INDEPENDENT ORBITER ASSESSMENT

ASSESSMENT OF THE
MAIN PROPULSION
SUBSYSTEM
FMEA/CIL
VOLUME 1 OF 4

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INDEPENDENT ORBITER ASSESSMENT
ASSESSMENT OF THE ORBITER MAIN PROPULSION SYSTEM FMEA/CIL

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Independent Orbiter Assessment
Assessment of the Orbiter Main Propulsion 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 Main Propulsion System (MPS) 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 available data from the Rockwell Downey/NASA JSC (henceforth referred to as RI/NASA) FMEA/CIL review. (This review is still in progress as of this writing.) Data available to IOA as of 1 January 1988 was used.

For the mechanical component analysis, this included: (1) The RI/NASA Critical Items List of 23 December 1987, (2) substantially complete (but still subject to revision) CIL worksheets for the Feed and Fill/Drain Subsystems, and (3) RI/NASA FMEA/CIL review meeting notes specifying revisions to the pre-51L FMEA/CIL document. These notes were acquired from J. E. Borches/Lockheed in July 1987.

Available data for the EPD&C analysis included substantially complete CIL worksheets for some EPD&C components (Feed and Fill/Drain) and the MPS/EPDC FMEA Review Summary of 18 August 1987. The Review Summary gives no supporting information, only criticalities and screens. All of this data was still subject to change at the time this assessment began.

IOA Assessment sheets (Appendix C) indicate the source of the RI/NASA work that was assessed. Where no source is given, an RI/NASA CIL worksheet was used.

Due to severe budget and schedule constraints, the resolution of differences between the RI/NASA results and IOA was not possible.

An overview of the IOA MPS Assessment results is given in Figure 1.
Figure 1 - MPS FMEA/CIL ASSESSMENT
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 proposed Post 51-L Orbiter FMEA/CIL 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-available 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
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 Ground Rules and Assumptions

The ground rules and assumptions used in the IOA are defined in Appendix B. The subsystem specific ground rules were defined to provide necessary additions and clarifications to the ground rules and assumptions contained in NSTS 22206.
3.0 SUBSYSTEM DESCRIPTION

3.1 Design and Function

The Orbiter Main Propulsion System is composed of the Propellant Management Subsystem (PMS) consisting of the LO₂ and LH₂ subsystems and the Helium Subsystem (Figures 2A thru 2D). The PMS is a system of manifolds, distribution lines, and valves by which the liquid propellants pass from the ET to the SSMEs. Some of the propellants are vaporized in the engine and returned to the ET to maintain ullage pressure. The Helium Subsystem consists of a series of helium supply tanks and their associated regulators, check valves, distribution lines, and control valves. The Helium Subsystem supplies helium that is used within the SSMEs for in-flight purges and provides pressure for actuating SSME valves during emergency pneumatic shutdowns. The balance of the helium is used to provide pressure to actuate all the pneumatically operated valves within the PMS.

3.1.1 Propellant Management Subsystem Function

During engine burn, propellants under tank pressure flow from the ET to the Orbiter through two umbilicals; one for LO₂ and the other for LH₂ (Figures 3 and 4, respectively).

The PMS also provides a path which allows gases tapped from the three engines to flow back to the ET, through two gas umbilicals, to maintain pressures in the fuel and oxidizer tanks.

The PMS also functions during phases other than engine burn. During prelaunch, the PMS is used to control the loading of propellants in the ET. During orbit, PMS controls propellant dump, vacuum inerting, and system repressurization (for entry).

3.1.2 The PMS Components

The PMS contains the following major components (Figures 3 and 4).

A. Liquid Propellant Supply and Distribution Network.

The network is composed of all the liquid propellant lines used to load propellants during prelaunch, feed propellants to the SSMEs during engine burn, and dump residual propellants after ET separation. Specifically, the network consists of:

1. Propellant Feedline Manifolds - There are two 17-inch diameter manifolds in the Orbiter, one for LO₂ and one for LH₂. Both of the manifolds have a feedline disconnect valve at one end and two fill and drain valves (one inboard, one outboard) connected in series at the other end. The feedline manifolds connect to the ET liquid propellant umbilicals at the feedline disconnect valve, and to either GSE liquid propellant umbilicals (prelaunch only), or overboard at the outboard fill and drain valves.
Figure 2A - ORBITER MPS SUBSYSTEMS
Figure 2B - ORBITER MPS LO2 SUBSYSTEM OVERVIEW
Figure 2C - ORBITER MPS LH₂ SUBSYSTEM OVERVIEW
Figure 2D - ORBITER MPS HELIUM SUBSYSTEM OVERVIEW
Figure 3 - PROPELLANT MANAGEMENT SUBSYSTEM OXIDIZER FLOW
Between the feedline disconnect valves and the inboard fill and drain valves are three outlets for the three engine propellant feedlines and 1 outlet for the propellant feedline relief line. The LH\textsubscript{2} feedline manifold contains an extra outlet for the LH\textsubscript{2} Return to Launch Site (RTLS) feedline dump line. (See paragraph 4 below.) Pressures within the LO\textsubscript{2} and the LH\textsubscript{2} feedline manifolds (MANF) can be monitored on the two ENG MANF meters on Panel F7 or the CRT display Guidance and Navigation Control (GNC) System (SYS) SUMM 1 Backup Flight System (BFS).

2. Engine Propellant Feedlines - There are 6 12-inch diameter feedlines in the Orbiter, 3 for LO\textsubscript{2} and 3 for LH\textsubscript{2}. Each of the LO\textsubscript{2} engine propellant feedlines connects to the LO\textsubscript{2} feedline manifold at one end and to the Low Pressure Oxidizer Turbopump (LPOT) inlet of one of the SSMEs at the other end. Likewise, each of the LH\textsubscript{2} engine propellant feedlines connects to the LH\textsubscript{2} feedline manifold at one end and to the Low Pressure Fuel Turbopump (LPFT) inlet at one of the SSMEs at the other end. There is one prevalve in each of the six engine propellant feedlines. The prevalves are designated as left, center, or right (engine) LO\textsubscript{2} prevalve; or left, center, or right (engine) LH\textsubscript{2} prevalve.

3. Propellant Feedline Relief Line - There are 2 1-inch diameter relief lines in the Orbiter, 1 for LO\textsubscript{2} and 1 for LH\textsubscript{2}. Each relief line connects to 1 of the propellant feedline manifolds at 1 end and to an overboard port at the other end. Each relief line contains a relief valve and a pneumatically actuated relief isolation valve. The isolation valve is mounted in series with, and up-stream of, the relief valve. Flow through the relief line and relief valve is enabled by relieving closing pressure on the normally open isolation valve, allowing it to open.

The position of the relief isolation valve (2) is controlled by one of two FEEDLINE RLF ISOL switches on Panel R4. Normally these switches are left in the GPC position. With the switches (2) in this position, both relief isolation valves will be opened automatically immediately after MECO. The purpose of the relief lines is to prevent excessive pressure build-ups, generated by heatup and expansion of the propellants in the feedline manifolds, by allowing the pressure to be vented overboard through the relief valves.
4. **LH₂ RTLS Feedline Dump Line** - This is a single 2-inch diameter line which connects to the LH₂ feedline manifold at one end and to an overboard port at the other end. (The overboard port is located on the outer skin of the left side of the Orbiter between the Orbital Maneuvering System (OMS) pod and the upper surface of the wing.) The line is used for dumping residual LH₂ during an RTLS abort. In non-RTLS situations, the pilot can use the backup LH₂ dump switch to open these valves. Flow through the line is controlled by 2 series-connected, normally closed, LH₂ RTLS dump valves (1 inboard, 1 outboard) which are mounted in the line. The LH₂ RTLS dump valves are controlled automatically by GPC commands.

**B. Gaseous Propellant Collection and Supply Network.** The network consists of all the lines used to collect and supply gaseous propellants (GO₂ and GH₂) from all three SSMEs to the ET to maintain propellant tank pressure during main engine burn. (Note: This network has no major function after ET separation.) Specifically, the gaseous propellant collection and supply network consists of the following.

1. **Engine ET Pressurization Output Lines** - There are 6 0.63-inch diameter pressurization lines in the Orbiter, 3 for GO₂ and 3 for GH₂. Each of the GO₂ pressurization lines connects to the oxidizer heat exchanger outlet of 1 of the SSMEs at 1 end and the GO₂ ET pressurization manifold at the other end. Each of the GH₂ pressurization lines connects to the LPFT turbine outlet of 1 of the SSMEs at 1 end and the GH₂ ET pressurization manifold at the other end. Six flow control valves are used to control ullage pressure in the two ET propellant tanks.

2. **ET Pressurization Manifolds** - There are 2 2-inch diameter manifolds in the Orbiter, 1 for GO₂ and 1 for GH₂. At each end of both manifolds are self-sealing quick disconnects. The pressurization manifolds connect to the ET gaseous propellant umbilicals at 1 set of quick-disconnects and to the GSE helium pressurization umbilicals at the other set of quick-disconnects. The GSE helium pressurization umbilicals (2) are used for the initial pressurization of the ET propellant tanks during prelaunch.

Each pressurization manifold contains inlets for the 3 engine ET pressurization output lines. (The ET GH₂ pressurization manifold contains, in addition to the three inlets, an outlet for the GH₂ pressurization vent line. (See paragraph 3 below.)
3. **GH2 Pressurization Vent Line** - This is a single line which connects to the ET GH2 pressurization manifold line at one end and to an overboard port at the other end. This line is used exclusively for vacuum inerting the GH2 pressurization lines during orbit. Flow through the line is controlled by the normally closed GH2 pressurization line vent valve which is mounted in the line. This valve is controlled by the GH2 PRESS LINE VENT switch on cockpit Panel R4.

C. **Valves** - There are 2 basic types of valves used in the PMS: those that are pneumatically actuated and those that are electrically actuated. Pneumatically actuated valves are used where large loads are encountered, such as in the control of liquid propellant flows. Electrically actuated valves are used where lighter loads are encountered, such as in the control of gaseous propellant flows.

Pneumatically actuated valves can be further divided into 2 subtypes - those that require pneumatic pressure to open and close the valve (type 1) and those that are spring-loaded to one position and require pneumatic pressure to move to the other position (type 2).

The following is a list of the type 1 valves.

- LH2 feedline disconnect valve
- LO2 feedline disconnect valve
- LH2 prevalves (3)
- LO2 prevalves (3)
- LH2 inboard fill/drain valve
- LO2 inboard fill/drain valve
- LH2 outboard fill/drain valve
- LO2 outboard fill/drain valve

Each type 1 valve actuator is equipped with 2 electrically actuated solenoid valves. Each of the 2 solenoid valves controls helium pressure to either an "open" port or a "close" port on the actuator.

Energizing the solenoid valve connected to the "open" port will allow helium pressure to open the pneumatic valve. Similarly, closing of the pneumatic valve is performed by energizing the solenoid valve connected to the "close" port. (The LO2 Prevalves have 4 solenoids, two redundant solenoids each to control helium pressure to the "open" and to the "closed" ports.)
Removing power from a solenoid valve not only removes helium pressure from the corresponding port of the pneumatic actuator, but also allows the helium pressure trapped in that side of the actuator to vent overboard. Removing power from both solenoids allows the pneumatic valve to remain in its last commanded position.

The following is a list of the type 2 valves.

- LH₂ RTLS inboard dump valve, Normally Closed (NC)
- LH₂ RTLS outboard dump valve (NC)
- LH₂ feedline relief shutoff valve, Normally Open (NO)
- LO₂ feedline relief shutoff valve (NO)
- LO₂ Pogo accumulator recirculation valve (NO)

Each type 2 valve is equipped with a single electrically actuated solenoid valve which controls helium pressure to either an "open" port or a "close" port on the actuator. Removing power from the solenoid valve removes helium pressure from the corresponding port of the pneumatic actuator and allows helium pressure trapped in that side of the actuator to vent overboard. Spring force will then take over and drive the valve to the opposite position. If the spring force drives the valve to the open position, the valve is referred to as a Normally Open (NO) valve. If the spring force drives the valve to the closed position, the valve is referred to as a Normally Closed (NC) valve.

The following is a list of the electrically actuated solenoid valves:

- H₂ pressurization line vent valve (NC)
- GH₂ pressurization flow control valves (3) (NO)
- GO₂ pressurization flow control valves (3) (NO)

The above electrically actuated valves are spring-loaded to one position and move to the other position when power is applied. These valves are referred to as either normally open or normally closed, based on their position in the de-energized state.

### 3.1.3 Orbiter MPS - Helium Subsystem General Description

The helium subsystem consists of 7 4.7-ft³ helium supply tanks, 3 17.3-ft³ helium supply tanks, and their associated regulators, check valves, distribution lines, and control valves (Figure 5). Four of the 4.7-ft³ helium supply tanks are located within the Orbiter aft of the payload bay area. The other 3 4.7-ft³ supply tanks and the three 17.3-ft³ supply tanks are located below the payload bay liner and above the main landing gear cavity. Each of the 17.3-ft³ supply tanks is plumbed to two of the 4.7-ft³ supply tanks (1 in the mid-body, the other in the aft body) to form 3
sets of 3 tanks. Each set of tanks, thus formed, normally provides helium to only one engine and for this reason is commonly referred to by the engine's designation; for example, "left engine helium." This helium is used for in-flight purges of engines, aft compartments, and provides pressure for actuating engine valves during emergency pneumatic shutdowns.

The remaining 4.7-ft³ helium supply tank (the 1 which is not connected to a 17.3-ft³ tank) is called the "pneumatic helium" supply tank. It normally provides pressure to actuate all of the pneumatically operated valves within the propellant management subsystem (Figure 5).

Each of the 4 helium supply circuits described above (3 engine helium and one pneumatic helium) will operate independently until after MECO, when the 3 "out" helium interconnect valves will be opened, connecting all circuits to a common manifold. This interconnection can be performed manually by the crew; however, normally the GPC will automatically interconnect the circuits just before the start of the MPS propellant dump.

3.1.4 Helium Subsystem Components

The helium subsystem contains the following major components.

A. Supply Tank - Each engine helium supply tank cluster consists of 2 4.7-ft³ supply tanks and 1 17.3-ft³ supply tank. One of the 4.7-ft³ tanks and the 17.3-ft³ tank are located in the mid-body area of the Shuttle under the payload bay liner, in an area originally reserved for additional Power Reactant Supply and Distribution (PRSD) cryogenic storage. The 17.3-ft³ tank is identical to that used in the OMS. The remaining 4.7-ft³ tank is located in the rear of the Shuttle, aft of the payload bay bulkhead. The single 4.7-ft³ pneumatic helium supply tank is also located in this area. Prior to lift-off, all helium supply tanks will be pressurized to an nominal value of 4500 psia.

B. Solenoid Actuated Valves - All of the valves in the helium subsystem are spring-loaded to one position and electrically actuated to the other position.

Valve position is controlled via electrical signals from either the GPCs or a manual switch. The crew can control only a portion of the valves through cockpit switches, the remainder are controlled automatically by the GPCs.
Figure 5 - HELIUM SUBSYSTEM: STORAGE AND REGULATION
Figure 6A - PNEUMATIC HELIUM DISTRIBUTION

No. 1
LO2 pogo accum recirc (NO)
LH2 manifold repress (NC)

No. 2
LO2 manifold repress (NC)

20 to 25 psig

LH2 recirc (NC)
LH2 topping (NC)
LH2 fill & drain

op
Inbd
cl
clopclopioptoimg

Indicates crew has manual control capability.

* Controlled by LH2 INBOARD FILL/DRAIN valve switch on panel R4.
C. Supply Tank Isolation Valves - There are 8 supply tank isolation valves in the helium subsystem. The valves are connected in parallel to each engine helium supply tank cluster and to the pneumatic supply tank in pairs. In the case of the engine helium supply tanks, each pair of isolation valves control helium flow through 1 leg of a dual helium supply regulator circuit. Each helium supply circuit contains 2 check valves, a filter, an isolation valve, a regulator, and a relief valve.

The 2 isolation valves connected to the pneumatic supply tank are also connected in parallel. The rest of the corresponding helium supply circuit consists of a filter, the 2 isolation valves, a regulator, a relief valve, and a single check valve.

Each isolation valve (with the exception of the 2 pneumatic helium isolation valves) can be individually controlled by its own cockpit switch. The 2 pneumatic helium isolation valves are controlled by a single switch on Panel R2.

D. Interconnect Valves - Each engine helium supply tank cluster has 2 interconnect valves. Each valve in the pair of interconnect valves is connected in series with a check valve. Because of the check valves, helium can flow through the interconnect valves in 1 direction only. The interconnect valves are oriented in such a manner that 1 interconnect valve controls helium flow into the circuit and the other interconnect valve controls helium flow out of the circuit. The "in" interconnect valve controls the flow into the associated engine helium distribution lines from the pneumatic helium supply tank. The "out" interconnect valve controls helium flow out of the associated engine helium supply tank cluster to the pneumatic helium distribution lines.

