY FILTER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS OPEN, RUPTURE OF FILTER

THERE WAS NO NASA WMS FMEA WHICH MATCHED THE IOA DESCRIPTION.
 THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
 REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2144
 NASA FMEA #: 06-2-0431-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2144
 ITEM: CONTINGENCY H2O CROSS-TIE QD AND PLUG (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: INABILITY TO MATE/DE-MATE, FAILS TO OPEN, RESTRICTED FLOW

NASA FM: FAILS CLOSED, RESTRICTED FLOW

IOA COMMENT: LOSS OF DUMP LINE AND WCS FUNCTION REQUIRES USE OF CONTINGENCY WASTE COLLECTION METHODS AND A LOSS OF MISSION DUE TO LOSS OF ARS CONDENSATE STORAGE CAPABILITY.

THE IOA ANALYSIS TEAM COULD NOT DETERMINE ANY APPARENT REDUNDANT PATHS FOR THIS HARDWARE OR FUNCTION

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2145
 NASA FMEA #: 06-2-0417-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2145
 ITEM: WASTE TANK 1 DUMP VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[NA]	[P]	[X] *
IOA	[2 /1R]	[P]	[P]	[P]	[X]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /1R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: EXTERNAL LEAKAGE
 NASA FM: INABILITY TO CLOSE, INTERNAL LEAKAGE, EXTERNAL LEAKAGE
 IOA COMMENTS TO NASA: HOW CAN EXTERNAL LEAK AND INTERNAL LEAK BE
 COMBINED TO ONE ANALYSIS SHEET?

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2146
 NASA FMEA #: 06-2-0417-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2146
 ITEM: WASTE TANK 1 DUMP VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS TO OPEN
 NASA FM: FAILS TO OPEN, RESTRICTED/PLUGGED FLOW
 IOA COMMENT: THE LOSS OF THE DUMP VALVE AND DUMP CAPABILITY
 CREATES A LOSS OF MISSION IF THE CONTINGENCY CROSS-TIE ALSO
 FAILS, IN WHICH CASE THE FCB AND UCD SUPPLIES MUST BE USED UNTIL
 DE-ORBIT AND LANDING FOR A CRITICALITY OF 3/2R PNP.
 THE NASA VIEWED ANY LOSS OF WATER DUMP CAPABILITY, EITHER SUPPLY
 OR WASTE WATER, AS A LOSS OF LIFE OR VEHICLE CONDITION. HOWEVER
 THE IOA ANALYSIS DID NOT RECOGNIZE THIS LIMITATION AND VIEWED THE
 LOSS OF WASTE WATER DUMP CAPABILITY TO
 BE ONLY A LOSS OF MISSION CONDITION.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2147
 NASA FMEA #: 06-2-0417-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2147
 ITEM: WASTE TANK 1 DUMP VALVE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[NA]	[P]	[X] *
IOA	[2 /1R]	[P]	[P]	[P]	[X]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /1R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS TO CLOSE
 NASA FM: FAILS TO CLOSE, INTERNAL AND EXTERNAL LEAKAGE
 IOA COMMENT TO NASA: HOW CAN INTERNAL AND EXTERNAL LEAKAGE BE
 CONSIDERED ON ONE ANALYSIS SHEET?

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2148
 NASA FMEA #: 06-2-0419-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2148
 ITEM: DUMP NOZZLE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: RESTRICTED/BLOCKED FLOW
 IOA COMMENT: THE LOSS OF THE DUMP VALVE AND DUMP CAPABILITY
 CREATES A LOSS OF MISSION IF THE CONTINGENCY CROSS-TIE ALSO
 FAILS, IN WHICH CASE THE FCB AND UCD SUPPLIES MUST BE USED UNTIL
 DE-ORBIT AND LANDING FOR A CRITICALITY OF 3/2R PNP.

THE NASA VIEWED ANY LOSS OF WATER DUMP CAPABILITY, EITHER SUPPLY
 OR WASTE WATER, AS A LOSS OF LIFE OR VEHICLE CONDITION. HOWEVER
 THE IOA ANALYSIS DID NOT RECOGNIZE THIS LIMITATION AND VIEWED THE
 LOSS OF WASTE WATER DUMP CAPABILITY TO
 BE ONLY A LOSS OF MISSION CONDITION.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2149
 NASA FMEA #: 06-2-0313-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2149
 ITEM: TANK FLUID QUANTITY LEVEL SENSOR (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: OUT OF TOLERANCE OUTPUT

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2150
 NASA FMEA #: 06-2-0313-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2150
 ITEM: TANK FLUID LEVEL SIGNAL CONDITIONER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: OUT OF TOLERANCE OUTPUT

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2151
 NASA FMEA #: 05-6VC-2003-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2151
 ITEM: TANK INLET VALVE CIRCUIT BREAKER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: OPEN (ELECTRICAL)
 IOA COMMENT: THE IOA CRITICALITY CHANGED BECAUSE LOSS OF THE VALVE COULD BE A MISSION IMPACT IF ANOTHER FAILURE OCCURRED.

THE DISAGREEMENT IN THE REDUNDANCY SCREENS WAS DUE TO NO DETAILED DISCUSSION WITH THE NASA SUBSYSTEM MANAGERS REGARDING THE REDUNDANT PATHS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2152
 NASA FMEA #: 05-6VC-2003-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2152
 ITEM: TANK INLET VALVE CIRCUIT BREAKER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: FAILS TO OPEN

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2153
 NASA FMEA #: 05-6VC-2021-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2153
 ITEM: TANK INLET VALVE SWITCH (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: OPEN (ELECTRICAL)
 IOA COMMENT: IN THE EVENT OF A TANK RUPTURE OR OTHER FAILURE IN THE NITROGEN PRESSURIZATION SYSTEM AND THE FAILURE OF THE INLET VALVE SWITCH AS AN ELECTRICAL OPEN, THEN A POTENTIAL LOSS OF MISSION OCCURS DUE TO POSSIBILITY OF WASTE FLUIDS INTO CABIN ATMOSPHERE. THE FCB AND UCD SUPPLIES WOULD BE USED AS REDUNDANT SYSTEM.

THE DISAGREEMENT IN THE REDUNDANCY SCREENS WAS DUE TO NO DETAILED DISCUSSION WITH THE NASA SUBSYSTEM MANAGERS REGARDING THE REDUNDANT PATHS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2154
 NASA FMEA #: 05-6VC-2021-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2154
 ITEM: TANK INLET VALVE SWITCH (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: SHORTED CONTACTS
 NASA FM: CLOSED - CLOSING SET OF CONTACTS

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2154A
 NASA FMEA #: 05-6VC-2021-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2154
 ITEM: TANK INLET VALVE SWITCH (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: SHORTED CONTACTS
 NASA FM: CLOSED - OPENING SET OF CONTACTS

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2155
 NASA FMEA #: 05-6VC-2021-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2155
 ITEM: TANK INLET VALVE, SOLENOID (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: SHORTED
 NASA FM: CLOSED - OPENING SET OF CONTACTS
 IOA COMMENT: IN THE EVENT OF A TANK RUPTURE OR OTHER FAILURE IN THE NITROGEN PRESSURIZATION SYSTEM AND THE FAILURE OF THE INLET VALVE SOLENOID AS AN ELECTRICAL SHORT, THEN A POTENTIAL LOSS OF MISSION OCCURS DUE TO POSSIBILITY OF WASTE FLUIDS INTO CABIN ATMOSPHERE. THE FCB AND UCD SUPPLIES WOULD BE USED AS REDUNDANT SYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2155A
 NASA FMEA #: 05-6VC-2021-3

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2155
 ITEM: TANK INLET VALVE, SOLENOID (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: SHORTED
 NASA FM: CLOSED - OPENING SET OF CONTACTS

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2157
 NASA FMEA #: 05-6VC-2035-1

NASA DATA:
 BASELINE []
 NEW [x]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2157
 ITEM: WASTE WATER TANK INLET VALVE OPEN INDICATOR (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: ERRONEOUS INDICATION
 NASA FM: OPEN

IOA COMMENT: IF INDICATOR SHORTS TO GROUND THE VALVE COULD
 INADVERTENTLY CLOSE, THUS ELIMINATING ARS EFFLUENT STORAGE AND
 LIMITING MISSION LIFE, AND PRODUCING A CRITICALITY OF 3/2R PPP.
 FOR THE CONDITION OF ELECTRICAL OPEN, THE CRITICALITY WOULD BE
 3/3.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2157A
 NASA FMEA #: 05-6VC-2035-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2157
 ITEM: WASTE WATER TANK INLET VALVE OPEN INDICATOR (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: ERRONEOUS INDICATION
 NASA FM: SHORTED TO GROUND
 IOA COMMENT: IF INDICATOR SHORTS TO GROUND THE VALVE COULD
 INADVERTENTLY CLOSE, THUS ELIMINATING ARS EFFLUENT STORAGE AND
 LIMITING MISSION LIFE, AND PRODUCING A CRITICALITY OF 3/2R PPP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2158
 NASA FMEA #: 05-6VC-2035-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2158
 ITEM: TANK INLET VALVE INICATOR DIODE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: OPEN (ELECTRICAL), SHORTED, EXCESSIVE RESISTANCE
 NASA FM: OPEN
 IOA COMMENT: IF THE DIODE SHORTS TO GROUND, THEN CONTROL OF VALVE IS ELIMINATED, AND ARS EFFLUENT STORAGE COULD BE HALTED, THUS LIMITING MISSION LIFE AND PRODUCING A CRITICALITY OF 3/2R PPP. IF THE FAILURE MODE OF ELECTRICAL OPEN IS CONSIDERED, THE CRITICALITY WOULD BE 3/3.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2158A
 NASA FMEA #: 05-6VC-2035-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2158
 ITEM: TANK INLET VALVE INICATOR DIODE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: OPEN (ELECTRICAL), SHORTED, EXCESSIVE RESISTANCE
 NASA FM: SHORTED TO GROUND
 IOA COMMENT: IF THE DIODE SHORTS TO GROUND, THEN CONTROL OF VALVE IS ELIMINATED, AND ARS EFFLUENT STORAGE COULD BE HALTED, THUS LIMITING MISSION LIFE AND PRODUCING A CRITICALITY OF 3/2R PPP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2159
 NASA FMEA #: 05-6VC-2035-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2159
 ITEM: TANK INLET VALVE INICATOR RESISTOR TO MDM OF1
 (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: OPEN (ELECTRICAL), SHORTED, EXCESSIVE RESISTANCE
 NASA FM: OPEN
 IOA COMMENT: IF THE RESISTOR SHORTS TO GROUND, THEN CONTROL OF THE VALVE IS ELIMINATED AND ARS EFFLUENT STORAGE COULD BE LOST - THUS LIMITING MISSION LIFE AND CRITICALITY OF 3/2R PPP. IF THE RESISTOR IS ONLY OPEN THE CRITICALITY OF 3/3.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2159A
 NASA FMEA #: 05-6VC-2035-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2159
 ITEM: TANK INLET VALVE INICATOR RESISTOR TO MDM OF1
 (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: OPEN (ELECTRICAL), SHORTED, EXCESSIVE RESISTANCE