Each pair of interconnect valves (per engine) is controlled by a single cockpit switch. This switch has 3 positions: IN OPEN/OUT CLOSE, GPC, and IN CLOSE/OUT OPEN. With the switch in the IN OPEN/OUT CLOSE position, the "in" interconnect valve will be opened and the "out" interconnect valve closed. The IN CLOSE/OUT OPEN switch position will do the reverse. With the switch in the GPC position, both valves are closed unless commanded to the open position by the GPCs. In the event of an RTLS during a normal flight the GPC will signal the "in" interconnect valve to open automatically at MECO and close automatically 20 seconds later. The "out" interconnect valve is opened automatically at the beginning of the LO2 dump and closed automatically at
the end of the LH₂ dump. If an engine was shut down prior to MECO, however, the corresponding "in" interconnect valve will remain closed at MECO. At any other time, placing the switch in the GPC position results in both interconnect valves closing and remaining closed.

There is an additional crossover (interconnect) valve connected downstream of the left engine helium supply regulators to the pneumatic helium distribution system. In the event of a pneumatic helium regulator failure (Note: only 1 regulator in this line), this crossover valve would be opened, the pneumatic helium isolation valve would be closed, and the left engine helium supply would then provide regulated helium pressure through the crossover valve to the pneumatic helium distribution system. This crossover valve is controlled by its own 3-position cockpit switch. The 3 switch positions are labeled OPEN, GPC, and CLOSE.

E. Manifold Pressurization Valves - (Figure 6A) - The manifold pressurization valves are located downstream of the pneumatic helium pressure regulator and are used to control the flow of helium to the propellant manifolds during nominal propellant dumps and manifold repressurization. There are 4 of these valves, grouped in pairs. One pair of valves controls helium pressure to the LO₂ propellant manifolds, and the other pair controls helium pressure to the LH₂ propellant manifolds.

F. LH₂ RTLS Dump Pressurization Valves (Figure 6B) - The LH₂ RTLS dump pressurization valves are located downstream of the pneumatic helium pressure regulator and are used to control the pressurization of the LH₂ propellant manifolds during an RTLS LH₂ dump. There are 2 of these valves, connected in series. Unlike the LH₂ manifold pressurization valves, the LH₂ RTLS dump pressurization valves cannot be controlled from the cockpit. During an RTLS abort, valves will be opened and closed automatically by GPC commands.

One additional difference between the nominal and the RTLS LH₂ dumps is in the routing of the helium and the location at which it enters the LH₂ feedline manifold. For the nominal LH₂ dump, helium passes through the LH₂ manifold pressurization valves and enters the feedline manifold in the vicinity of the LH₂ feedline disconnect valve. For the RTLS LH₂ dump, helium passes through the LH₂ RTLS dump pressurization valves and enters the feedline manifold in the vicinity of the LH₂ inboard fill/drain valve (on the inboard side).
G. **Pressure Regulators** - Each engine helium supply tank cluster has 2 pressure regulators, operating in parallel. Each regulator controls pressure in 1 leg of a dual-redundant helium supply circuit. The pressure regulators for the helium supply tanks are set to provide outlet pressures in the range of 715 psig to 770 psig. Downstream of this regulator are 2 more regulators, the LH$_2$ manifold pressure regulator and the LO$_2$ manifold pressure regulator. These regulators are used only during MPS propellant dump and manifold repressurization. Both regulators are set to provide outlet pressures in the range of 20 to 25 psig. Flow through the regulators is controlled by the appropriate set (2) of normally closed manifold pressurization valves (Figure 6).

H. **Relief Valves** - Downstream of each pressure regulator (with the exception of the 2 manifold repress regulators) is a relief valve. The purpose of the relief valve is to protect the downstream helium distribution lines from the overpressurization (and rupture) in the event the associated pressure regulator fails fully open. The relief valves in the helium supply circuits are set to relieve at 825 +/- 25 psig and reseat at 785 psig.

### 3.2 Interfaces and Locations

The MPS system hardware is located in the aft fuselage compartment behind the payload bay but forward of the main engines. The MPS system interfaces with the Orbiter's 3 main engines, the external tank, and the ground during prelaunch and post landing.

### 3.3 Hierarchy

Figure 2 illustrates the hierarchy of the MPS hardware components.
4.0 ASSESSMENT RESULTS

The IOA analysis of the MPS hardware initially generated 690 failure mode worksheets and identified 371 Potential Critical Items (PCIs) before starting the assessment process. In order to facilitate comparison, 573 additional failure mode analysis worksheets were generated. These analysis results were compared to the proposed NASA Post 51-L baseline of 1264 FMEAs and 749 CIL items. Upon completion of the assessment, 865 of the 1264 FMEAs were in agreement. Schedule and budget constraints prevented resolution of those that were not in agreement.

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

<table>
<thead>
<tr>
<th>Component</th>
<th>NASA</th>
<th>IOA</th>
<th>Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical</td>
<td>606</td>
<td>623</td>
<td>179</td>
</tr>
<tr>
<td>Electrical</td>
<td>658</td>
<td>742</td>
<td>220</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1264</td>
<td>1365</td>
<td>399</td>
</tr>
</tbody>
</table>

A summary of the quantity of NASA CIL items assessed, versus the recommended IOA baseline, and any issues identified is presented in Table II. The issues count shown accounts for those cases where a RI/NASA analysis was matched to more than one IOA analysis and thus may have been declared an issue on more than one assessment sheet. When the multiple IOA recommended criticalities generated in this way agree, only one issue is included in the count.
Table II: Summary of IOA CIL Assessment

<table>
<thead>
<tr>
<th>Component</th>
<th>NASA</th>
<th>IOA</th>
<th>Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical</td>
<td>475</td>
<td>410</td>
<td>86</td>
</tr>
<tr>
<td>Electrical</td>
<td>274</td>
<td>301</td>
<td>105</td>
</tr>
<tr>
<td>TOTAL</td>
<td>749</td>
<td>711</td>
<td>191</td>
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</table>

Appendix C presents the detailed assessment worksheets for each failure mode identified and assessed. Appendix D highlights the NASA Critical Items and corresponding IOA worksheet ID. Appendix E contains IOA analysis worksheets supplementing previous analysis results reported in Space Transportation System Engineering and Operations Support (STSEOS) Working Paper No.1.0-WP-VA86001-22, Analysis of the Main Propulsion System, 16 January 1987. Appendix F provides a cross reference between the NASA FMEA and corresponding IOA worksheet(s). IOA recommendations are also summarized.

Table III presents a summary of the IOA recommended failure criticalities for the Post 51-L FMEA baseline.

<table>
<thead>
<tr>
<th>TABLE III: Summary of IOA Recommended Failure Criticalities</th>
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</thead>
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<tr>
<td>Criticality:</td>
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<td>Mechanical</td>
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<tr>
<td>Electrical</td>
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<td>TOTAL</td>
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</tbody>
</table>
Of the failure modes analyzed, 714 were determined to be critical items. A summary of the IOA recommended critical items is presented in Table IV.

<table>
<thead>
<tr>
<th>Criticality:</th>
<th>1/1</th>
<th>2/1R</th>
<th>2/2</th>
<th>3/1R</th>
<th>3/2R</th>
<th>3/3</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical</td>
<td>229</td>
<td>124</td>
<td>2</td>
<td>35</td>
<td>0</td>
<td>20</td>
<td>410</td>
</tr>
<tr>
<td>Electrical</td>
<td>10</td>
<td>106</td>
<td>0</td>
<td>183</td>
<td>0</td>
<td>2</td>
<td>301</td>
</tr>
<tr>
<td>TOTAL</td>
<td>239</td>
<td>230</td>
<td>2</td>
<td>218</td>
<td>0</td>
<td>22</td>
<td>711</td>
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</tbody>
</table>
The scheme for assigning IOA assessment (Appendix C) and analysis (Appendix E) worksheet numbers is shown in Table V.

<table>
<thead>
<tr>
<th>Components</th>
<th>IOA ID Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>LO₂ Mechanical</td>
<td>1001 - 1292</td>
</tr>
<tr>
<td>LH₂ Mechanical</td>
<td>2001 - 2393</td>
</tr>
<tr>
<td>Helium Mechanical</td>
<td>3010 - 4666</td>
</tr>
<tr>
<td>LO₂ Electrical</td>
<td>5000 - 5779</td>
</tr>
<tr>
<td>LH₂ Electrical</td>
<td>6011 - 6160</td>
</tr>
<tr>
<td>Helium Electrical</td>
<td>7100 - 7610</td>
</tr>
<tr>
<td>Supplemental Electrical</td>
<td>1 - 200, 401 - 838</td>
</tr>
<tr>
<td>Supplemental Mechanical</td>
<td>201 - 400, 901 - 924</td>
</tr>
</tbody>
</table>

4.1 Assessment Results - Mechanical Components

The IOA Assessment of the RI/NASA MPS mechanical component FMEA/CIL review resulted in 412 issues, or differences, in analysis results.

Differences between IOA and RI/NASA are attributable to several factors. The Instructions for Preparation of FMEA/CIL (NSTS 22206) document is in many places subject to varying interpretation. IOA and RI/NASA differed on several points.

The RI/NASA team tended to have a broader view of an item's function than did IOA. This led, in many cases, to different criticalities.

Another difficulty was the matter of redundancy. (This is related to the issue of function, noted above.) Again, the RI/NASA team adopted a broader view of redundancy than did IOA. The RI/NASA team, for example, viewed sequential main engine failures as loss of redundancy. IOA believes engines are not redundant to each other because, while they perform identical functions, they do not perform the same function. That is, when one engine is shut down, the remaining engines cannot provide the thrust that has been lost. (An exception would be periods of reduced throttle level, but these are excluded by the FMEA/CIL "worst case" requirement.)
The NSTS 22206 document, however, requires (2.3.3L) that a functional criticality of 1R be assigned to any failure(s) that result in an engine shutdown. A single engine shutdown will result in an intact abort, thus the logical functional criticality assignment would be 2R, for loss of mission. The RI/NASA analysis arrived at a 1R functional criticality not because of the requirement, but because of an interpretation of redundancy that differs from that of the IOA.

Yet another area of differing opinions was the RI/NASA practice of introducing criticality 1/1 failures, such as line breaks or leaks, as a second failure, thereby creating a 2/1R criticality regardless of the first failure. IOA concludes that, in most cases, this is not consistent with the NSTS 22206 methodology or definitions.

The foregoing differences of opinion and interpretation are the primary causes of the different results of the IOA and RI/NASA FMEA/CIL. Figure 1 presents a comparison of the proposed Post 51-L NASA baseline, with the IOA recommended baseline, and any issues.

4.2 Assessment Results - Electrical/Electronic Components

Analyses of electrical/electronic components are a reflection of their corresponding mechanical components. As such, the same differences of opinion and interpretation resulted in similar differences in criticality assignment as for the mechanical components. These are explained in Section 4.1 above.
5.0 REFERENCES

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

1. Main Propulsion System Workbook, 3/01/82
2. Main Propulsion System - Fluid Flows, 10/25/78
4. Booster Systems Briefs, 10/01/84
5. SSME Training Data, Engine Orientation, 5/31/80
6. Instructions for Preparation of FMEA and CIL for the STS, NSTS 22206, 10/10/86
8. Integrated System Schematic, MPS, OV-099, 103, 104, 5/27/86
9. STS Mission Problem Tracking List
10. OV-099 Operational Configuration CIL, Mechanical/Fluid Systems, Book 1 of 4, 3/01/82
11. OV-099 Operational Configuration CIL, ECLSS/Power Systems, Book 2 of 4, 3/01/82
12. OV Operational Configuration CIL, Propulsion Systems, Book 3 of 4, 11/01/82
13. OV Operational Configuration CIL, Avionics Systems, Book 4 of 4, 11/01/82
16. Problem Records, 7/22/86
17. Shuttle Orbiter OV-102 CDR, Safety Analysis Report, Volume 1, Management Summary, 4/27/77
24. FMEA - Lightweight and Heavyweight Tanks, 7/20/81
25. Integrated System Schematic, OV-102, MPS, 10/26/79
26. Crew Software Interface, CSI 2102, 9/30/84
27. Rockwell International Component Specifications:

a. MC271-0073, LH₂ Engine Feed Line Assembly, 10/26/83
b. MC271-0074, LO₂ Engine Feed Line Assembly, 11/07/83
c. MC271-0075, LH₂ Line Assembly, 5/28/80
d. MC271-0076, LH₂/LO₂ Fill & Drain Line Assembly, 12/02/83
e. MC276-0003, 1 Inch GHE & GN2 Disconnect, 1/11/85
f. MC276-0004, 1.5 Inch LO₂/LH₂ Disconnect, 1/04/85
g. MC276-0005, LO₂/LH₂ Orbiter to Ground Fill & Drain Disconnect, 4/18/83
h. MC276-0032, Test Point Couplings, 2/10/75
i. MC280-0017, H₂ & O₂ Pressurant Flow Control Valve, 4/11/84
j. MC281-0030, LH₂ Recirculation Pump Assembly, 4/12/82
k. MC284-0389, LH₂/LO₂ Orbiter to Tank Feed System Disconnect, 2/01/82
l. MC284-0390, LH₂ Orbiter to Tank Recirculation Disconnect, 7/27/79
m. MC284-0391, GH₂/O₂ Orbiter to Tank Disconnect, 10/25/79
n. MC284-0395, LO₂/LH₂ 1.5/2 Inch Shut off Valve, 6/27/79
o. MC284-0396, Propellant Shut off Prevalve, 7/24/82
p. MC284-0397, Propellant Fill & Drain Valve, 6/22/84
q. MC284-0403, Two Way Solenoid Valve, 6/24/80
r. MC284-0406, LO₂/LH₂ Relief Shut off Valve, 5/05/76
s. ME284-0479, Engine Isolation Check Valve, 8/20/80
t. MC284-0501, Engine Isolation Check Valve, 1/31/83
u. MC284-0515, Dual Check Valve, 11/11/82
v. MC432-0020, LO₂/LH₂ Level Point Sensor, 4/15/81
w. ME284-0472, HE Check Valve, 4/04/80
x. MC284-0404, 3 Way HE Solenoid Valve, 4/01/75
y. MC284-0533, HE Regulator, 11/13/79
z. MC284-0399, LO₂ Manif Repress Regulator
aa. MC284-0398, HE Relief Valve, 12/14/77
bb. MC282-0082, HE Supply Tank, 12/14/76
cc. MC282-0070, LO₂ Prevalve Pneu Accumulator, 10/31/75
dd. ME276-0032, Test Point Coupling, 2/10/75
e. ME284-0474, LH₂ 3/8 Inch Relief Valve, 9/10/74
ff. ME286-0056, HE Supply Filter, 11/04/74
gg. VO70-451756, Pneu HE Panel 4 Test Port
hh. VO70-415532, LH₂ Repress Reg Outlet Test Port, 12/08/75
ii. VO70-415568, LO₂ Repress Reg Outlet Test Port, 5/17/76
jj. VO70-415585, Helium Fill Disc. Check Valve Test Port, 4/16/76
kk. VO70-415446, LO₂ Prepress Disc. Check Valve Test Port, 3/11/76
11. VO70-415790, HE Supply Test Port, 4/13/78
12. VO70-415133, Check Valve CV24 Leakage Test Port, 8/21/80
13. VO70-415545, LH₂ Feed Manif RTLS Repress Orifice, 12/19/75
14. VO70-414548, LH₂ Pressurization System Test Port Fittings, 3/25/76
15. VO70-415468, LO₂ Relief System Test Port Fitting, 7/13/77
16. VO70-415552, GO₂ Pressurization Manifold Orifice Assembly, 3/05/76
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<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>AFV</td>
<td>Anti-Flood Valve</td>
</tr>
<tr>
<td>ASI</td>
<td>Augmented Spark Igniter</td>
</tr>
<tr>
<td>ATVC</td>
<td>Ascent Thrust Vector Control</td>
</tr>
<tr>
<td>CCV</td>
<td>Chamber Coolant Valve</td>
</tr>
<tr>
<td>CCVA</td>
<td>Chamber Coolant Valve Assembly</td>
</tr>
<tr>
<td>EIU</td>
<td>Engine Interface Unit</td>
</tr>
<tr>
<td>EMR</td>
<td>Engine Mixture Ratio</td>
</tr>
<tr>
<td>ET</td>
<td>External Tank</td>
</tr>
<tr>
<td>FBV</td>
<td>Fuel Bleed Valve</td>
</tr>
<tr>
<td>FPB</td>
<td>Fuel Preburner</td>
</tr>
<tr>
<td>FPL</td>
<td>Full Power Level</td>
</tr>
<tr>
<td>FPOV</td>
<td>Fuel Preburner Oxidizer Valve</td>
</tr>
<tr>
<td>GCV</td>
<td>Gaseous Oxygen Control Valve</td>
</tr>
<tr>
<td>GH2</td>
<td>Gaseous Hydrogen</td>
</tr>
<tr>
<td>GHe</td>
<td>Gaseous Helium</td>
</tr>
<tr>
<td>GN2</td>
<td>Gaseous Nitrogen</td>
</tr>
<tr>
<td>GND</td>
<td>Ground</td>
</tr>
<tr>
<td>GO2</td>
<td>Gaseous Oxygen</td>
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<tr>
<td>GSE</td>
<td>Ground Support Equipment</td>
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<tr>
<td>H2</td>
<td>Hydrogen</td>
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<td>Helium</td>
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<td>HEX</td>
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</tr>
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<td>HGM</td>
<td>Hot Gas Manifold</td>
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<tr>
<td>HPFT</td>
<td>High Pressure Fuel Turbopump</td>
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<td>High Pressure Oxidizer Turbopump</td>
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<tr>
<td>HPV</td>
<td>Helium Precharge Valve</td>
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<tr>
<td>I/C</td>
<td>Interconnect</td>
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<tr>
<td>ISP</td>
<td>Specific Impulse</td>
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<tr>
<td>LH2</td>
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<td>Liquid Oxygen</td>
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<td>LPFT</td>
<td>Low Pressure Fuel Turbopump</td>
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<tr>
<td>LPOT</td>
<td>Low Pressure Oxidizer Turbopump</td>
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<tr>
<td>LPS</td>
<td>Launch Processor System</td>
</tr>
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<td>MANF</td>
<td>Manifold</td>
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<tr>
<td>MCC</td>
<td>Main Combustion Chamber</td>
</tr>
<tr>
<td>ME</td>
<td>Main Engine</td>
</tr>
<tr>
<td>MEC</td>
<td>Master Events Controller</td>
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<tr>
<td>MECO</td>
<td>Main Engine Cutoff</td>
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<tr>
<td>MFV</td>
<td>Main Fuel Valve</td>
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<td>MOV</td>
<td>Main Oxidizer Valve</td>
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<tr>
<td>MPL</td>
<td>Minimum Power Level</td>
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<tr>
<td>MPS</td>
<td>Main Propulsion System</td>
</tr>
<tr>
<td>MVA</td>
<td>Main Valve Actuator</td>
</tr>
<tr>
<td>NC</td>
<td>Normally Closed</td>
</tr>
<tr>
<td>NO</td>
<td>Normally Open</td>
</tr>
<tr>
<td>NPSP</td>
<td>Net Positive Suction Pressure</td>
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## ACRONYMS