NASA FM: OPEN

IOA COMMENT: IF THE RESISTOR SHORTS TO GROUND, THEN CONTROL OF THE VALVE IS ELIMINATED AND ARS EFFLUENT STORAGE COULD BE LOST - THUS LIMITING MISSION LIFE AND CRITICALITY OF 3/2R PPP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2160
 NASA FMEA #: 05-6VC-2004-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2160
 ITEM: TANK OUTLET VALVE CIRCUIT BREAKER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS TO REMAIN CLOSED, PREMATURE OPERATION, OPEN
 (ELECTRICAL)
 NASA FM: ALL CREDIBLE MODES

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2161
 NASA FMEA #: 05-6VC-2004-1

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2161
 ITEM: TANK OUTLET VALVE CIRCUIT BREAKER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: FAILS TO OPEN, DELAYED OPERATION
 NASA FM: ALL CREDIBLE MODES

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2162
 NASA FMEA #: 05-6VC-2020-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2162
 ITEM: TANK OUTLET VALVE SWITCH (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: OPEN (ELECTRICAL)
 NASA FM: ALL CREDIBLE MODES

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2163
 NASA FMEA #: 05-6VC-2020-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2163
 ITEM: TANK OUTLET VALVE SWITCH (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: SHORTED
 NASA FM: ALL CREDIBLE MODES

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2164
 NASA FMEA #: 05-6VC-2020-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2164
 ITEM: TANK OUTLET VALVE, SOLENOID (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: OPEN (ELECTRICAL)
 NASA FM: ALL CREDIBLE MODES

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2165
 NASA FMEA #: 05-6VC-2020-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2165
 ITEM: TANK OUTLET VALVE, SOLENOID (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: SHORTED
 NASA FM: ALL CREDIBLE MODES

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2166
 NASA FMEA #: 05-6VC-2034-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2166
 ITEM: TANK OUTLET VALVE SWITCH INDICATOR

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: ERRONEOUS OUTPUT
 NASA FM: OPEN AND SHORT TO GROUND

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2167
 NASA FMEA #: 05-6VC-2034-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2167
 ITEM: TANK OUTLET VALVE DIODE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: OPEN, SHORTED TO GROUND

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2169
 NASA FMEA #: 06-2-0426-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2169
 ITEM: PRESSURE SENSOR (VARIABLE RESISTANCE BRIDGE) (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: LOSS OF OUTPUT, OUT OF TOLERANCE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2171
 NASA FMEA #: 05-6VC-2002-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2171
 ITEM: WASTE H2O DUMP ISOL. VALVE CIRCUIT BREAKER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: FAILS TO REMAIN CLOSED

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2172
 NASA FMEA #: 05-6VC-2002-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2172
 ITEM: WASTE H2O DUMP ISOL. VALVE CIRCUIT BREAKER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: FAILS TO OPEN

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2173
 NASA FMEA #: 05-6VC-2022-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2173
 ITEM: WASTE H2O DUMP ISOL. VALVE CIRCUIT BREAKER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: SINGLE CONTACT OPEN (ELECTRICAL)
 NASA FM: SWITCH FAILS OPEN (VALVE CLOSED), SWITCH FAILS CLOSED
 IN CLOSED POSITION
 IOA COMMENT: THE ANALYZED PART IS THE DUMP ISOLATION VALVE
 SWITCH, NOT THE CIRCUIT BREAKER AS TITLED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2173A
 NASA FMEA #: 05-6VC-2022-2

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2173
 ITEM: WASTE H2O DUMP ISOL. VALVE CIRCUIT BREAKER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: SINGLE CONTACT OPEN (ELECTRICAL)
 NASA FM: SWITCH FAILS OPEN (VALVE OPENS), SWITCH FAILS CLOSED (VALVE OPEN)
 IOA COMMENT: THE ANALYZED PART IS THE DUMP ISOLATION VALVE SWITCH, NOT THE CIRCUIT BREAKER AS TITLED. UNLESSS THE DUMP VALVE FAILS, THIS FAILURE IS NOT MISSION CRITICAL (3/2R PNP).