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<tr>
<th>Abbreviation</th>
<th>Description</th>
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<td>OBV</td>
<td>Oxidizer Bleed Valve</td>
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<tr>
<td>OPB</td>
<td>Oxidizer Preburner</td>
</tr>
<tr>
<td>OPOV</td>
<td>Oxidizer Preburner Oxidizer Valve</td>
</tr>
<tr>
<td>PAV</td>
<td>Pressure Actuated Valve</td>
</tr>
<tr>
<td>P/B</td>
<td>Preburner</td>
</tr>
<tr>
<td>PBVA</td>
<td>Propellant Bleed Valve Assembly</td>
</tr>
<tr>
<td>Pc</td>
<td>Chamber Pressure</td>
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<td>PCI</td>
<td>Potential Critical Item</td>
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<td>PCV</td>
<td>Purge Check Valves</td>
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<td>Propellant Management Subsystem</td>
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<tr>
<td>POP</td>
<td>Preburner Oxidizer Pump</td>
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<tr>
<td>RIV</td>
<td>Recirculation Isolation Valve</td>
</tr>
<tr>
<td>RPC</td>
<td>Remote Power Controller</td>
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<tr>
<td>RPL</td>
<td>Rated Power Level</td>
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<tr>
<td>SRB</td>
<td>Solid Rocket Booster</td>
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<tr>
<td>SSME</td>
<td>Space Shuttle Main Engine</td>
</tr>
<tr>
<td>SSMEC</td>
<td>SSME Controller</td>
</tr>
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</table>
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 IOA 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).

RATIONAL: 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.

RATIONAL: 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.

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

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

RATIONAL: 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.

RATIONAL: 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.

RATIONAL: 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

B.3 SUBSYSTEM SPECIFIC GROUNDRULES AND ASSUMPTIONS

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

1. All like and unlike redundancy will be considered in determining functional criticality. The MPS function is to provide delta V for the vehicle to reach orbit. Since loss of 1 main engine during the early part of ascent requires a mission abort, any failure that results in the loss of 1 main engine will be considered loss of mission (Crit 2). Since, for most of the ascent, 2 engines are required for a successful abort, loss of 2 or 3 engines will be considered loss of life/vehicle (Crit 1).

RATIONALE: These failure modes are directly applicable to worst case MPS subsystem component analyses.

2. Only MPS Orbiter items will be analyzed for the MPS interface to the Ground, External Tank, and the Main Engines.

RATIONALE: Non-orbiter program hardware are not within the scope of this task.

3. Aborts are assumed to be caused by loss of an engine. Any failure within a component that can shut down an engine could leave only 1 engine in operation and therefore could lead to loss of vehicle (Crit 1).

RATIONALE: This failure mode is directly applicable to worst case MPS subsystem component analysis.
This section contains the IOA assessment worksheets generated during the assessment of this subsystem. The information on these worksheets resulted from the comparison of the RI/NASA FMEA/CIL (Post 51-L) to the IOA analysis worksheets in MDAC Working Paper 1.0-WP-VA86001-22 with additional worksheets 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 = NASA FMEA/CIL  
New = Baseline with Proposed Post 51-L Changes

CIL Item:

X = Included in CIL

Compare Row:

N = Non compare for that column (deviation)
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/05/88
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 1
ITEM: FUSE (DIFFERENTIAL PRESSURE TRANSDUCER CIRCUIT)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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<thead>
<tr>
<th>CRITICALITY</th>
<th>REDUNDANCY SCREENS</th>
<th>CIL</th>
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<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>NASA</td>
<td>[ 3 /3 ]</td>
<td>[ NA]</td>
</tr>
<tr>
<td>IOA</td>
<td>[ 3 /3 ]</td>
<td>[ NA]</td>
</tr>
<tr>
<td>COMPARE</td>
<td>[ / ]</td>
<td>[ ]</td>
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RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ]

* CIL RETENTION RATIONALE: (If applicable)

(ADD/DELETE)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-2
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/08/88
ASSESSMENT ID: MPS-002X
NASA FMEA #: 2000-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 2
ITEM: REMOTE POWER CONTROLLERS, 3A (4)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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<th>CIL</th>
</tr>
</thead>
<tbody>
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<td>HDW/FUNC</td>
<td>ITEM</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
</tbody>
</table>

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:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.

REPORT DATE 03/11/88 C-3
**APPENDIX C**
**ASSESSMENT WORKSHEET**

**ASSESSMENT DATE:** 2/08/88  
**ASSESSMENT ID:** MPS-003X  
**NASA FMEA #:** 2001-2  
**NASA DATA:**  

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**SUBSYSTEM:** EPD&C/MPS  
**MDAC ID:** 3  
**ITEM:** DIODES, 12A (2)  
**LEAD ANALYST:** B. SLAUGHTER

**ASSESSMENT:**

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* CIL RETENTION RATIONALE: (If applicable)

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**REMARKS:**

**ONLY AVAIL REF:** MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.

**REPORT DATE 03/11/88**  
C-4
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/08/88
ASSESSMENT ID: MPS-004X
NASA FMEA #: 2001-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 4
ITEM: DIODE, 12A (2)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

| CRITICALITY | REDUNDANCY SCREENS | CIL |
| FLIGHT | HDW/FUNC | A | B | C | ITEM |
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COMPARE [ / ] [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
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REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.

REPORT DATE 03/11/88 C-5
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/08/88
ASSESSMENT ID: MPS-005X
NASA FMEA #: 2002-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 5
ITEM: DIODES, 12A (2)
LEAD ANALYST: B. SLAUGHTER

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| IOA [ 3 /1R ] | [ P ] | [ F ] | [ P ] | [ X ] |
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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
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REMARKS:

ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.

REPORT DATE 03/11/88 C-6
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/08/88
ASSESSMENT ID: MPS-006X
NASA FMEA #: 2002-3

SUBSYSTEM: EPD&C/MPS
MDAC ID: 6
ITEM: DIODE, 12A (2)
LEAD ANALYST: B. SLAUGHTER

NASA DATA:
BASELINE [ ]
NEW [ X ]

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

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REMARKS:

ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.
### APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/08/88
ASSESSMENT ID: MPS-007X
NASA FMEA #: 2003-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 7
ITEM: HYBRID DRIVER CONTROLLERS, TYPE I (2)

LEAD ANALYST: B. SLAUGHTER

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**RECOMMENDATIONS:** (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

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**REMARKS:**

ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.

REPORT DATE 03/11/88 C-8
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/08/88
ASSESSMENT ID: MPS-008X
NASA FMEA #: 2004-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 8
ITEM: HYBRID DRIVER CONTROLLERS, TYPE III (4)

LEAD ANALYST: B. SLAUGHTER

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COMPARE [ / ] [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
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REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: MPS-009X
NASA FMEA #: 2381-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 9
ITEM: DIODES, 12A (2)

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
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REMARKS:

ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.

REPORT DATE 03/11/88 C-10
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: MPS-010X
NASA FMEA #: 2381-3

SUBSYSTEM: EPD&C/MPS
MDAC ID: 10
ITEM: DIODE

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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*CIL RETENTION RATIONALE: (If applicable)
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REMARKS:
THE FAILURE IS READILY DETECTABLE.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: MPS-011X
NASA FMEA #: 2038-5

SUBSYSTEM: EPD&C/MPS
MDAC ID: 11
ITEM: TOGGLE SWITCH
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]
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REMARKS:

REPORT DATE 03/11/88 C-12
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/22/88
ASSESSMENT ID: MPS-012X
NASA FMEA #: 2263-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 12
ITEM: HIGH POINT OPEN HDC (2)

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88
C-13
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-013X
NASA FMEA #: 2263-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 13
ITEM: HYBRID DRIVER CONTROLLER
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
FAILRUE IS DETECTABLE.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-014X
NASA FMEA #: 2267-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 14
ITEM: FILL AND DRAIN OPEN SWITCH BLOCKING DIODE

LEAD ANALYST: B. SLAUGHTER

RECOMMENDATIONS: (If different from NASA)

* CIL RETENTION RATIONALE: (If applicable)

REPORT DATE 03/11/88 C-15
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-015X
NASA FMEA #: 2267-2
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 15
ITEM: FILL AND DRAIN OPEN SWITCH BLOCKING DIODE

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-16
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-016X
NASA FMEA #: 2272-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 16
ITEM: HIGH POINT OPEN SWITCH BLOCKING DIODES (2)

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY REF AVAIL: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.

REPORT DATE 03/11/88 C-17
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-017X
NASA FMEA #: 2272-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 17
ITEM: HIGH POINT OPEN SWITCH BLOCKING DIODES (2)

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)
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*CIL RETENTION RATIONALE: (If applicable)*
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
SECOND FAILURE COULD ALLOW GH2 TO ENTER SSME's AT IGNITION.

REPORT DATE 03/11/88 C-18
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-018X
NASA FMEA #: 2275-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 18
ITEM: FILL AND DRAIN LA1 MDM BLOCKING DIODE (1)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
FAILURE WILL ELIMINATE REDUNDANCY AGAINST A PREMATURE CLOSE OF THE F/D VALVE. SECOND FAILURE CANNOT CLOSE THE VALVE BECAUSE OF BLOCKING DIODES AND MDM OPEN COMMANDS.

REPORT DATE 03/11/88 C-19
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88  NASA DATA:  
ASSESSMENT ID: MPS-019X  BASELINE [ ]  
NASA FMEA #: 2275-2  NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 19
ITEM: FILL AND DRAIN LA1 MDM BLOCKING DIODE (1)

LEAD ANALYST: B. SLAUGHTER

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* CIL RETENTION RATIONALE: (If applicable)

Adequate [ ]
Inadequate [ ]

REMARKS:

REPORT DATE 03/11/88 C-20
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-020X
NASA FMEA #: 2278-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 20
ITEM: HIGH POINT LA1 MDM BLOCKING DIODE (2)
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
SECOND FAILURE COULD LEAD TO GH2 INGESTION AT SSME START.

REPORT DATE 03/11/88 C-21
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-021X
NASA FMEA #: 2278-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 21
ITEM: HIGH POINT LA1 MDM BLOCKING DIODE (2)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

*CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88  C-22
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-022X
NASA FMEA #: 202600-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 22
ITEM: HIGH POINT MONITOR RESISTORS, 5.1K (3)
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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| COMPARE     | [ / ]   | [ ]      | [ ]      | [ ]      | [ ] |

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88  C-23
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-023X
NASA FMEA #: NA
SUBSYSTEM: EPD&C/MPS
MDAC ID: 23
ITEM: MDM OA1
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

REMARKS:
THE FAILURE INHIBITS MONITORING

REPORT DATE 03/11/88   C-24
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-024X
NASA FMEA #: 2056A-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 24
ITEM: OPEN SWITCH BLOCKING DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS:  (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88  C-25
**APPENDIX C**  
**ASSESSMENT WORKSHEET**

**ASSESSMENT DATE:** 1/26/88  
**ASSESSMENT ID:** MPS-025X  
**NASA FMEA #:** 2354A-1

**NASA DATA:**

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**SUBSYSTEM:** EPD&C/MPS  
**MDAC ID:** 25  
**ITEM:** LA1 MDM ISOLATION DIODE  
**LEAD ANALYST:** B. SLAUGHTER

**ASSESSMENT:**

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**RECOMMENDATIONS:** (If different from NASA)

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(ADD/DELETE)

* **CIL RETENTION RATIONALE:** (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

**REMARKS:**

DIODE NOT SHOWN ON VS72-941102, SHT 14.

**REPORT DATE 03/11/88  C-26**
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-026X
NASA FMEA #: 2354A-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 26
ITEM: LA1 MDM ISOLATION DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
DIODE NOT SHOWN ON VS72-941102, SHT 14.

REPORT DATE 03/11/88 C-27
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-027X
NASA FMEA #: 2355A-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 27
ITEM: OPEN SWITCH BLOCKING DIODE
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
DIODE NOT SHOWN ON VS72-941102, SHT 14.

REPORT DATE 03/11/88 C-28
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-028X
NASA FMEA #: 2355A-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 28
ITEM: OPEN SWITCH BLOCKING DIODE
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
SHORTING OF THE OPEN CONTACT TO GROUND IN THIS SWITCH IS INFEASIBLE.