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2174
 NASA FMEA #: 05-6VC-2022-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2174
 ITEM: WASTE H2O DUMP ISOL. VALVE CIRCUIT BREAKER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: SINGLE CONTACT SHORTED
 NASA FM: SWITCH FAILS OPEN (VALVE CLOSED), SWITCH FAILS CLOSED
 (CLOSED POSITION)
 IOA COMMENT: THE ANALYZED PART IS THE DUMP ISOLATION VALVE
 SWITCH, NOT THE CIRCUIT BREAKER AS TITLED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2174A
 NASA FMEA #: 05-6VC-2022-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2174
 ITEM: WASTE H2O DUMP ISOL. VALVE CIRCUIT BREAKER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: SINGLE CONTACT SHORTED
 NASA FM: SWITCH FAILS OPEN (VALVE OPEN), SWITCH FAILS CLOSED
 (OPEN POSITION)
 IOA COMMENT: THE ANALYZED PART IS THE DUMP ISOLATION VALVE
 SWITCH, NOT THE CIRCUIT BREAKER AS TITLED. THE FAILURE OF THE
 VALVE BY ITSELF IS NOT A MISSION LOSS, THE SUBSEQUENT FAILURE OF
 THE DUMP VALVE WOULD BE A MISSION LOSS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2175
 NASA FMEA #: 05-6VC-2022-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2175
 ITEM: WASTE H2O DUMP ISOL. VALVE CIRCUIT BREAKER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: PHYSICAL BINDING/JAMMING
 NASA FM: SWITCH FAILS OPEN (VALVE CLOSED), SWITCH FAILS CLOSED
 (CLOSED POSITION)
 IOA COMMENT: THE ANALYZED PART IS THE DUMP ISOLATION VALVE
 SWITCH, NOT THE CIRCUIT BREAKER AS TITLED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2175A
 NASA FMEA #: 05-6VC-2022-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2175
 ITEM: WASTE H2O DUMP ISOL. VALVE CIRCUIT BREAKER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: PHYSICAL BINDING/JAMMING
 NASA FM: SWITCH FAILS OPEN (VALVE OPEN), SWITCH FAILS CLOSED
 (VALVE OPEN)
 IOA COMMENT: THE ANALYZED PART IS THE DUMP ISOLATION VALVE
 SWITCH, NOT THE CIRCUIT BREAKER AS TITLED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2176
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2176
 ITEM: WASTE H2O DUMP ISOL. VALVE CIRCUIT BREAKER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[2 / 2]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/NA] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

THIS IS A DUPLICATE ANALYSIS - PLEASE DISREGARD.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2177
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2177
 ITEM: WASTE H2O DUMP ISOL. VALVE CIRCUIT BREAKER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[2 / 2]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/NA] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 THIS IS A DUPLICATE ANALYSIS - PLEASE DISREGARD.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2178
 NASA FMEA #: 05-6VC-2036-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2178
 ITEM: DUMP ISOLATION VALVE INDICATOR DIODE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: OPEN (ELECTRICAL), SHORT, EXCESSIVE RESISTANCE

NASA FM: OPEN

IOA COMMENT: IF INDICATOR DIODE SHORTS TO GROUND, THE VALVE POWER IS CUT OFF BECAUSE THE ASSOCIATED CIRCUIT BREAKER IS "TRIPPED". CAUSES LOSS OF MISSION, BUT THERE MAY BE POTENTIAL WORK-AROUNDS. THE CRITICALITY WOULD BE 2/2. FOR THE CASE OF AN ELECTRICAL OPEN ON THE DIODE, THEN A CRITICALITY OF 3/3 EXISTS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2179
 NASA FMEA #: 05-6VC-2036-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2179
 ITEM: DUMP ISOLATION VALVE RESISTOR TO MDM OF2 (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: OPEN (ELECTRICAL), SHORT, EXCESSIVE RESISTANCE
 NASA FM: OPEN
 IOA COMMENT: IF INDICATOR RESISTOR SHORTS TO GROUND, THE VALVE POWER IS CUT OFF BECAUSE THE ASSOCIATED CIRCUIT BREAKER IS "TRIPPED". CAUSES LOSS OF MISSION, BUT THERE MAY BE POTENTIAL WORK-AROUNDS. THE CRITICALITY WOULD BE 2/2. FOR THE CASE OF AN ELECTRICAL OPEN ON THE RESISTOR THE CRITICALITY WOULD BE 3/3.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2179A
 NASA FMEA #: 05-6VC-2036-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2179
 ITEM: DUMP ISOLATION VALVE RESISTOR TO MDM OF2 (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: OPEN (ELECTRICAL), SHORT, EXCESSIVE RESISTANCE
 NASA FM: SHORTED TO GROUND
 IOA COMMENT: IF INDICATOR RESISTOR SHORTS TO GROUND, THE VALVE
 POWER IS CUT OFF BECAUSE THE ASSOCIATED CIRCUIT BREAKER IS
 "TRIPPED". CAUSES LOSS OF MISSION, BUT THERE MAY BE POTENTIAL
 WORK-AROUNDS. THE CRITICALITY WOULD BE 2/2.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2180
 NASA FMEA #: 05-6VC-2036-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2180
 ITEM: WASTE H2O DUMP ISOL. SWITCH INDICATOR (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: ERRONEOUS OUTPUT
 NASA FM: OPEN