REPORT DATE 03/11/88 C-29
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-029X
NASA FMEA #: 2356A-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 29
ITEM: OPEN MDM ISOLATION DIODE
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-30
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-030X
NASA FMEA #: 2357A-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 30
ITEM: CLOSE SWITCH ISOLATION DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-31
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-031X
NASA FMEA #: 2358A-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 31
ITEM: CLOSE MDM ISOLATION DIODE
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-32
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
NASA DATA:
ASSESSMENT ID: MPS-032X
BASELINE [ ]
NASA FMEA #: 2359A-1
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 32
ITEM: TRANSIENT SUPPRESSION DIODES (2)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

* CIL RETENTION RATIONALE: (If applicable)

REMARKS:

REPORT DATE 03/11/88
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
NASA DATA: BASELINE [ ]
ASSESSMENT ID: MPS-033X NEW [ X ]
NASA FMEA #: 2359A-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 33
ITEM: TRANSIENT SUPPRESSION DIODES (2)
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
SHORT IN DIODE COULD LEAD TO LOSS OF VEHICLE.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-034X
NASA FMEA #: 2360A-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 34
ITEM: MONITORING RESISTORS, 2.2K (2)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
# APPENDIX C
## ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 1/26/88  
**ASSESSMENT ID:** MPS-035X  
**NASA FMEA #:** 2372A-1

**SUBSYSTEM:** EPD&C/MPS  
**MDAC ID:** 35  
**ITEM:** SWITCH SCAN BLEED RESISTORS, 1.8K (2)

**LEAD ANALYST:** B. SLAUGHTER

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**RECOMMENDATIONS:** (If different from NASA)

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*(ADD/DELETE)*

**CIL RETENTION RATIONALE:** (If applicable)

| ADEQUATE | [ ] |
| INADEQUATE | [ ] |

**REMARKS:**
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-036X
NASA FMEA #: NA

SUBSYSTEM: EPD&C/MPS
MDAC ID: 36
ITEM: MDM OA2

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-37
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-037X
NASA FMEA #: NA
SUBSYSTEM: EPD&C/MPS
MDAC ID: 37
ITEM: MDM LA1
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
MDM LA1 NOT SHOWN ON VS72-941102, SHT 14.
### APPENDIX C
#### ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 1/27/88  
**ASSESSMENT ID:** MPS-038X  
**NASA FMEA #:** 2060-5  
**ASSESSMENT ID:** MPS-038X  
**NASA FMEA #:** 2060-5

**SUBSYSTEM:** EPD&C/MPS  
**MDAC ID:** 38  
**ITEM:** TOGGLE SWITCH  
**LEAD ANALYST:** B. SLAUGHTER

**ASSESSMENT:**

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**RECOMMENDATIONS:** (If different from NASA)

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(ADD/DELETE)

* **CIL RETENTION RATIONALE:** (If applicable)

**ADEQUATE** [ ]

**INADEQUATE** [ ]

**REMARKS:**

LOSS OF ALL REDUNDANCY WILL ALLOW VALVE TO OPEN.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-039X
NASA FMEA #: 2062-2
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 39
ITEM: CLOSE HDC (2)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88  C-40
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-040X
NASA FMEA #: 2039-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 40
ITEM: RPC C OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88  C-41
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-041X
NASA FMEA #: 2039-3
SUBSYSTEM: EPD&C/MPS
MDAC ID: 41
ITEM: RPC C OUTPUT DIODE
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-42
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-042X
NASA FMEA #: 2240A-2
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 42
ITEM: DIODE, RPC CROSSOVER

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-043X
NASA FMEA #: 2240-3
SUBSYSTEM: EPD&C/MPS
MDAC ID: 43
ITEM: DIODE, RPC CROSSOVER
LEAD ANALYST: B. SLAUGHTER

NASA DATA:
BASELINE [ ]
NEW [ X ]

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REPORT DATE 03/11/88 C-44
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-044X
NASA FMEA #: 2397-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 44
ITEM: RPC A OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THE DIODE MIGHT BE CAPABLE OF CHECKOUT DURING NORMAL GROUND TURNAROUND WITH NO DESIGN MODIFICATION.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-045X
NASA FMEA #: 2397-3

SUBSYSTEM: EPD&C/MPS
MDAC ID: 45
ITEM: RPC A OUTPUT DIODE
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-046X
NASA FMEA #: N/A

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 46
ITEM: POSITION INDICATOR SWITCH

LEAD ANALYST: B. SLAUGHTER

RECOMMENDATIONS: (If different from NASA)
[ 3 /3 ] [ NA] [ NA] [ NA] [ ]

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

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REPORT DATE 03/11/88 C-47
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-047X
NASA FMEA #: 2247-2
SUBSYSTEM: EPD&G/MPS
MDAC ID: 47
ITEM: CLOSE HDC (TYPE I)
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

SERIES CONFIGURATION AND BISTABLE FEATURE PREVENT VALVE CLOSURE ON A SECOND FAILURE.

REPORT DATE 03/11/88 C-48
### APPENDIX C
### ASSESSMENT WORKSHEET

- **Assessment Date:** 1/20/88
- **Assessment ID:** MPS-048X
- **NASA FMEA #:** 2246-2

**NASA Data:**
- [ ] Baseline
- [X] New

**Subsystem:** EPD&C/MPS

**MDAC ID:** 48

**Item:** OPEN HDC (TYPE I)

**Lead Analyst:** B. Slaughter

**Assessment:**

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- **NASA:** [3/1R]
  - [P] [P] [P] [ ] *
- **IOA:** [3/1R]
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**Compare:** [ ] / [ ] [ ] [ ] [ ] [ ]

**Recommendations:** (If different from NASA)

- [ ] / [ ] [ ] [ ] [ ] [ ]

**CIL Retention Rationale:** (If applicable)

- **Adequate:** [ ]
- **Inadequate:** [ ]

**Remarks:**

**Report Date:** 03/11/88  C-49
ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-049X
NASA FMEA #: 2245-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 49
ITEM: CLOSE HDC, TYPE III (2)
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-50
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-050X
NASA FMEA #: 2249-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 50
ITEM: DIODE, CLOSE RPC B OUTPUT

LEAD ANALYST: B. Slaughter

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-051X
NASA FMEA #: 2249-3
SUBSYSTEM: EPD&C/MPS
MDAC ID: 51
ITEM: DIODE, CLOSE RPC B OUTPUT
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-52
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88
ASSESSMENT ID: MPS-052X
NASA FMEA #: 2251-2
NASA DATA: BASELINE [ ] NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 52
ITEM: DIODE, CLOSING CROSSOVER
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
FAILURE MAY NOT BE DETECTED.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-053X
NASA FMEA #: 2251-3

SUBSYSTEM: EPD&C/MPS
MDAC ID: 53
ITEM: DIODE, CLOSING CROSSOVER

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
FAILURE CAN SHORT ALL CLOSING COMMANDS TO GROUND, PREVENTING VALVE CLOSURE. ET SEP WITH VALVE OPEN CAN CAUSE LOSS OF VEHICLE. MECHANICAL LINKAGE PROVIDES REDUNDANCY.

REPORT DATE 03/11/88  C-54
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-054X
NASA FMEA #: 2248-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 54
ITEM: DIODE, OPEN RPC B OUTPUT
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-55
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88
ASSESSMENT ID: MPS-055X
NASA FMEA #: 2248-3
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 55
ITEM: DIODE, OPEN RPC B OUTPUT

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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COMPARE [ / ] [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARS:

REPORT DATE 03/11/88 C-56
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88
ASSESSMENT ID: MPS-056X
NASA FMEA #: 2250-2

NASA DATA:
BASELINE [   ]
NEW [ X ]

SUBSYSTEM:   EPD&C/MPS
MDAC ID: 56
ITEM: DIODE, OPEN Crossover

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]
INADEQUATE [   ]

REMARKS:
ASSESSMENT IS FOR 1 OPEN CROSSOVER DIODE, 12A.

REPORT DATE 03/11/88   C-57
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88
ASSESSMENT ID: MPS-057X
NASA FMEA #: 2250-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 57
ITEM: DIODE, OPEN CROSSOVER

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
FAILURE CAN SHORT ALL OPEN COMMANDS TO GROUND, VENTING OPENING PRESSURE AND ALLOWING VALVE TO CLOSE DURING MAIN ENGINE BURN. BISTABLE FEATURE IS THE ONLY REDUNDANCY AGAINST PREMATURE CLOSURE.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88
ASSESSMENT ID: MPS-058X
NASA FMEA #: 2254-1

NASA DATA:
BASELINE [ ]
NEW [ ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 58
ITEM: OPEN POSITION SWITCH MONITOR RESISTOR (1)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
RESISTOR NOT SHOWN ON VS72-941102, SHT 15.
REF: 05-6J-200900-1

REPORT DATE 03/11/88 C-59
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88
ASSESSMENT ID: MPS-059X
NASA FMEA #: 2244-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 59
ITEM: OPEN HDC, TYPE III (2)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-60
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88
ASSESSMENT ID: MPS-060X
NASA FMEA #: 2398-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 60
ITEM: DIODE, CLOSE RPC C OUTPUT

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-61
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88
ASSESSMENT ID: MPS-061X
NASA FMEA #: 2398-3
NASA DATA: BASELINE [ ] NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 61
ITEM: DIODE, CLOSE RPC C OUTPUT

LEAD ANALYST: B. SLAUGHTER

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IOA [ 3 /1R ] [ P ] [ P ] [ P ] [ ]

COMPARE [ / ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
SECOND FAILURE CAN SHORT ALL CLOSE COMMANDS TO GROUND, PREVENTING VALVE CLOSURE. MECANICAL LINKAGE PROVIDES REDUNDANCY.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88
ASSESSMENT ID: MPS-062X
NASA FMEA #: 2399-2

SUBSYSTEM: EPD&G/MPS
MDAC ID: 62
ITEM: DIODE, OPEN RPC C OUTPUT

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-63
APPENDIX C  
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88  
ASSESSMENT ID: MPS-063X  
NASA FMEA #: 2399-3  
SUBSYSTEM: EPD&C/MPS  
MDAC ID: 63  
ITEM: DIODE, OPEN RPC C OUTPUT  
LEAD ANALYST: B. SLAUGHTER  

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RECOMMENDATIONS:  (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

ONLY REF: MPS/EPDC FMEA REVIEW SUMMARY 8/17/87.

REPORT DATE 03/11/88  
C-64
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/08/88
ASSESSMENT ID: MPS-064X
NASA FMEA #: 2100-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 64
ITEM: OPEN HDC

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THE FAILURE WILL PREVENT VALVE CLOSURE DURING ET SEPARATION. A FAILURE OF MECHANICAL REDUNDANCY COULD CAUSE ET/ORBITER RECONTACT.

REPORT DATE 03/11/88 C-65
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/08/88
ASSESSMENT ID: MPS-065X
NASA FMEA #: 2100-3
SUBSYSTEM: EPD&C/MPS
MDAC ID: 65
ITEM: OPEN HDC
LEAD ANALYST: B. SLAUGHTER

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 COMPARE [ N /N ] [ N ] [ N ] [ N ] [ ]

RECOMMENDATIONS: (If different from NASA)

[ 1 /1 ] [ NA] [ NA] [ NA] [ ]
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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ANALYSIS IS FOR ABORT ONLY. THE FAILURE PREVENTS PROPELLANT ISOLATION FROM FAILED MAIN ENGINE.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/08/88
ASSESSMENT ID: MPS-066X
NASA FMEA #: 2102-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 66
ITEM: CLOSE HDC

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/08/88
ASSESSMENT ID: MPS-067X
NASA FMEA #: 2101-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 67
ITEM: CLOSE HDC

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
FMEA NO. 05-6J-2101-3 REV 10/10/87 IS FOR THE ABORT CASE ONLY.
THIS ASSESSMENT IS FOR THE ABORT CASE ONLY. INADVERTENT POWER TO
THE CLOSE SOLENOID DOES NOT CAUSE A LOSS OF CLOSE SOLENOID POWER.

REPORT DATE 03/11/88 C-68
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/08/88
ASSESSMENT ID: MPS-068X
NASA FMEA #: NA
SUBSYSTEM: EPD&C/MPS
MDAC ID: 68
ITEM: MDM OA3
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-69
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-069X
NASA FMEA #: 2026-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 69
ITEM: HDC - GND C/O COMMAND POWER (5)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-070X
NASA FMEA #: 2026-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 70
ITEM: HDC - GND C/O COMMAND POWER (5)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]

INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-71
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-071X
NASA FMEA #: 2030-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 71
ITEM: MONITOR RESISTORS (3)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-72
### APPENDIX C
ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 1/27/88  
**ASSESSMENT ID:** MPS-072X  
**NASA FMEA #:** 2031-1

**SUBSYSTEM:** EPD&C/MPS  
**MDAC ID:** 72  
**ITEM:** TRANSIENT SUPPRESSION DIODES (3)

**LEAD ANALYST:** B. SLAUGHTER

**ASSESSMENT:**

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**RECOMMENDATIONS:** (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

**REMARKS:**

**REPORT DATE** 03/11/88  
C-73
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-073X
NASA FMEA #: 2031-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 73
ITEM: ZENER DIODES (3)
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-74
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-074X
NASA FMEA #: 2032-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 74
ITEM: HDC, RELAY CONTROL POWER (3)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-75
ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-075X
NASA FMEA #: 2032-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 75
ITEM: HDC, RELAY CONTROL POWER (3)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

NASA DOES NOT CALL THE FAILURE OF A TRANSDUCER AND THE SWITCH TO STANDBY TRANSDUCER A FAILURE.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-076X
NASA FMEA #: 2033-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 76
ITEM: RELAY (3)
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

| ADEQUATE [ ] |
| INADEQUATE [ ] |

REMARKS:

REPORT DATE 03/11/88 C-77
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-077X
NASA FMEA #: 2033-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 77
ITEM: RELAY (3)
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-078X
NASA FMEA #: 2034-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 78
ITEM: BLOCKING DIODE
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
A SECOND FAILURE WILL NOT OVERPRESSURIZE THE ET.

REPORT DATE 03/11/88  C-79
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
NASA DATA:
ASSESSMENT ID: MPS-079X
BASELINE [ ]
NASA FMEA #: 2034-2
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 79
ITEM: BLOCKING DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
A SECOND FAILURE WILL NOT OVERPRESSURIZE THE ET, BUT A THIRD FAILURE COULD CAUSE ET OVERPRESSURIZATION.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-080X
NASA FMEA #: 2035-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 80
ITEM: TOGGLE SWITCH
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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COMPARISON [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-81
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-081X
NASA FMEA #: 2035-2
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 81
ITEM: TOGGLE SWITCH
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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COMPARE [ / ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-82
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-082X
NASA FMEA #: 2035-3
SUBSYSTEM: EPD&C/MPS
MDAC ID: 82
ITEM: TOGGLE SWITCH
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
Adequate [ ]
Inadequate [ ]

REMARKS:

REPORT DATE 03/11/88 C-83
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-083X
NASA FMEA #: 2036-1
NASA DATA: BASELINE [ ] NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 83
ITEM: SWITCH BLOCKING DIODES (6)
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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COMPARE [ / ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-84
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-084X
NASA FMEA #: 2036-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 84
ITEM: SWITCH BLOCKING DIODE
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88  C-85
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
NASA DATA:
ASSESSMENT ID: MPS-085X
BASELINE [ ]
NASA FMEA #: 2042-1
NEW [ X ]
SUBSYSTEM: EPD&C/MPS
MDAC ID: 85
ITEM: SWITCH SCAN MONITOR RESISTOR
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88  C-86
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-086X
NASA FMEA #: 2043-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 86
ITEM: SWITCH SCAN BLEED RESISTOR
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-87
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-087X
NASA FMEA #: 2235-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 87
ITEM: SW SCAN DIODES (3)
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

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REMARKS:

REPORT DATE 03/11/88 C-88
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-088X
NASA FMEA #: 2235-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 88
ITEM: SWITCH SCAN DIODES (3)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-89
### APPENDIX C
### ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 1/27/88  
**ASSESSMENT ID:** MPS-089X  
**NASA FMEA #:** 2236-1

**NASA DATA:**  
**BASELINE [ ]**  
**NEW [ X ]**

**SUBSYSTEM:** EPD&C/MPS  
**MDAC ID:** 89

**ITEM:** MDM INHIBIT COMMAND DIODES (6)

**LEAD ANALYST:** B. SLAUGHTER

**ASSESSMENT:**

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**COMPARE [ /N ]**  
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**RECOMMENDATIONS:** (If different from NASA)

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(ADD/DELETE)

* **CIL RETENTION RATIONALE:** (If applicable)

**ADEQUATE [ ]**

**INADEQUATE [ ]**

**REMARKS:**

**REPORT DATE 03/11/88**  
**C-90**
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-090X
NASA FMEA #: 2236-2
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 90
ITEM: MDM INHIBIT COMMAND DIODES (6)
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88  C-91
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: MPS-091X
NASA FMEA #: 2340-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 91
ITEM: LOCK RPC (2)
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA FMEA NO. 05-6J-2340-1 REV. 10/10/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-092X
NASA FMEA #: 2340-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 92
ITEM: LOCK RPC (2)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA FMEA NO. 05-6J-2340-2 REV. 10/10/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.

REPORT DATE 03/11/88 C-93
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-093X
NASA FMEA #: 2341-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 93
ITEM: UNLOCK RPC (2)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA FMEA NO. 05-6J-2341-1 REV. 10/10/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-094X
NASA FMEA #: 2341-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 94
ITEM: UNLOCK RPC (2)
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

NASA FMEA NO. 05-6J-2341-2 REV. 10/10/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.

REPORT DATE 03/11/88
C-95
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-095X
NASA FMEA #: 2342-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 95
ITEM: LOCK HDC I

LEAD ANALYST: B. SLAUGHTER
ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

NASA FMEA NO. 05-6J-2342-1 REV. 10/10/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-096X
NASA FMEA #: 2342-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 96
ITEM: LOCK HDC I
LEAD ANALYST: B. SLAUGHTER

NASA DATA:
BASELINE [ ]
NEW [ X ]

CRITICALITY REDUNDANCY SCREENS CIL ITEM
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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA FMEA NO. 05-6J-2342-2 REV. 10/10/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-097X
NASA FMEA #: 2343-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 97
ITEM: UNLOCK HDC I

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA FMEA NO. 05-6J-2343-1 REV. 10/10/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.