IOA COMMENT: IF INDICATOR SHORTS TO GROUND, THE VALVE POWER IS CUT OFF BECAUSE THE ASSOCIATED CIRCUIT BREAKER IS "TRIPPED". CAUSES LOSS OF MISSION EVENTHOUGH THERE ARE POTENTIAL WORK AROUNDS. THE CRITICALITY WOULD BE 2/2. FOR THE CASE OF AN ELECTRICALLY OPEN SWITCH "TELL-TALE" THE CRITICALITY WOULD BE 3/3.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2183
 NASA FMEA #: 06-2-0422-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2183
 ITEM: DUMP LINE HEATER (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: OPEN (ELECTRICAL)

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2184
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2184
 ITEM: DUMP LINE HEATER (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA FM: SHORTED

THERE WAS NO NASA WMS FMEA WHICH MATCHED THE IOA DESCRIPTION.
 THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
 REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2185
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2185
ITEM: WASTE H2O DUMP HEATER LINE THERMOSTAT (4)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[N /N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA FM: FAILS TO OPEN, SHORTED
IOA COMMENT: FOR THE CASE OF SHORTED TO GROUND IF THE REDUNDANT HEATER FAIL TO FUNCTION THEN A MISSION LOSS COULD BE PRODUCED (CRITICALITY 3/2R PPP).

THERE WAS NO NASA WMS FMEA WHICH MATCHED THE IOA DESCRIPTION. THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2187
 NASA FMEA #: 06-2-0430-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2187
 ITEM: WASTE H2O DUMP LINE TEMPERATURE TRANSDUCER (1)
 (POTENTIAL COMPARATOR)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: OUT OF TOLERANCE/LOSS OF OUTPUT
 IOA COMMENT: LOSS OF THE TEMPERATURE TRANSDUCER ELIMINATES SAFE
 WASTE WATER DUMP AND REQUIRES USE OF FCB AND UCD SUPPLIES WHICH
 MAY BE INSUFFICIENT TO COMPLETE MISSION, CRITICALITY OF 3/2R PNP.

THE POTENTIAL FOR WASTE WATER DUMP LINE FREEZING WITHOUT THE
 TEMPERATURE SENSOR INDICATOR CREATED AN IOA CRITICALITY OF 3/2R,
 INSTEAD OF THE NASA CRITICALITY OF 3/3.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2189
 NASA FMEA #: 05-6VC-2001-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2189
 ITEM: DUMP VALVE/NOZZLE HEATER CIRCUIT BREAKER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[NA]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: FAILS TO REMAIN CLOSED
 IOA COMMENT: THE LOSS OF THE WASTE WATER DUMP REQUIRES USE OF
 THE CWC FOR FLUID STORAGE THUS 3/2R CRITICALITY, NOT LOSS OF
 LIFE.

THE NASA VIEWED ANY LOSS OF WATER DUMP CAPABILITY, EITHER SUPPLY
 OR WASTE WATER, AS A LOSS OF LIFE OR VEHICLE CONDITION. HOWEVER
 THE IOA ANALYSIS DID NOT RECOGNIZE THIS LIMITATION AND VIEWED THE
 LOSS OF WASTE WATER DUMP CAPABILITY TO
 BE ONLY A LOSS OF MISSION CONDITION.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2190
 NASA FMEA #: 05-6VC-2001-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2190
 ITEM: DUMP VALVE/NOZZLE HEATER CIRCUIT BREAKER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: FAILS TO OPEN

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2191A
 NASA FMEA #: 05-6VC-2024-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2191
 ITEM: DUMP VALVE ENABLE/NOZZLE HEATER SWITCH (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: SHORTED TO GROUND
 NASA FM: FAILS CLOSED, SHORTS POLE TO POLE
 IOA COMMENT: LOSS OF SWITCH ELIMINATES WASTE WATER DUMP
 CAPABILITY THRU THE NORMAL CHANNELS, BUT DUMP CAN STILL BE DONE
 THRU THE SUPPLY WATER SYSTEM. IF THE FAILURE OCCURS DURING A
 VALVE CLOSED PHASE, THEN A POTENTIAL LOSS OF LIFE CAN OCCUR IF
 THE DUMP ISOLATION VALVE ALSO FAILS - THUS A CRITICALITY OF 3/2R
 PNP. THE INSTRUMENTATION READINESS FOR THE WASTE WATER DUMP
 SUBSYSTEM WAS CONSIDERED A FUNCTIONAL MISSION CRITICAL IF
 ADDITIONAL FAILURES OCCURRED UNDER THE IOA ANALYSIS; WHEREAS, THE
 NASA FMEA CONSIDERED THEM TO BE A NON-MISSION ESSENTIAL
 CONDITION.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2192
 NASA FMEA #: 05-6VC-2024-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2192
 ITEM: DUMP VALVE ENABLE/NOZZLE HEATER SWITCH (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: PHYSICAL BINDING/JAMMING
 NASA FM: OPEN, SHORTED TO GROUND
 IOA COMMENT: LOSS OF SWITCH ELIMINATES WASTE WATER DUMP
 CAPABILITY THRU THE NORMAL CHANNELS, BUT DUMP CAN STILL BE DONE
 THRU THE SUPPLY WATER SYSTEM. IF THE FAILURE OCCURS DURING A
 VALVE OPEN PHASE, THEN A POTENTIAL LOSS OF LIFE CAN OCCUR IF THE
 DUMP ISOLATION VALVE ALSO FAILS - THUS A CRITICALITY OF 3/1R PNP.
 THE IOA ANALYSIS VIEWED THE FIRST FAILURE TO BE A NON-MISSION
 ESSENTIAL CRITICALITY, HOWEVER SECONDARY FAILURES COULD CREATE
 MAJOR PROBLEMS. THE NASA FMEA CRITICALITY VIEWED
 THE FIRST FAILURE TO BE AT LEAST A MISSION LOSS, IF NOT A LIFE
 THREATENING CONDITION.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2194
 NASA FMEA #: 05-6VC-2042-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2194
 ITEM: DUMP VALVE ENABLE/NOZZLE HEATER INDICATOR (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: ERRONEOUS OUTPUT
 NASA FM: OPEN
 IOA COMMENT: WITH THE LOSS OF THE HEATER INDICATOR, THERE IS NO MISSION LOSS. HOWEVER IF ALL HEATER INDICATORS FAILS THEN THERE IS A LOSS OF DUMP CAPABILITY AND THUS LOSS OF MISSION-CRITICALITY 3/2R PPP.

THE INSTRUMENTATION READINESS FOR THE WASTE WATER DUMP SUBSYSTEM WAS CONSIDERED A FUNCTIONAL MISSION CRITICAL IF ADDITIONAL FAILURES OCCURRED UNDER THE IOA ANALYSIS; WHEREAS, THE NASA FMEA CONSIDERED THEM TO BE A NON-MISSION ESSENTIAL CONDITION.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2195
 NASA FMEA #: 05-6VC-2023-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2195
 ITEM: WASTE H2O DUMP VALVE SWITCH (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[NA]	[P]	[X] *
IOA	[2 /1R]	[P]	[P]	[P]	[X]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /1R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: OPEN (ELECTRICAL)
 NASA FM: SWITCH FAILS OPEN (VALVE OPEN), SWITCH FAILS CLOSED
 (VALVE OPEN)

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2197
 NASA FMEA #: 05-6VC-2023-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2197
 ITEM: WASTE H2O DUMP VALVE SWITCH (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[NA]	[P]	[X] *
IOA	[2 /1R]	[P]	[P]	[P]	[X]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /1R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: PHYSICAL BINDING/JAMMING
 NASA FM: SWITCH FAILS OPEN (VALVE OPEN), SWITCH FAILS CLOSED
 (VALVE OPEN)

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2197A
 NASA FMEA #: 05-6VC-2023-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2197
 ITEM: WASTE H2O DUMP VALVE SWITCH (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[X] *
IOA	[2 /1R]	[P]	[P]	[P]	[X]
COMPARE	[N /]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: PHYSICAL BINDING/JAMMING

NASA FM: SWITCH FAILS OPEN (VALVE CLOSED), SWITCH FAILS CLOSED (VALVE CLOSED)

IOA COMMENT: THE CASE IN WHICH THE SWITCH IS JAMMED OPEN, THEN A MISSION LOSS IS DEVELOPED IF THE VALVE IS OPEN AT THE TIME OF FAILURE, FOR A CRITICALITY 2/1R PNP. HOWEVER, FOR THE CONDITION OF VALVE CLOSED, THE SWITCH FAILURE WOULD ONLY BE 3/1R PNP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2199
 NASA FMEA #: 05-6VC-2023-1

NASA DATA:
 BASELINE [X]
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2199
 ITEM: WASTE H2O DUMP VALVE SOLENOID (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[NA]	[P]	[X] *
IOA	[2 /1R]	[P]	[P]	[P]	[X]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /1R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: SHORTED
 NASA FM: SWITCH FAILS OPEN (VALVE OPEN), SWITCH FAILS CLOSED
 (VALVE OPEN)

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2200
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2200
 ITEM: WASTE H2O DUMP VALVE SOLENOID (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/NA] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA COMMENT: DELETE THIS ANALYSIS, THE FAILURE/HARDWARE DO NOT EXIST.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2201
 NASA FMEA #: 05-6VC-2023-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2201
 ITEM: DUMP VALVE INDICATOR RESISTOR TO MDM OF3 (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[NA]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /1R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: LOSS OF OUTPUT [OPEN (ELECTRICAL), SHORTED, EXCESSIVE RESISTANCE]

NASA FM: SWITCH FAILS OPEN (VALVE OPEN), SWITCH FAILS CLOSED (VALVE OPEN)

IOA COMMENT: IF RESISTOR SHORTS TO GROUND COULD PRODUCE LOSS OF VALVE ACTUATION BECAUSE OF NO POWER AND POTENTIAL LOSS OF LIFE CONDITION IF SECOND FAILURE OCCURS (CRITICALITY 2/1R PPP). THE NASA CONDITION OF VALVE OPEN DURING RESISTOR FAILURE WOULD BE A 2/1R PPP BECAUSE OF THE LOST DUMP CAPABILITY AND POTENTIAL FOR LOSS OF LIFE IF REDUNDANT UPSTREAM ATMOSPHERE SEALS FAIL.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2202
 NASA FMEA #: 05-6VC-2031-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2202
 ITEM: DUMP VALVE INDICATOR DIODE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: LOSS OF OUTPUT (OPEN (ELECTRICAL), SHORTED, EXCESSIVE RESISTANCE)
 NASA FM: FAILS OPEN

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2202A
 NASA FMEA #: 05-6VC-2031-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2202
 ITEM: DUMP VALVE INDICATOR DIODE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: LOSS OF OUTPUT (ELECTRICAL OPEN, SHORTED, EXCESSIVE RESISTANCE)

NASA FM: SHORTED

IOA COMMENT: IF DIODE SHORTS TO GROUND COULD PRODUCE LOSS OF VALVE ACTUATION BECAUSE OF NO POWER AND POTENTIAL LOSS OF MISSION CONDITION IF SECOND FAILURE OCCURS FOR A CRITICALITY OF 3/2R PNP BECAUSE OF THE LOST DUMP CAPABILITY.