REPORT DATE 03/11/88   C-98
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-098X
NASA FMEA #: 2343-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 98
ITEM: UNLOCK HDC I
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA FMEA NO. 05-6J-2343-2 REV. 10/10/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-099X
NASA FMEA #: 2344-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 99
ITEM: LOCK HDC III (2)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-100X
NASA FMEA #: 2344-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 100
ITEM: LOCK HDC III (2)
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88    C-101
**APPENDIX C**

**ASSESSMENT WORKSHEET**

ASSESSMENT DATE: 2/10/88

| NASA DATA: |
| BASELINE [ ] |
| NEW [ X ] |

| SUBSYSTEM: EPD&C/MPS |
| MDAC ID: 101 |
| ITEM: UNLOCK HDC III (2) |

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]

INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-102
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-102X
NASA FMEA #: 2345-2
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 102
ITEM: UNLOCK HDC III (2)
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-103X
NASA FMEA #: 2346-1
NASA DATA:
BASELINE [ ]
NEW [ X ]

NASA FMEA #:
SUBSYSTEM: EPD&C/MPS
MDAC ID: 103
ITEM: LOCK RPC C OUTPUT DIODE
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-104
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-104X
NASA FMEA #: 2346-2

ASSESSMENT ID: MPS-104X
NASA FMEA #: 2346-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 104
ITEM: LOCK RPC C OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-105
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-105X
NASA FMEA #: 2346-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 105
ITEM: LOCK RPC C OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA FMEA NO 05-6J-2346-3 REV 11/4/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.

REPORT DATE 03/11/88 C-106
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-106X
NASA FMEA #: 2347-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 106
ITEM: UNLOCK RPC B OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

CRITICALITY
FLIGHT
HDW/FUNC

NASA [ 3 /1R ]
IOA [ 3 /1R ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REPORT DATE 03/11/88
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-107X
NASA FMEA #: 2347-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 107
ITEM: UNLOCK RPC B OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

RECOMMENDATIONS: (If different from NASA)

REMINDERS:

REPORT DATE 03/11/88 C-108
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-108X
NASA FMEA #: 2347-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 108
ITEM: UNLOCK RPC B OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

NASA FMEA NO 05-6J-2347-3 REV 11/19/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-109X
NASA FMEA #: 2348-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 109
ITEM: LOCK RPC CROSSOVER DIODE
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-110X
NASA FMEA #: 2348-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 110
ITEM: LOCK RPC CROSSOVER DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-111
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-111X
NASA FMEA #: 2348-3

SUBSYSTEM: EPD&C/MPS
MDAC ID: 111
ITEM: LOCK RPC CROSSOVER DIODE
LEAD ANALYST: B. SLAUGHTER

NASA DATA:
BASELINE [ ]
NEW [ X ]

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA FMEA NO 05-6J-2348-3 REV 11/04/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.

REPORT DATE 03/11/88

C-112
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-112X
NASA FMEA #: 2349-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 112
ITEM: UNLOCK RPC CROSSOVER DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-113
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-113X
NASA FMEA #: 2349-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 113
ITEM: UNLOCK RPC CROSSOVER DIODE
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)
  ADEQUATE [ ]
  INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88  C-114
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-114X
NASA FMEA #: 2349-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 114
ITEM: UNLOCK RPC CROSSOVER DIODE

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

Adequate [ ]
Inadequate [ ]

REMARKS:

REPORT DATE 03/11/88 C-115
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-115X
NASA FMEA #: 2350-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 115
ITEM: TRANSIENT SUPPRESSION DIODES (2)
LEAD ANALYST: B. SLAUGHTER

NASA DATA:
BASELINE [ ]
NEW [ X ]

CRITICALITY REDUNDANCY SCREENS CIL
FLIGHT HDW/FUNC A B C ITEM

NASA [ 3 /3 ] [ NA] [ NA] [ NA] [ ] *
IOA [ 3 /1R ] [ P ] [ F ] [ P ] [ X ]
COMPARE [ /N ] [ N ] [ N ] [ N ] [ N ]

RECOMMENDATIONS: (If different from NASA)
[ 3 /1R ] [ P ] [ F ] [ P ] [ A ]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
REF: MPS-115X
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-116X
NASA FMEA #: 2351-1
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 116
ITEM: UNLOCK POSITION SWITCH MONITOR RESISTORS (2)
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. THE FAILURE CAUSES A LOSS OF MONITORING CAPABILITY.

REPORT DATE 03/11/88 C-117
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-117X
NASA FMEA #: 2352-1
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 117
ITEM: LOCK POSITION SWITCH MONITOR RESISTORS (2)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

CRITICALITY
FLIGHT
HDW/FUNC
A B C

NASA [ 3 /3 ] [ NA] [ NA] [ NA] [ ] *
IOA [ 3 /3 ] [ NA] [ NA] [ NA] [ ]
COMPARE [ / ] [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-118
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-118X
NASA FMEA #: 2353-1
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 118
ITEM: RPC AND SOLENOID POWER MONITOR RESISTORS (6)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS:
(If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE:
(If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88
C-119
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-119X
NASA FMEA #: 2376-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 119
ITEM: LOCK RPC B OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-120
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-120X
NASA FMEA #: 2376-2
NASA DATA: 
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 120
ITEM: LOCK RPC B OUTPUT DIODE
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88  C-121
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-121X
NASA FMEA #: 2376-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 121
ITEM: LOCK RPC B OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

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COMPARE [ / ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA FMEA NO 05-6J-2376-3 REV 11/04/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.

REPORT DATE 03/11/88 C-122
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-122X
NASA FMEA #: 2377-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 122
ITEM: UNLOCK RPC C OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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| IOA       | [ 3 /1R ] | [ P ] | [ F ] | [ P ] | [ X ] |

COMPARE [ / ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-123
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-123X
NASA FMEA #: 2377-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 123
ITEM: UNLOCK RPC C OUTPUT DIODE
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88    C-124
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-124X
NASA FMEA #: 2377-3

SUBSYSTEM: EPD&C/MPS
MDAC ID: 124
ITEM: UNLOCK RPC C OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-125
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-125X
NASA FMEA #: 2378-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 125
ITEM: BLEED RESISTORS (4)
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-126
APPENDIX C
ASSessment WORKSHEET

ASSESSMENT DATE: 1/29/88                              NASA DATA:
ASSESSMENT ID: MPS-128X                               BASELINE [ ]
NASA FMEA #: 2198-4                                  NEW [ X ]

SUBSYSTEM: EPD&C/MPS                                  NASA DATA:
MDAC ID: 128                                         [ ]
ITEM: LH2 PREVALVE TOGGLE SWITCHES (3)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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- IOA [ 3 /1R ] [ P ] [ F ] [ P ] [ X ]

COMPARE [ / ] [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

Adequate [ ]
Inadequate [ ]

REMARKS:

REPORT DATE 03/11/88 C-127
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/29/88
ASSESSMENT ID: MPS-129X
NASA FMEA #: 2198-5
SUBSYSTEM: EPD&C/MPS
MDAC ID: 129
ITEM: LH2 PREVALVE TOGGLE SWITCHES (3)
LEAD ANALYST: B. Slaughter

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-128
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/29/88
ASSESSMENT ID: MPS-130X
NASA FMEA #: 2205-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 130
ITEM: LH2 PREVALVES OPEN COMMAND B RPC OUTPUT DIODES,
12A (3)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-129
**APPENDIX C**

**ASSESSMENT WORKSHEET**

**ASSESSMENT DATE:** 1/29/88  
**ASSESSMENT ID:** MPS-131X  
**NASA FMEA #:** 2205-3  
**SUBSYSTEM:** EPD&C/MPS  
**MDAC ID:** 131  
**ITEM:** LH2 PREVALVES OPEN COMMAND B RPC OUTPUT DIODES, 12A (3)  
**LEAD ANALYST:** B. SLAUGHTER

**ASSESSMENT:**

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**RECOMMENDATIONS:** (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

**REMARKS:**
APPENDIX C
ASSESSMENT WORKSHEET

| ASSESSMENT DATE: | 1/29/88 |
| ASSESSMENT ID:   | MPS-132X |
| NASA FMEA #:     | 2206-2  |
| NASA DATA:       | |
| BASELINE [ ]     | NEW [ X ] |
| SUBSYSTEM:       | EPD&C/MPS |
| MDAC ID:         | 132     |
| ITEM:            | LH2 PREVALVE OPEN RPC CROSSOVER DIODES, 12A (3) |
| LEAD ANALYST:    | B. SLAUGHTER |
| ASSESSMENT:      | |

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-131
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/29/88
ASSESSMENT ID: MPS-133X
NASA FMEA #: 2206-3
SUBSYSTEM: EPD&C/MPS
MDAC ID: 133
ITEM: LH2 PREVALVE OPEN RPC CROSSOVER DIODES, 12A (3)
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
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REMARKS:

REPORT DATE 03/11/88 C-132
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/29/88
ASSESSMENT ID: MPS-134X
NASA FMEA #: 2207-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 134
ITEM: LH2 PREVALVE CLOSE COMMAND A RPC OUTPUT DIODES, 12A (3)

LEAD ANALYST: B. SLAUGHTER

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
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REMARKS:

REPORT DATE 03/11/88 C-133
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/29/88
NASA DATA:
ASSESSMENT ID: MPS-135X
NASA FMEA #: 2207-3
SUBSYSTEM: EPD&C/MPS
MDAC ID: 135
ITEM: LH2 PREVALVE CLOSE COMMAND A RPC OUTPUT DIODES, 12A (3)
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
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REMARKS:

REPORT DATE 03/11/88 C-134
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/29/88
ASSESSMENT ID: MPS-136X
NASA FMEA #: 2208-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 136
ITEM: LH2 PREVALVES CLOSE RPC CROSSOVER DIODES, 12A
      (3)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
Adequate [ ]
Inadequate [ ]

REMARKS:

REPORT DATE 03/11/88 C-135
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/29/88
ASSESSMENT ID: MPS-137X
NASA FMEA #: 2208-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 137
ITEM: LH2 PREVALVE CLOSE RPC CROSSOVER DIODE, 12A (3)

LEAD ANALYST: B. SLAUGHTER

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-136
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/29/88
ASSESSMENT ID: MPS-138X
NASA FMEA #: 2209-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 138
ITEM: LH2 PREVALVES OPEN MDM BLOCKING DIODES (3)
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

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REMARKS:

REPORT DATE 03/11/88 C-137
APPENDIX C
ASSESSMENT WORKSHEET

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

Adequate [ ]
Inadequate [ ]

REMARKS:

REPORT DATE 03/11/88 C-138
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/29/88
ASSESSMENT ID: MPS-140X
NASA FMEA #: 2211-2
NASA DATA:
NASA FMEA 
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 140
ITEM: LH2 PREVALVES OPEN MDM BLOCKING DIODES (3)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-139
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/29/88  NASA DATA:
ASSESSMENT ID:  MPS-141X  BASELINE  [ ]
NASA FMEA #:  2212-2  NEW  [ X ]

SUBSYSTEM:  EPD&C/MPS
MDAC ID:  141
ITEM:  LH2 PREVALVE CLOSE MDM BLOCKING DIODES (3)

LEAD ANALYST:  B. SLAUGHTER

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* CIL RETENTION RATIONALE:  (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88  C-140
**APPENDIX C**  
**ASSESSMENT WORKSHEET**

ASSESSMENT DATE: 1/29/88  
ASSESSMENT ID: MPS-142X  
NASA FMEA #: 2213-2  

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: EPD&C/MPS  
MDAC ID: 142  
ITEM: LH2 PREVALVES MAINSTAGE BLOCKING DIODES (6)  
LEAD ANALYST: B. SLAUGHTER

**ASSESSMENT:**

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**RECOMMENDATIONS:** (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

**REMARKS:**

REPORT DATE 03/11/88  
C-141
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88  NASA DATA: BASELINE [ ]
ASSESSMENT ID: MPS-143X  NEW [ X ]
NASA FMEA #: 2214-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 143
ITEM: LH2 PREVALVES BLOCKING DIODE

LEAD ANALYST: B. SLAUGHTER

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| COMPARE [ / ] | [ ] | [ N ] | [ ] | [ N ]

RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THE FAILURE IS NOT DETECTABLE.

REPORT DATE 03/11/88  C-142
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-144X
NASA FMEA #: 2215-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 144
ITEM: LH2 PREVALVE CLOSE SWITCH COMMAND A BLOCKING DIODES (3)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
The failure is not detectable
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-145X
NASA FMEA #: 2216-2
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 145
ITEM: LH2 PREVALVES OPEN SWITCH COMMAND C BLOCKING DIODES (3)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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| IOA [ 3 /1R ]    | [ P ]              | [ F ]    | [ P ]  | [ X ] |
| COMPARE [ / ]    | [ ]                | [ N ]    | [ ]    | [ N ] |

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-144
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88  NASA DATA:
ASSESSMENT ID: MPS-146X  BASELINE [ ]
NASA FMEA #: 2217-2  NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 146
ITEM: LH2 PREVALVES OPEN SWITCH COMMAND B BLOCKING DIODES (3)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THE FAILURE IS NOT DETECTABLE.

REPORT DATE 03/11/88  C-145
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-147X
NASA FMEA #: 2218-2
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 147
ITEM: LH2 PREVALUES CLOSE SWITCH B&C BLOCKING DIODES (6)

LEAD ANALYST: B. SLAUGHTER

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COMPARE [ / ] [ ] [ N ] [ ] [ N ]

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THE FAILURE IS NOT DETECTABLE.

REPORT DATE 03/11/88 C-146
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-148X
NASA FMEA #: 2219-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 148
ITEM: LH2 PREVALVES OPEN SWITCH BLOCKING DIODES (6)
LEAD ANALYST: B. SLAUGHTER

NASA DATA:
BASELINE [  ]
NEW [ X ]

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [  ]
INADEQUATE [  ]

REMARKS:
THE FAILURE IS NOT DETECTABLE.

REPORT DATE 03/11/88 C-147
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-149X
NASA FMEA #: 2220-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 149
ITEM: LH2 PREVALVES OPEN SWITCH SCAN DIODES (9)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-148
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-150X
NASA FMEA #: 2221-2
BASELINE [ ] NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 150
ITEM: LH2 PREVALVES CLOSE SWITCH SCAN DIODES (9)

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-149
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-151X
NASA FMEA #: 2392-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 151
ITEM: LH2 PREVALVES OPEN COMMAND A RPC OUTPUT DIODES (3)

LEAD ANALYST: B. SLAUGHTER

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COMPARE [ / ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-150
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-152X
NASA FMEA #: 2392-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 152
ITEM: LH2 PREVALVES OPEN COMMAND A RPC OUTPUT DIODES (3)

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-151
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-153X
NASA FMEA #: 2393-2
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 153
ITEM: LH2 PREVALVES CLOSE COMMAND B RPC OUTPUT DIODES (3)

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-152
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-154X
NASA FMEA #: 2393-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 154
ITEM: LH2 PREVALVES CLOSE COMMAND B RPC OUTPUT DIODES (3)

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-153
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-201X
NASA FMEA #: 0518-3
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 201
ITEM: LO2 TANK PRE-PRESS CHECK VALVE (CV16)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
EXTERNAL LEAKAGE OF GO2 FROM THIS CHECK VALVE WOULD CAUSE OVERPRESSURIZATION OF THE AFT COMPARTMENT AND BUCKLING OF THE LO2 TANK DUE TO ATMOSPHERIC FORCES ACTING ON AN UNPRESSURIZED TANK. NASA INFORMATION IS BASED ON THE RI/NASA CRITICAL ITEMS LIST OF 12-23-87.

REPORT DATE 03/11/88 C-154
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-202X
NASA FMEA #: 0451-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MDAC
MDAC ID: 202
ITEM: LO2 BLEED CHECK VALVE (CV31, 33, 35)
LEAD ANALYST: W.J. McNICOLL

ASSESSMENT:

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COMPARE [ / ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)
[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
RI/NASA ANALYSIS APPLIES TO REENTRY PURGE. FAILURE MAY ALLOW CONTAMINATION TO ENTER THE SYSTEM.
NASA INFORMATION IS BASED ON NASA FMEA/CIL REVIEW MEETING NOTES (REF. J.E. BORCHES).