THE POTENTIAL FOR WASTE WATER DUMP LINE FREEZING WITHOUT THE TEMPERATURE SENSOR INDICATOR CREATED AN IOA CRITICALITY OF 3/2R, INSTEAD OF THE NASA CRITICALITY OF 3/3.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2203
 NASA FMEA #: 06-2-0421-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2203
 ITEM: DUMP NOZZLE HEATER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: OPEN (ELECTRICAL), SHORTED
 NASA FM: OPEN

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2205
 NASA FMEA #: 06-2-0429-1

NASA DATA:
 BASELINE []
 NEW [X]

UBSYSTEM: LIFE SUPPORT
 MDAC ID: 2205
 ITEM: WASTE H2O DUMP NOZZLE SIGNAL CONDITIONER (2)
 LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: ERRONEOUS OUTPUT, OPEN (ELECTRICAL), SHORTED
 NASA FM: LOSS OF OUTPUT

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2206
 NASA FMEA #: 06-2-0421-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2206
 ITEM: DUMP NOZZLE RESISTOR TO MDM OF4 (HEATER
 STATUS) (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: OPEN (ELECTRICAL), SHORTED TO GROUND

NASA FM: OPEN

IOA COMMENT: IF RESISTOR SHORTS TO GROUND, LOSS OF POWER TO
 HEATERS IS PRODUCED. REDUNDANT HEATER MUST BE USED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87	NASA DATA:
ASSESSMENT ID: LS-2207	BASELINE []
NASA FMEA #: 06-2-0404-1	NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2207
 ITEM: CREW MODULE INTERNAL LINE AND FITTINGS

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[X] *
IOA	[1 /1]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R]	[P]	[NA]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

IOA/NASA FM: EXTERNAL LEAKAGE
 IOA COMMENT: IF THE VACUUM VENT ISOLATION VALVE DOES NOT CLOSE
 THEN HAVE CATASTROPHIC LOSS OF CABIN ATMOSPHERE AND LOSS OF
 CREW/VEHICLE IS POSSIBLE WITH A CRITICALITY OF 3/1R PNP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2208
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2208
 ITEM: INTERNAL LINE AND FITTINGS

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[1 / 1]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/NA] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

DELETE THIS ANALYSIS-THE HARDWARE DOES NOT EXIST ANYMORE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2209
 NASA FMEA #: 06-2-0402-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2209
 ITEM: EXTERNAL LINE AND FITTINGS

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[1 /1]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /1R] [P] [P] [P] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: EXTERNAL LEAKAGE
 IOA COMMENT: POTENTIAL LOSS OF MISSION DUE TO GASEOUS HYDROGEN
 IN THE CARGO BAY AND POTENTIAL FOR LOSS OF VEHICLE IF A SPARK
 SOURCE IS PREVENT, CRITICALITY 2/1R PPP.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2211
NASA FMEA #: 06-2-0418-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2211
ITEM: VACUUM VENT NOZZLE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[1 /1]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[1 /1] [] [] [] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA/NASA FM: RESTRICTED/BLOCKED FLOW
IOA COMMENT: THIS MAY BE DETERMINED TO BE A "NON-CREDIBLE" CONDITION OF BLOCKED FLOW IN THE VACUUM VENT LINE, HOWEVER IF PLAUSIBLE A POTENTIALLY EXPLOSIVE ENVIRONMENT DUE TO HYDROGEN GAS CONCENTRATIONS WOULD BE POSSIBLE, HENCE THE 1/1 CRITICALITY.

THE IOA ANALYSIS VIEWED THE LOSS OF THE VACUUM VENT DUMP LINE BY BLOCKAGE OR LOSS OF THE HEATERS AS A POTENTIAL LOSS OF LIFE/VEHICLE CONDITION. A POTENTIALLY HAZARDOUS ATMOSPHERE OF HYDROGEN AND OXYGEN COULD OCCUR IF THE LINE WERE BLOCKED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2212
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2212
 ITEM: VACUUM VENT LINE HEATER THERMOSTAT (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA FM: FAILS TO OPEN

THERE WAS NO NASA WMS FMEA WHICH MATCHED THE IOA DESCRIPTION.
 THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
 REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2213
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2213
ITEM: VACUUM VENT LINE HEATER THERMOSTAT (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[2 /1R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /1R] [P] [P] [P] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA FM: FAILS TO REMAIN CLOSED

THERE WAS NO NASA WMS FMEA WHICH MATCHED THE IOA DESCRIPTION.
THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2216
 NASA FMEA #: 06-2-0428-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2216
 ITEM: LINE TEMPERATURE SENSOR (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: ERRONEOUS OUTPUT, ELECTRICAL OPEN, SHORTED
 NASA FM: LOSS OF OUTPUT