REPORT DATE 03/11/88 C-155
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-203X
NASA FMEA #: 0451-4

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 203
ITEM: IO2 BLEED CHECK VALVE (CV31,33,35)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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COMPARE [ / ] [ ] [ ] [ ] [ N ]

RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
### APPENDIX C
#### ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 1/20/88  
**ASSESSMENT ID:** MPS-204X  
**NASA FMEA #:** 0519-5  

**NASA DATA:**  
- BASELINE [ ]  
- NEW [ X ]

**SUBSYSTEM:** MPS  
**MDAC ID:** 204  
**ITEM:** GO2 PRESSURE FLOW CONTROL VALVE (LV53, 54, 55)

**LEAD ANALYST:** W.J. McNICOLL

#### ASSESSMENT:

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**COMPARE** [ / ] [ ] [ ] [ ] [ N ]

**RECOMMENDATIONS:** (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* **CIL RETENTION RATIONALE:** (If applicable)

ADEQUATE [ ]

INADEQUATE [ ]

**REMARKS:**

**REF:** RI/NASA FMEA/CIL REVIEW MEETING NOTES.

---

**REPORT DATE 03/11/88 C-157**
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88
ASSESSMENT ID: MPS-205X
NASA FMEA #: 0408-5
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 205
ITEM: LO2 FEED (ORB/ET) DISCONNECT (PD1)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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COMPARE [ ] [ ] [ ] [ ] [ N ]

RECOMMENDATIONS: (If different from NASA)

[ ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-158
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88
ASSESSMENT ID: MPS-206X
NASA FMEA #: 0408-9
NASA DATA: BASELINE [ ]  NEW [ X ]
SUBSYSTEM: MPS
MDAC ID: 206
ITEM: LO2 FEED (ORB/ET) DISCONNECT (PD1)
LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-159
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88
ASSESSMENT ID: MPS-207X
NASA FMEA #: 0408-10

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 207
ITEM: LO2 FEED (ORB/ET) DISCONNECT (PD1)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
FAILURE TO CLOSE IS ADDRESSED ON 0408-6. FAILURE OF THE INDICATOR WILL HAVE NO EFFECT.

REPORT DATE 03/11/88 C-160
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88
ASSESSMENT ID: MPS-208X
NASA FMEA #: 0408-12

NASA DATA: BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 208
ITEM: LO2 FEED DISCONNECT (PD1)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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| IOA | [ 1 /1 ] | [ NA] | [ NA] | [ NA] | [ ] |

COMPARE [ / ] [ ] [ ] [ ] [ ] [ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-161
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88
ASSESSMENT ID: MPS-209X
NASA FMEA #: 0803-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 209
ITEM: LO2 FEED DISCONNECT (PD1)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THIS FAILURE MODE SHOULD BE CONSIDERED UNDER 0408-5, LOSS OF POSITION INDICATION, OR 0408-10, ERRONEOUS INDICATION.

REPORT DATE 03/11/88 C-162
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88
ASSESSMENT ID: MPS-210X
NASA FMEA #: 0454-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 210
ITEM: LO2 AND LH2 FEED DISCONNECT LATCH ASSEMBLY (ORB ONLY)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-163
APPENDIX C  
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88
ASSESSMENT ID: MPS-211X
NASA FMEA #: 0454-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 211
ITEM: LO2 AND LH2 FEED DISCONNECT LATCH ASSEMBLY (ORB ONLY)

LEAD ANALYST: W.J. McNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-164
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88
ASSESSMENT ID: MPS-212X
NASA FMEA #: 0454-4

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 212
ITEM: LO2 AND LH2 FEED DISCONNECT LATCH ASSEMBLY (ORB ONLY)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-165
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88
ASSESSMENT ID: MPS-213X
NASA FMEA #: 0454-5

SUBSYSTEM: MPS
MDAC ID: 213
ITEM: LO2 AND LH2 FEED DISCONNECT LATCH ASSEMBLY (ORB ONLY)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-166
### APPENDIX C

**ASSESSMENT WORKSHEET**

**ASSESSMENT DATE:** 1/21/88  
**ASSESSMENT ID:** MPS-214X  
**NASA FMEA #:** 0454-6

**SUBSYSTEM:** MPS  
**MDAC ID:** 214  
**ITEM:** LO2 AND LH2 FEED DISCONNECT LATCH ASSEMBLY (ORB ONLY)

**LEAD ANALYST:** W.J. McNicoll

**ASSESSMENT:**

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**RECOMMENDATIONS:** (If different from NASA)

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* **CIL RETENTION RATIONALE:** (If applicable)

  ADEQUATE [ ]

  INADEQUATE [ ]

**REMARKS:**

FAILURE TO UNLOCK IS ADDRESSED ON 0454-3. FAILURE OF THE INDICATOR HAS NO EFFECT.


**REPORT DATE 03/11/88**

C-167
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88
ASSESSMENT ID: MPS-215X
NASA FMEA #: 0454-7

NASA DATA: BASELINE [ ] NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 215
ITEM: LO2 AND LH2 FEED DISCONNECT LATCH ASSEMBLY (ORB ONLY)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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COMPARE [ / ] [ ] [ ] [ ] [ N ]

RECOMMENDATIONS: (If different from NASA)
[ / ] [ ] [ ] [ ] [ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-168
**APPENDIX C**  
**ASSESSMENT WORKSHEET**

**ASSESSMENT DATE:** 1/21/88  
**ASSESSMENT ID:** MPS-216X  
**NASA FMEA #:** 0454-8

**NASA DATA:**  
**BASELINE** [ ]  
**NEW** [ X ]

**SUBSYSTEM:** MPS  
**MDAC ID:** 216  
**ITEM:** LO2 AND LH2 FEED DISCONNECT LATCH ASSEMBLY (ORB ONLY)

**LEAD ANALYST:** W.J. McNicoll

**ASSESSMENT:**

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**RECOMMENDATIONS:** (If different from NASA)

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(ADD/DELETE)

* **CIL RETENTION RATIONALE:** (If applicable)

ADEQUATE [ ]

INADEQUATE [ ]

**REMARKS:**


**REPORT DATE 03/11/88**  
**C-169**
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88
ASSESSMENT ID: MPS-217X
NASA FMEA #: 0805-1
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 217
ITEM: LO2 AND LH2 FEED DISCONNECT LATCH ASSEMBLY (ORB ONLY)

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THIS FAILURE SHOULD BE COVERED UNDER 0454-5, LOSS OF POSITION INDICATION, OR 0454-6, ERRONEOUS INDICATION. REF: RI/NASA CIL OF 12-23-87.

REPORT DATE 03/11/88 C-170
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/22/88
ASSESSMENT ID: MPS-218X
NASA FMEA #: 0303-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 218
ITEM: LO2 FILL AND DRAIN DISCONNECT (PD12)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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COMPARE [ / ] [ ] [ ] [ ] [ ] [ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-171
APPENDIX C  
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/22/88  
ASSESSMENT ID:  MPS-219X  
NASA FMEA #: 0303-3  
SUBSYSTEM: MPS  
MDAC ID: 219  
ITEM: LO2 FILL AND DRAIN DISCONNECT (PDI2)  
LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA) 
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*CIL RETENTION RATIONALE: (If applicable)  
ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  
REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES (J.E. BORCHES).

REPORT DATE 03/11/88  
C-172
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/22/88
ASSESSMENT ID: MPS-220X
NASA FMEA #: 0303-4

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 220
ITEM: LO2 FILL AND DRAIN DISCONNECT (PD12)

LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES (J.E. Borches).

REPORT DATE 03/11/88 C-173
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/22/88
ASSESSMENT ID: MPS-221X
NASA FMEA #: 0303-5

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 221
ITEM: LO2 FILL AND DRAIN DISCONNECT (PD12)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES (J.E. BORCHES).

REPORT DATE 03/11/88 C-174
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-222X
NASA FMEA #: 0401-6

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 222
ITEM: LO2 PREVALVE (PV1, 2, 3)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES (J.E. BORCHES).

REPORT DATE 03/11/88 C-175
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-223X
NASA FMEA #: 0401-10

NASA DATA:
BASELINE [  ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 223
ITEM: LO2 PREVALUE (PV1, 2, 3)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-176
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-224X
NASA FMEA #: 0801-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 224
ITEM: LO2 PREVALVE (PV1, 2, 3)

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THIS FAILURE MODE SHOULD BE ADEQUATELY ADDRESSED UNDER ERRONEOUS INDICATION (0401-6).

REPORT DATE 03/11/88 C-177
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-225X
NASA FMEA #: 0414-4

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 225
ITEM: LO2 FEEDLINE RELIEF SHUTOFF VALVE (PV7)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
FAILURE OF THE VALVE TO REMAIN CLOSED IS ADDRESSED ON 0414-3.
FAILURE OF THE INDICATION SYSTEM ONLY WILL HAVE NO EFFECT.

REPORT DATE 03/11/88 C-178
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-226X
NASA FMEA #: 0414-5

NASA DATA:
BASELINE [    ]
NEW [ X    ]

SUBSYSTEM: MPS
MDAC ID: 226
ITEM: LO2 FEEDLINE RELIEF SHUTOFF VALVE (PV7)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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IOA [ 3 /3 ] [ NA] [ NA] [ NA] [ ]

COMPARE [ / ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-227X
NASA FMEA #: 0414-6
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 227
ITEM: LO2 FEEDLINE RELIEF SHUTOFF VALVE (PV7)
LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-180
### APPENDIX C
#### ASSESSMENT WORKSHEET

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**SUBSYSTEM:** MPS  
**MDAC ID:** 228  
**ITEM:** LO2 OUTBOARD FILL AND DRAIN VALVE (PV9)

**LEAD ANALYST:** W.J. MCNICOLL

**ASSESSMENT:**

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**RECOMMENDATIONS:** (If different from NASA)

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(ADD/DELETE)

* **CIL RETENTION RATIONALE:** (If applicable)

- **ADEQUATE** [ ]
- **INADEQUATE** [ ]

**REMARKS:**

FAILURE OF THE VALVE TO REMAIN CLOSED IS ADDRESSED ON 0311-4.  
FAILURE OF THE POSITION INDICATOR ALONE WILL HAVE NO EFFECT.  

---

**REPORT DATE 03/11/88**
APPENDIX C  
ASSESSMENT WORKSHEET  

ASSESSMENT DATE: 1/25/88  
ASSESSMENT ID: MPS-229X  
NASA FMEA #: 0311-7  
SUBSYSTEM: MPS  
MDAC ID: 229  
ITEM: LO2 OUTBOARD FILL AND DRAIN VALVE (PV9)  
LEAD ANALYST: W.J. MCNICOLL  

NASA DATA:  
BASELINE [ ]  
NEW [ X ]  

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

RECOMMENDATIONS:  (If different from NASA)  
[ / ] [ ] [ ] [ ] [ ] [ ] (ADD/DELETE)  

* CIL RETENTION RATIONALE: (If applicable)  
ADEQUATE [ ]  
INADEQUATE [ ]  

REMARKS:  

REPORT DATE 03/11/88 C-182
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-230X
NASA FMEA #: 0311-8

SUBSYSTEM: MPS
MDAC ID: 230
ITEM: LO2 OUTBOARD FILL AND DRAIN VALVE (PV9)

LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-183
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-231X
NASA FMEA #: 0311-10
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 231
ITEM: LO2 OUTBOARD FILL AND DRAIN VALVE (PV9)

LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-184
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-232X
NASA FMEA #: 0310-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 232
ITEM: LO2 INBOARD FILL AND DRAIN VALVE (PV10)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
FAILURE OF THE VALVE TO REMAIN CLOSED IS ADDRESSED ON 0310-4.
FAILURE OF THE POSITION INDICATOR ALONE WILL HAVE NO EFFECT.

REPORT DATE 03/11/88 C-185
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-233X
NASA FMEA #: 0310-5

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 233
ITEM: LO2 INBOARD FILL AND DRAIN VALVE (PV10)

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-186
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-234X
NASA FMEA #: 0310-8

SUBSYSTEM: MPS
MDAC ID: 234
ITEM: LO2 INBOARD FILL AND DRAIN VALVE (PV10)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARRKS:


REPORT DATE 03/11/88 C-187
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-235X
NASA FMEA #: 0310-9
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 235
ITEM:
LO2 INBOARD FILL AND DRAIN VALVE (PV10)

LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-188
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-236X
NASA FMEA #: 0310-11

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 236
ITEM: LO2 INBOARD FILL AND DRAIN VALVE (PV10)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-237X
NASA FMEA #: 0806-1
SUBSYSTEM: MPS
MDAC ID: 237
ITEM: LO2 INBOARD FILL AND DRAIN VALVE (PV10)
LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

THIS FAILURE MODE SHOULD BE ADEQUATELY ADDRESSED UNDER ERRONEOUS INDICATION (0310-3) AND LOSS OF POSITION INDICATION (0310-9).

REPORT DATE 03/11/88
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-238X
NASA FMEA #: 0452-6
NASA DATA: BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 238
ITEM: LO2 BLEED SHUTOFF VALVE (PV19)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-191
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-239X
NASA FMEA #: 0452-8

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 239
ITEM: LO2 BLEED SHUTOFF VALVE (PV19)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-192
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-240X
NASA FMEA #: 0453-4

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 240
ITEM: LO2 POGO ACCUMULATOR RECIRC VALVE (PV20, 21)

LEAD ANALYST: W.J. McNICOLL

ASSESSMENT:

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| IOA  | [ 3 /3 ]  | [ NA] | [ NA] | [ NA] | [ ]    |
| COMPARE | [ N /N ] | [ N ] | [ N ] | [ N ] | [ N ] |

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
FAILURE TO REMAIN OPEN IS ADDRESSED ON 0453-1. FAILURE OF THE INDICATOR ALONE WILL HAVE NO EFFECT.

REPORT DATE 03/11/88 C-193
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/25/88
ASSESSMENT ID: MPS-241X
NASA FMEA #: 0453-5
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 241
ITEM: LO2 POGO ACCUMULATOR RECIRC VALVE (PV20, 21)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-194
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-243X
NASA FMEA #: 0427-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 243
ITEM: LH2/LO2 PROPELLANT LEVEL SENSORS

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THIS ASSESSMENT ALSO COVERS LH2 SENSORS. MULTIPLE SENSORS PROVIDE REDUNDANCY TO PREVENT UNDERFILL.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-244X
NASA FMEA #: 0427-3
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 244
ITEM: LH2/LO2 PROPELLANT LEVEL SENSORS

LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

* CIL RETENTION RATIONALE: (If applicable)

(ADD/DELETE)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THIS ASSESSMENT ALSO COVERS LH2 SENSORS. MULTIPLE SENSORS PROVIDE REDUNDANCY TO PREVENT OVERFILL.

REPORT DATE 03/11/88 C-196
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-247X
NASA FMEA #: 0410-3

NASA DATA:
BASELINE [  ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 247
ITEM: LH2 DELTA-P TRANSUDER (MT44)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

|             |                     | [ ] |
|             |                     | [ ] |

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-197
ASSESSMENT DATE: 1/26/88  
ASSESSMENT ID:  MPS-248X  
NASA FMEA #:  0420-1  

NASA DATA:  
BASELINE [ ]  
NEW [ x ]  

SUBSYSTEM:  MPS  
MDAC ID:  248  
ITEM:  LO2 12 INCH FEEDLINE (FH 3, 4, 5)  

LEAD ANALYST:  W.J. MCNICOLL  

**ASSESSMENT:**  

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**RECOMMENDATIONS:** (If different from NASA)  

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(ADD/DELETE)  

* **CIL RETENTION RATIONALE:** (If applicable)  

ADEQUATE [ ]  
INADEQUATE [ ]  

**REMARKS:**  
REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-249X
NASA FMEA #: 0460-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 249
ITEM: LO2 12 INCH FEEDLINE (FH 3, 4, 5)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

THIS ANALYSIS IS FOR THE FOAM INSULATED LINE. REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-250X
NASA FMEA #: 0609-2

SUBSYSTEM: MPS
MDAC ID: 250
ITEM: GO2 PRESSURE MANIFOLD REPRESS ORIFICE (RPI)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

CRITICALITY

REDUNDANCY SCREENS

CIL

ITEM

FLIGHT HDW/FUNC A B C ITEM

NASA [1/1] [NA] [NA] [NA] [X] *
IOA [1/1] [NA] [NA] [NA] [ ]

COMPARE [ / ] [ ] [ ] [ ] [ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-200
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-251X
NASA FMEA #: 0422-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 251
ITEM: LO2 BLEED LINE, 1.5" DIA

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-201
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-252X
NASA FMEA #: 0424-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 252
ITEM: LO2 RELIEF LINE (PV7 TO RV5)

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

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REPORT DATE 03/11/88 C-202
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-253X
NASA FMEA #: 0455-1

SUBSYSTEM: MPS
MDAC ID: 253
ITEM: LO2 RELIEF LINE, 1" DIA (RV5 TO EXIT)

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-203
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-254X
NASA FMEA #: 0456-1

SUBSYSTEM: MPS
MDAC ID: 254
ITEM: LO2 RELIEF SENSE LINE, .38" DIA

LEAD ANALYST: W.J. MCNICOLL

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| IOA | [ 1 /1 ] | [ NA ] | [ NA ] | [ NA ] | [ ] |

COMPARE [ / ] [ ] [ ] [ ] [ N ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-204
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-255X
NASA FMEA #: 0456-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 255
ITEM: LO2 RELIEF SENSE LINE, .38" DIA

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
FAILURE MAY PREVENT RELIEF VALVE FROM OPENING. REDUNDANCY EXISTS TO RELIEVE MANIFOLD PRESSURE.