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2217
 NASA FMEA #: 05-6VC-2006-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2217
 ITEM: NOZZLE HEATER CIRCUIT BREAKER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: FAILS TO OPEN

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2219
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2219
 ITEM: NOZZLE HEATER SWITCH (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[1 / 1]	[]	[]	[]	[X]
COMPARE	[N / N]	[]	[]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[1 / 1] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: ELECTRICAL OPEN

THERE WAS NO NASA WMS FMEA WHICH MATCHED THE IOA DESCRIPTION.
 THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
 REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2220
 NASA FMEA #: 05-6VC-2025-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2220
 ITEM: NOZZLE HEATER SWITCH (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[1 / 1]	[]	[]	[]	[X]
COMPARE	[N / N]	[]	[]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[1 / 1] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: SHORTED

NASA FM: OPEN, SHORTED TO GROUND

IOA COMMENT: IF THE POSSIBILITY FOR LINE FREEZING IS ACCEPTED, DUE TO THE PRESENCE OF THE VACUUM VENT HEATERS, THEN LOSS OF THE HEATERS COULD CAUSE LINE FREEZING AND A POTENTIALLY DANGEROUS GAS ENVIRONMENT.

THE IOA ANALYSIS VIEWED THE LOSS OF THE VACUUM VENT DUMP LINE BY BLOCKAGE OR LOSS OF THE HEATERS AS A POTENTIAL LOSS OF LIFE/VEHICLE CONDITION. A POTENTIALLY HAZARDOUS ATMOSPHERE OF HYDROGEN AND OXYGEN COULD OCCUR IF THE LINE WERE BLOCKED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2220A
 NASA FMEA #: 05-6VC-2025-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2220
 ITEM: NOZZLE HEATER SWITCH (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[1 / 1]	[]	[]	[]	[X]
COMPARE	[N / N]	[]	[]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[1 / 1] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: SHORTED
 NASA FM: CLOSED, SHORTED TO GROUND
 IOA COMMENT: IF THE POSSIBILITY FOR LINE FREEZING IS ACCEPTED,
 DUE TO THE PRESENCE OF THE VACUUM VENT HEATERS, THEN LOSS OF THE
 HEATERS COULD CAUSE LINE FREEZING AND A POTENTIALLY DANGEROUS GAS
 ENVIROMENT.

THE IOA ANALYSIS VIEWED THE LOSS OF THE VACUUM VENT DUMP LINE BY
 BLOCKAGE OR LOSS OF THE HEATERS AS A POTENTIAL LOSS OF
 LIFE/VEHICLE CONDITION. A POTENTIALLY HAZARDOUS ATMOSPHERE OF
 HYDROGEN AND OXYGEN COULD OCCUR IF THE LINE WERE BLOCKED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2221
 NASA FMEA #:

NASA DATA:
 BASELINE []
 NEW []

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2221
 ITEM: RESISTOR TO MDM OF4 (HEATER INDICATOR) (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: LOSS OF OUTPUT (ELECTRICAL OPEN, SHORT)

THERE WAS NO NASA WMS FMEA WHICH MATCHED THE IOA DESCRIPTION.
 THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
 REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2223
 NASA FMEA #: 06-2-0427-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2223
 ITEM: NOZZLE TEMPERATURE SENSOR (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: LOSS OF OUTPUT, ERRONEOUS OUTPUT

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2224
 NASA FMEA #: 06-2-0427-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2224
 ITEM: NOZZLE TEMPERATURE SENSOR CONDITIONER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: LOSS OF OUTPUT, ERRONEOUS OUTPUT

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2225X
 NASA FMEA #: 06-2-0102-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2225
 ITEM: FIXED FILTER URINAL SCREEN (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[NA]	[P]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: RESTRICTED/BLOCKED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2226X
 NASA FMEA #: 06-2-0444-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2226
 ITEM: EMU QD (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[NA]	[P]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: RESTRICTED/BLOCKED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2227X
 NASA FMEA #: 06-2-0203-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2227
 ITEM: COMMODE LINER

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[NA]	[P]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: RESTRICTED/BLOCKED FLOW
 NASA FM: PLUGGED, OVERFILLED

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2228X
 NASA FMEA #: 06-2-0206-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2228
 ITEM: COMMODE LINER

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[NA]	[P]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: RESTRICTED/BLOCKED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2230X
 NASA FMEA #: 06-2-0217-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2230
 ITEM: WET TRASH VENT LINE ORIFICE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA FM: RESTRICTED FLOW
 NASA FM: RESTRICTED FLOW, EXTERNAL LEAKAGE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2234X
 NASA FMEA #: 06-2-0210-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2234
 ITEM: COMMODE RE-PRESSURIZATION VALVE ORIFICE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[NA]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

IOA/NASA FM: RESTRICTED FLOW

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
 ASSESSMENT ID: LS-2238X
 NASA FMEA #: 06-2-0445-2

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 2238
 ITEM: MUFFLER HOUSING ASSEMBLY (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 / 2]	[]	[]	[]	[X] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
 (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:
 IOA/NASA FM: EXTERNAL LEAKAGE