REPORT DATE 03/11/88 C-205
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-256X
NASA FMEA #: 0428-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 256
ITEM: LO2 BLEED RECIRC & POGO SUPPRESSION LINE, 1, 1.5, 2" DIA

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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COMPARE [ / ] [ ] [ ] [ ] [ N ]

RECOMMENDATIONS: (If different from NASA)
[ / ] [ ] [ ] [ ] [ ]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-206
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-257X
NASA FMEA #: 0428-2

SUBSYSTEM: MPS
MDAC ID: 257
ITEM: LO2 BLEED RECIRC & POGO SUPPRESSION LINE, 1.5, 2" DIA

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
FAILURE MODE IS ADDRESSED ON 0428-1. THIS FMEA/CIL SHOULD BE DELETED.

REPORT DATE 03/11/88 C-207
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-258X
NASA FMEA #: 0433-1

DATE: 1/26/88
ASSESSMENT ID: MPS-258X
NASA FMEA #: 0433-1

SUBSYSTEM: MPS
MDAC ID: 258
ITEM: LO2 DELTA PRESSURE LINE, .25" DIA

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

Adequate [ ]

INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-208
### APPENDIX C

#### ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 1/26/88  
**ASSESSMENT ID:** MPS-259X  
**NASA FMEA #:** 0434-1  

**SUBSYSTEM:** MPS  
**MDAC ID:** 259  
**ITEM:** LO2 FEEDLINE SCREEN  
**LEAD ANALYST:** W.J. MCNICOLL

**NASA DATA:**  
- BASELINE [ ]  
- NEW [ X ]

**ASSESSMENT:**

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**RECOMMENDATIONS:** (If different from NASA)  
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)  
ADEQUATE [ ]  
INADEQUATE [ ]

**REMARKS:**


**REPORT DATE 03/11/88**  
**C-209**
**APPENDIX C**

**ASSESSMENT WORKSHEET**

ASSESSMENT DATE: 1/26/88  
ASSESSMENT ID: MPS-260X  
NASA FMEA #: 0434-2

SUBSYSTEM: MPS  
MDAC ID: 260  
ITEM: LO2 FEEDLINE SCREEN

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)  
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* CIL RETENTION RATIONALE: (If applicable)  
ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:  

REPORT DATE 03/11/88  
C-210
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-261X
NASA FMEA #: 0458-1
SUBSYSTEM: MPS
MDAC ID: 261
ITEM: LO2 LINE ASSEMBLY (PD1 TO CV12 & RP1 TO CV10)
LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL MEETING NOTES.

REPORT DATE 03/11/88 C-211
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-262X
NASA FMEA #: 0507-1
NASA DATA:
BASELINE [ ]
NEW [ x ]

SUBSYSTEM: MPS
MDAC ID: 262
ITEM: GO2 PRESSURIZATION SUPPLY LINE, .63" DIA, CV TO FCV

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL MEETING NOTES.

REPORT DATE 03/11/88 C-212
## APPENDIX C
### ASSESSMENT WORKSHEET

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**RECOMMENDATIONS:** (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]

INADEQUATE [ ]

**REMARKS:**

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL MEETING NOTES.

---

REPORT DATE 03/11/88 C-213
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-264X
NASA FMEA #: 0510-1
SUBSYSTEM: MPS
MDAC ID: 264
ITEM: GO2 PRESSURIZATION SUPPLY LINE (CV16 TO PD9)
LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[2/1R] [P] [F] [P] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
SECOND FAILURE WILL ALLOW LEAKAGE OF GO2 INTO AFT COMPARTMENT.

REPORT DATE 03/11/88 C-214
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88  NASA DATA:  NASA FMEA #: 0515-1
ASSESSMENT ID: MPS-265X  BASELINE [ ]  NEW [ X ]

SUBSYSTEM: MPS  MDAC ID: 265
ITEM: LO2 ULLAGE PRESSURE SIGNAL CONDITIONER

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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COMPARE [ / ] [ ] [ ] [ ] [ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]

INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING

NOTES.

REPORT DATE 03/11/88  C-215
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-266X
NASA FMEA #: 0515-2
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 266
ITEM: LO2 ULLAGE PRESSURE SIGNAL CONDITIONER

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THE RI/NASA ANALYSIS INDICATES THAT THE 2/1R CRITICALITY APPLIES TO THE LH2 ULLAGE PRESSURE SIGNAL CONDITIONER ONLY. FOR LO2 THERE WOULD BE NO EFFECT. REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-267X
NASA FMEA #: 0515-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 267
ITEM: LO2 ULLAGE PRESSURE SIGNAL CONDITIONER

LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING
NOTES.

REPORT DATE 03/11/88 C-217
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-268X
NASA FMEA #: 0522-1
SUBSYSTEM: MPS
MDAC ID: 268
ITEM: GO2 PRESSURIZATION SUPPLY LINE
LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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COMPARE [ ] [ ] [ ] [ ] [ ] [ ] [ N ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-218
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-269X
NASA FMEA #: 0607-1

NASA DATA:
BASELINE
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 269
ITEM: LO2 SENSE LINE (PD1 TO PR5)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-219
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-270X
NASA FMEA #: 0626-5
NASA DATA: BASELINE [ ]
NEW [ x ]

SUBSYSTEM: MPS
MDAC ID: 270
ITEM: LO2 ENGINE INLET PRESSURE TRANSDUCER

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-220
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-271X
NASA FMEA #: 0626-6

SUBSYSTEM: MPS
MDAC ID: 271
ITEM: LO2 MANIFOLD PRESSURE TRANSDUCER

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
RELIEF SYSTEM WILL PROTECT AGAINST MANIFOLD RUPTURE. NO REDUNDANCY FOR TRANSDUCER FAILURE.
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-272X
NASA FMEA #: 0626-7
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 272
ITEM: GO2 DISCONNECT PRESSURE TRANSDUCER

LEAD ANALYST: W.J. McNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88  C-222
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-273X
NASA FMEA #: 0627-3
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 273
ITEM: LO2 ENGINE INLET TEMPERATURE TRANSDUCER

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-223
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-274X
NASA FMEA #: 0627-4
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 274
ITEM: GO2 ENGINE OUTLET TEMPERATURE TRANSDUCER

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
RI/NASA FMEA/CIL REVIEW MEETING NOTES POSTULATE LEAKAGE OF THE ANTI-FLOOD VALVE IN COMBINATION WITH TRANSDUCER FAILURE. THIS VIOLATES NSTS 22206 2.3.2d, THE REQUIREMENT THAT INTERFACING SUBSYSTEMS WILL BE CONSIDERED TO BE OPERATING WITHIN THEIR SPECIFIED TOLERANCES. MULTIPLE FAILURES CAN ALLOW ENGINE START WHEN CONDITIONS ARE NOT ACTUALLY WITHIN LIMITS. REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-224
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-275X
NASA FMEA #: 0627-5

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 275
ITEM: LO2 FEED MANIFOLD DISCONNECT TEMPERATURE TRANSDUCER

LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

CRITICALITY REDUNDANCY SCREENS CIL ITEM
FLIGHT HDW/FUNC A B C

NASA [ 3 /3 ] [ NA] [ NA] [ NA] [ ] *[ ]
IOA [ 3 /3 ] [ NA] [ NA] [ NA] [ ]

COMPARE [ / ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)
[ 3 /3 ] [ NA] [ NA] [ NA] [ ]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
RI/NASA ANALYSIS INDICATES 3/1R FOR A PAD ABORT (PRELAUNCH).
THIS ASSUMED FAILURE OF THE ENGINE BLEED VALVE, WHICH VIOLATES
NSTS 22206 2.3.2d, THE REQUIREMENT THAT INTERFACING SUBSYSTEMS
WILL BE CONSIDERED TO BE OPERATING WITHIN THEIR SPECIFIED
TOLERANCES. REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL
REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-225
ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-276X
NASA FMEA #: 0701-1

SUBSYSTEM: MPS
MDAC ID: 276
ITEM: LO2/LH2 NAFLEX FLANGE FACE SEALS
LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88   C-226
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-277X
NASA FMEA #: 0702-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 277
ITEM: LO2/LH2 METALLIC BOSS SEALS (K SEALS)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-227
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-278X
NASA FMEA #: 0703-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 278
ITEM: GO2/GH2 K SEALS

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA CIL FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-228
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-279X
NASA FMEA #: 0707-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 279
ITEM: GO2/GH2 NAFLEX FLANGE FACE SEALS

LEAD ANALYST: W.J. McNICOLL

LEAD ANALYST: W.J. McNICOLL

ASSESSMENT:

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RECOMMENDATIONS:
(If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88  C-229
APPENDIX C

ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-280X
NASA FMEA #: 0301-8
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 280
ITEM: LH2 INBOARD FILL AND DRAIN VALVE (PV12)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-281X
NASA FMEA #: 0301-9

SUBSYSTEM: MPS
MDAC ID: 281
ITEM: LH2 INBOARD FILL AND DRAIN VALVE (PV12)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-231
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-282X
NASA FMEA #: 0301-11

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 282
ITEM: LH2 INBOARD FILL AND DRAIN VALVE

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
RI/NASA ANALYSIS IDENTIFIES A 1/1 CRITICALITY FOR RTLS AND TAL ABORTS. IOA CONCURS.

REPORT DATE 03/11/88 C-232
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-283X
NASA FMEA #: 0808-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 283
ITEM: LH2 INBOARD FILL AND DRAIN VALVE (PV12)

LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

CRITICALITY
FLIGHT HDW/FUNC
A B C
NASA [ /1R ] [ NA ] [ NA ] [ NA ] [ X ] *
IOA [ / ] [ ] [ ] [ ] [ ]
COMPARE [ /N ] [ N ] [ N ] [ N ] [ N ]

RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THIS FAILURE MODE SHOULD BE ADEQUATELY ADDRESSED UNDER ERRONEOUS
INDICATION (0301-3) AND LOSS OF POSITION INDICATION (0301-8).

REPORT DATE 03/11/88 C-233
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88
ASSESSMENT ID: MPS-284X
NASA FMEA #: 0302-7

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 284
ITEM: LH2 OUTBOARD FILL AND DRAIN VALVE (PV11)

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.
APPENDIX C  
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/27/88  
ASSESSMENT ID: MPS-285X  
NASA FMEA #: 0302-8  
NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: MPS  
MDAC ID: 285  
ITEM: LH2 OUTBOARD FILL AND DRAIN VALVE (PV11)

LEAD ANALYST: W.J. MCNICOLL

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COMPARE [ / ] [ ] [ ] [ ] [ N ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88  C-235
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-286X
NASA FMEA #: 0302-10

SUBSYSTEM: MPS
MDAC ID: 286
ITEM: LH2 OUTBOARD FILL & DRAIN VALVE (PV11)
LEAD ANALYST: W.J. MCNICOLL

NASA DATA:
BASELINE [ ]
NEW [ X ]

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

* CIL RETENTION RATIONALE: (If applicable)

* ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-236
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-287X
NASA FMEA #: 0807-1

SUBSYSTEM: MPS
MDAC ID: 287
ITEM: LH2 OUTBOARD FILL & DRAIN VALVE (PV11)
LEAD ANALYST: W.J. MCNICOLL

NASA DATA:
BASELINE [ ]
NEW [ X ]

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THIS FAILURE MODE SHOULD BE ADEQUATELY ADDRESSED UNDER ERRONEOUS INDICATION (0302-3) AND LOSS OF POSITION INDICATION (0302-7).

REPORT DATE 03/11/88 C-237
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-288X
NASA FMEA #: 0303-2
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 288
ITEM: LH2 FILL & DRAIN DISCONNECT (PD11)

LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-238
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-289X
NASA FMEA #: 0303-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 289
ITEM: LH2 FILL & DRAIN DISCONNECT (PDII)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

<p>| CRITICALITY | REDUNDANCY SCREENS | CIL |</p>
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COMPARE [ / ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-239
APPENDIX C
ASSESSMENT WORKSHEET

ASSESMENT DATE: 1/28/88
ASSESMENT ID: MPS-290X
NASA FMEA #: 0303-4

SUBSYSTEM: MPS
MDAC ID: 290
ITEM: LH2 FILL & DRAIN DISCONNECT (PD11)

LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

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COMPARE [ / ] [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-240
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-291X
NASA FMEA #: 0303-5

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 291
ITEM: LH2 FILL & DRAIN DISCONNECT (PD11)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] [ ]

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-241
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-292X
NASA FMEA #: 0432-4

SUBSYSTEM: MPS
MDAC ID: 292
ITEM: LH2 HI POINT BLEED DISCONNECT (PD17)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-242
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-293X
NASA FMEA #: 0432-6

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 293
ITEM: LH2 HI POINT BLEED DISCONNECT (PD17)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

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INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-243
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-294X
NASA FMEA #: 0304-3

NASA DATA:

BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 294
ITEM: LH2 REPLENISH VALVE (PV13)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-244
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-295X
NASA FMEA #: 0304-6

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 295
ITEM: LH2 REPLENISH VALVE (PV13)

LEAD ANALYST: W.J. MCFICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-245
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-296X
NASA FMEA #: 0304-11
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 296
ITEM: LH2 REPLENISH VALVE (PVI3)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-246
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-297X
NASA FMEA #: 0431-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 297
ITEM: LH2 HI POINT BLEED VALVE (PV22)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-247
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-298X
NASA FMEA #: 0431-6

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 298
ITEM: LH2 HI POINT BLEED VALVE (PV22)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THIS ANALYSIS IS A DUPLICATE OF 0431-5. THIS CIL SHOULD BE DELETED. REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88   C-248
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-299X
NASA FMEA #: 0431-7

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 299
ITEM: LH2 HI POINT BLEED VALVE

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-249
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-300X
NASA FMEA #: 0431-5

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 300
ITEM: LH2 HI POINT BLEED VALVE (PV22)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-250
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-301X
NASA FMEA #: 0410-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 301
ITEM: LH2 SYSTEM DELTA-P TRANSDUCER (MT44)

LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARS:
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-251
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-303X
NASA FMEA #: 0433-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 303
ITEM: LH2 DELTA-P LINE, .25" DIA

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-252
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-304X
NASA FMEA #: NA

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 304
ITEM: LH2 HI POINT BLEED LINE (PV22 TO PD17)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
AN INCREASE IN PRESSURE CAUSED BY THE LOSS OF INSULATION WILL BE RELIEVED BY THE HI POINT BLEED VALVE RELIEF FEATURE.

REPORT DATE 03/11/88 C-253
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/29/88
ASSESSMENT ID: MPS-305X
NASA FMEA #: NA
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 305
ITEM: LH2 HI POINT BLEED LINE (PV22 TO PD17)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-254
# APPENDIX C
## ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 1/29/88  
**ASSESSMENT ID:** MPS-306X  
**NASA FMEA #:** 0457-1  
**NASA DATA:**  
- **BASELINE:** [ ]  
- **NEW:** [ X ]  

**SUBSYSTEM:** MPS  
**MDAC ID:** 306  
**ITEM:** LH2 LINE ASSEMBLY (PD2 TO RV7, CV15)  
**LEAD ANALYST:** W.J. MCNICOLL

**ASSESSMENT:**

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**RECOMMENDATIONS:**  
(If different from NASA)

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

* **CIL RETENTION RATIONALE:**  
(If applicable)

- **ADEQUATE:** [ ]  
- **INADEQUATE:** [ ]

**REMARKS:**


---

**REPORT DATE 03/11/88**  
**C-255**
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/29/88
ASSESSMENT ID: MPS-307X
NASA FMEA #: 0405-4

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 307
ITEM: LH2 RECIRCULATION DISCONNECT VALVE (PD3)

LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
FAILURE OF THE VALVE TO REMAIN OPEN IS ADDRESSED ON 0405-2.
FAILURE OF THE INDICATOR ALONE WILL HAVE NO EFFECT.

REPORT DATE 03/11/88 C-256
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/29/88
ASSESSMENT ID: MPS-308X
NASA FMEA #: 0405-7

SUBSYSTEM: MPS
MDAC ID: 308
ITEM: LH2 RECIRCULATION DISCONNECT VALVE (PD3)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/29/88
ASSESSMENT ID: MPS-309X
NASA FMEA #: 0405-8

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 309
ITEM: LH2 RECIRCULATION DISCONNECT VALVE (PD3)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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IOA [ 3 /3 ] [ NA] [ NA] [ NA] [ ]

COMPARE [ / ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)
[ / ] [ ] [ ] [ ] [ ]

(RECOUNT/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-258
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/29/88
ASSESSMENT ID: MPS-310X
NASA FMEA #: 0405-9

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 310
ITEM: LH2 RECIRCULATION DISCONNECT VALVE (PD3)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/29/88  NASA DATA:
ASSESSMENT ID:  MPS-311X  BASELINE [ ]
NASA FMEA #:  NA  NEW [ X ]

SUBSYSTEM:  MPS  NASA DATA:
MDAC ID:  311  BASELINE [ ]
ITEM:  LH2 RECIRCULATION DISCONNECT VALVE (PD3)  NEW [ X ]

LEAD ANALYST:  W.J. MCNICOLL

ASSESSMENT:

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COMPARE [ / ] [ ] [ ] [ ] [ ] [ N ]

RECOMMENDATIONS:  (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE:  (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88  C-260
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/29/88
ASSESSMENT ID: MPS-312X
NASA FMEA #: 0403-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 312
ITEM: LH2 RECIRCULATION PUMP VALVE (PV14, 15, 16)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-261
ASSESSMENT DATE: 1/29/88  
ASSESSMENT ID: MPS-313X  
NASA FMEA #: 0403-4  
SUBSYSTEM: MPS  
MDAC ID: 313  
ITEM: LH2 RECIRCULATION PUMP VALVE (PVI4, 15, 16)  
LEAD ANALYST: W.J. McNICOLL  

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [D]  
INADEQUATE [ ]  

REMARKS:

FAILURE MODE IS NOT IDENTIFIED IN THE RI/NASA CIL OF 12-23-87.  
THIS FMEA/CIL SHOULD BE DROPPED.  
## APPENDIX C
### ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 1/29/88
**ASSESSMENT ID:** MPS-314X
**NASA FMEA #:** 0403-7

**SUBSYSTEM:** MPS
**MDAC ID:** 314
**ITEM:** LH2 RECIRCULATION PUMP VALVE (PVI4, 15, 16)

**LEAD ANALYST:** W.J. MCNICOLL

**ASSESSMENT: CRITICALITY REDUNDANCY SCREENS CIL ITEM**

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**RECOMMENDATIONS:** (If different from NASA)

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(ADD/DELETE)

* **CIL RETENTION RATIONALE:** (If applicable)

  ADEQUATE [ ]
  INADEQUATE [ ]

**REMARKS:**

**REF:** RI/NASA CIL OF 12-23-87.

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**REPORT DATE 03/11/88**

C-263
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/29/88
ASSESSMENT ID: MPS-315X
NASA FMEA #: 0404-3
SUBSYSTEM: MPS
MDAC ID: 315
ITEM: LH2 RECIRCULATION PUMP (PP1, 2, 3)
LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-264
## APPENDIX C
### ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 1/29/88  
**ASSESSMENT ID:** MPS-316X  
**NASA FMEA #:** 0505-2  

**NASA DATA:**  
BASELINE [ ]  
NEW [ X ]  

**SUBSYSTEM:** MPS  
**MDAC ID:** 316  
**ITEM:** GH2 PRESSURIZATION ISOLATION CHECK VALVE (CV21, 22, 23)  

**LEAD ANALYST:** W.J. MCNICOLL  

### ASSESSMENT:

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**RECOMMENDATIONS:** (If different from NASA)

[ 3 /3 ] [ NA ] [ NA ] [ NA ] [ D ]  
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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

**REMARKS:**  
The RI/NASA analysis addresses abort only. Failure of both series redundant check valves on a shutdown engine (abort) as well as another failure (i.e., MFV fails to close/remain closed) will allow ullage pressure to be lost. Abort criticality should be 3/1R.

**REPORT DATE 03/11/88 C-265**
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/29/88
ASSESSMENT ID: MPS-317X
NASA FMEA #: 0505-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 317
ITEM: GH2 PRESSURIZATION ISOLATION CHECK VALVE (CV21, 22, 23)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-266
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/29/88  
ASSESSMENT ID: MPS-318X  
NASA FMEA #: 0504-3

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: MPS  
MDAC ID: 318  
ITEM: GH2 PRESSURIZATION FLOW CONTROL VALVE (LV56, 57, 58)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

CRITICALITY
FLIGHT
HDW/FUNC

REDUNDANCY SCREENS
A    B    C

ITEM

NASA  [ 2 /1R ]  [ F ]  [ P ]  [ P ]  [ X ] *
IOA  [ 2 /1R ]  [ F ]  [ P ]  [ F ]  [ ]
COMPARE [ / ]  [ ]  [ ]  [ N ]  [ N ]

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-267
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-319X
NASA FMEA #: 0407-5
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 319
ITEM: LH2 FEED DISCONNECT VALVE (PD2)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-268
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-320X
NASA FMEA #: 0407-9

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 320
ITEM: LH2 FEED DISCONNECT VALVE (PD2)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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| NASA |  [ 2 /1R ] | [ P ] | [ F ] | [ P ] | [ X ] * |
| IOA  |  [ 2 /1R ] | [ P ] | [ F ] | [ P ] | [    ] |

COMPAR [ / ] [ ] [ ] [ ] [ ] [ N ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-269
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-321X
NASA FMEA #: 0407-10

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 321
ITEM: LH2 FEED DISCONNECT VALVE (PD2)

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ F ] [ F ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADÉQUATE [ ]
INADÉQUATE [ ]

REMARKS:
FAILURE OF THE VALVE TO CLOSE IS ADDRESSED ON 0407-6. FAILURE TO CLOSE IS SECONDARY TO THE FAILURE OF THE POSITION INDICATOR.

REPORT DATE 03/11/88 C-270
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-322X
NASA FMEA #: 0407-12

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 322
ITEM: LH2 FEED DISCONNECT VALVE (PD2)

LEAD ANALYST: W.J. Mcnicoll

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-271
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-323X
NASA FMEA #: 0804-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 323
ITEM: LH2 FEED DISCONNECT VALVE (PD2)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THIS FAILURE MODE IS ADEQUATELY ADDRESSED UNDER LOSS OF POSITION INDICATION (0407-5) AND ERRONEOUS INDICATION (0407-10).
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-324X
NASA FMEA #: 0402-7
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 324
ITEM: LH2 PREVALVE (PV4, 5, 6)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
VALVE FAILURE TO OPEN IS ADDRESSED ON 0402-5. FAILURE OF THE VALVE AND FAILURE OF THE INDICATOR ARE BOTH REQUIRED TO CAUSE A LOSS OF CREW OR VEHICLE.

REPORT DATE 03/11/88 C-273
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-325X
NASA FMEA #: 0402-11
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 325
ITEM: LH2 PREVALVE (PV4, 5, 6)
LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88
C-274
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-326X
NASA FMEA #: 0802-1
SUBSYSTEM: MPS
MDAC ID: 326
ITEM: LH2 PREVALVE (PV4, 5, 6)
LEAD ANALYST: W.J. MCNICOLL

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I O A [ ] / [ ] [ ] [ ] [ ]
C O M P A R E [ ] /N [ ] [ ] [ ] [ N ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

A D E Q U A T E [ ]
I N A D E Q U A T E [ ]

REMARKS:
THIS FAILURE SHOULD BE ADQUATELY ADDRESSED UNDER LOSS OF POSITION INDICATION (0402-6) AND ERRONEOUS INDICATION (0402-7). THIS ANALYSIS SHOULD BE DELETED.

REPORT DATE 03/11/88 C-275
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-327X
NASA FMEA #: 0434-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 327
ITEM: LH2 FEEDLINE SCREEN
LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-276
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-328X
NASA FMEA #: 0434-2
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 328
ITEM: LH2 FEEDLINE SCREEN

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-277
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-329X
NASA FMEA #: 0437-5

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 329
ITEM: LH2 FEEDLINE RELIEF SHUTOFF VALVE (PV8)

LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

CRITICALITY
FLIGHT HDW/FUNC

NASA [ 2 /1R ] [ P ] [ F ] [ P ] [ X ] *
IOA [ 3 /1R ] [ P ] [ F ] [ P ] [ ]

COMPARE [ N / ] [ ] [ ] [ ] [ N ]

RECOMMENDATIONS:
(If different from NASA)

[ 3 /1R ] [ P ] [ F ] [ P ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
FAILURE OF THE VALVE TO REMAIN CLOSED IS ADDRESSED ON 0437-5.
FAILURE OF THE INDICATOR, THE VALVE AND THE RELIEF VALVE ARE ALL REQUIRED BEFORE A LOSS OF CREW OR VEHICLE IS POSSIBLE.

REPORT DATE 03/11/88 C-278
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-330X
NASA FMEA #: 0437-6

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 330
ITEM: LH2 FEEDLINE RELIEF SHUTOFF VALVE (PV8)

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-279
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-331X
NASA FMEA #: 0437-7

SUBSYSTEM: MPS
MDAC ID: 331
ITEM: LH2 FEEDLINE RELIEF SHUTOFF VALVE (PV8)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-280
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-332X
NASA FMEA #: 0435-3
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 332
ITEM: LH2 FEEDLINE RELIEF FLAME ARRESTOR (FL1)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THE RI/NASA ANALYSIS INDICATES A 1/1 CRITICALITY FOR ABORT.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-333X
NASA FMEA #: 0435-4

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 333
ITEM: LH2 FEEDLINE RELIEF FLAME ARRESTOR (FL1)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-282
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-334X
NASA FMEA #: 0651-5

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 334
ITEM: LH2 FEED RTLS INBOARD VALVE (PVI7)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMKS:
THE RI/NASA ANALYSIS INDICATES A 1/1 CRITICALITY FOR ABORT ONLY.
RUPTURE OF THE LINE CAN CAUSE LOSS OF VEHICLE DURING A NOMINAL MISSION.

REF: RI/NASA OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-283
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-335X
NASA FMEA #: 0651-6
NASA DATA:
BASELINE [   ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 335
ITEM: LH2 FEED RTLS INBOARD VALVE (PV17)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]
INADEQUATE [   ]

REMARKS:
THE RI/NASA ANALYSIS INDICATES A 1/1 CRITICALITY FOR ABDORT ONLY.
IOA BELIEVES A 3/3 APPLIES.
REF: RI/NASA OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING
NOTES.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-336X
NASA FMEA #: 0651-7
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 336
ITEM: LH2 FEED RTLS INBOARD VALVE (PV17)

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
FAILURE OF THE VALVE TO CLOSE IS ADDRESSED ON 0651-4. FAILURE OF
THE INDICATOR ALONE WILL HAVE NO EFFECT OTHER THAN A POSSIBLE
LAUNCH SCRUB.
REF: RI/NASA OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING
NOTES.

REPORT DATE 03/11/88  C-285
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-337X
NASA FMEA #: 0651-8

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 337
ITEM: LH2 FEED RTLS INBOARD VALVE (PV17)

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-286
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-338X
NASA FMEA #: 0651-7

SUBSYSTEM: MPS
MDAC ID: 338
ITEM: LH2 FEED RTLS OUTBOARD VALVE (PV18)

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
FAILURE OF THE VALVE TO CLOSE IS ADDRESSED ON 0651-4. FAILURE OF THE INDICATOR ALONE WILL HAVE NO EFFECT OTHER THAN A POSSIBLE LAUNCH SCRUB.
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-287
### APPENDIX C
### ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 2/02/88
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**ASSESSMENT ID:** MPS-339X
**NASA FMEA #:** 0651-8

**SUBSYSTEM:** MPS
**MDAC ID:** 339
**ITEM:** LH2 FEED RTLS OUTBOARD VALVE (PV18)

**LEAD ANALYST:** W.J. MCNICOLL

**ASSESSMENT:**

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**RECOMMENDATIONS:** (If different from NASA)

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**(ADD/DELETE)**

* **CIL RETENTION RATIONALE:** (If applicable)

**ADEQUATE** [ ]

**INADEQUATE** [ ]

**REMARKS:**

**REF:** RI/NASA FMEA/CIL REVIEW MEETING NOTES.

**REPORT DATE 03/11/88**

C-288
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-340X
NASA FMEA #: 0423-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 340
ITEM: LH2 RELIEF LINE (FROM PV8 TO RV6)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-289
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-341X
NASA FMEA #: 0461-1
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 341
ITEM: LH2 RELIEF LINE (RV6 TO FL1)
LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-290
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-342X
NASA FMEA #: 0462-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 342
ITEM: LH2 RELIEF SENSE LINE

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-291
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-343X
NASA FMEA #: 0462-2

SUBSYSTEM: MPS
MDAC ID: 343
ITEM: LH2 RELIEF SENSE LINE

LEAD ANALYST: W.J. MCNICOLL

NASA DATA:
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NEW [ X ]

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-292
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-344X
NASA FMEA #: 0506-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 344
ITEM: GH2 PRESSURIZATION SUPPLY LINE (CV21 TO LV56, CV22 TO LV57, CV23 TO LV58)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING
NOTES.

REPORT DATE 03/11/88 C-293
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-345X
NASA FMEA #: 0508-1

SUBSYSTEM: MPS
MDAC ID: 345
ITEM: GH2 PRESSURIZATION SUPPLY LINE (LV56, 57, 58 TO PD5)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88  C-294
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-346X
NASA FMEA #: 0511-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 346
ITEM: GH2 PRESSURIZATION SUPPLY LINE (PD10 TO CV17)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING

NOTES.

REPORT DATE 03/11/88 C-295
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-347X
NASA FMEA #: 0520-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 347
ITEM: GH2 PRESSURIZATION SUPPLY LINE (MANIFOLD ASSEMBLY)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-296
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-348X
NASA FMEA #: 0521-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 348
ITEM: GH2 PRESSURIZATION SUPPLY LINE (LV52 TO PD5)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-297
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-349X
NASA FMEA #: 0607-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

Adequate [ ]
Inadequate [ ]

REMARKS:


REPORT DATE 03/11/88 C-298
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-350X
NASA FMEA #: XXXXXX

SUBSYSTEM: MPS
MDAC ID: 350
ITEM: LH2 RTLS DUMP LINE (PD2 TO PV17)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-299
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-351X
NASA FMEA #: 0652-1
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 351
ITEM: LH2 RTLS DUMP LINE (PV17 TO PV18)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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| COMPARE     | [ / ]               | [ ]   | [ ]   | [ ]   | [ N ] |

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-300
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-352X
NASA FMEA #: 0628-1
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 352
ITEM: LH2 RTLS DUMP LINE (PV18 TO OUTLET)

LEAD ANALYST: W.J. McNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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ADD/DELETE

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING

NOTES.

REPORT DATE 03/11/88 C-301
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-353X
NASA FMEA #: 0515-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 353
ITEM: LH2 ULLAGE PRESSURE SIGNAL CONDITIONER

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88  C-302
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-354X
NASA FMEA #: 0515-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 354
ITEM: LH2 ULLAGE PRESSURE SIGNAL CONDITIONER

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-303
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-355X
NASA FMEA #: 0515-3

SUBSYSTEM: MPS
MDAC ID: 355
ITEM: LH2 ULLAGE PRESSURE SIGNAL CONDITIONER

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-304
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-360X
NASA FMEA #: 0626-1
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 360
ITEM: LH2 INLET PRESSURE TRANSUDER

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-305
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-361X
NASA FMEA #: 0626-2

SUBSYSTEM: MPS
MDAC ID: 361
ITEM: LH2 ENGINE MANIFOLD PRESSURE TRANSDUCER

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
RELIEF SYSTEM WILL PROTECT AGAINST MANIFOLD RUPTURE. NO REDUNDANCY FOR TRANSDUCER FAILURE.
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-306
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-362X
NASA FMEA #: 0626-3

SUBSYSTEM: MPS
MDAC ID: 362
ITEM: GH2 OUTLET PRESSURE TRANSDUCER

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
TRANSDUCER FAILURE HAS NO EFFECT. NO REDUNDANCY.

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-307
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-363X
NASA FMEA #: 0626-4

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 363
ITEM: GH2 DISCONNECT PRESSURE TRANSDUCER

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-308
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-364X
NASA FMEA #: 0627-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 364
ITEM: LH2 FEED MANIFOLD DISCONNECT TEMPERATURE TRANSUDER

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING
NOTES.

REPORT DATE 03/11/88 C-309
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-365X
NASA FMEA #: 0627-2
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 365
ITEM: LH2 ENGINE INLET TEMPERATURE TRANSDUCER

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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*CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88    C-310
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/03/88
NASA DATA:
ASSESSMENT ID: MPS-366X
BASELINE [ ]
NASA FMEA #: 0202-3
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 366
ITEM: ENGINE HELIUM SUPPLY CHECK VALVE (CV1, 2, 3)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

<p>| CRITICALITY | REDUNDANCY SCREENS | CIL |</p>
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RECOMMENDATIONS: (If different from NASA)

[ 1 /1 ] [ NA] [ NA] [ NA] [ ]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
Failure will deplete all 3 tanks for the affected engine system, causing the engine to shut down (CRIT 2). Escaping helium may overpressurize the aft compartment (CRIT 1).
Ref: RI/NASA CIL of 12-23-87 and RI/NASA FMEA/CIL REVIEW MEETING NOTES.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/03/88
ASSESSMENT ID: MPS-367X
NASA FMEA #: 0201-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 367
ITEM: HELIUM SUPPLY DISCONNECT (PD8)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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| IOA  | 3 /3 | [ NA] | [ NA] | [ NA] | [ ] |
| COMPARE | [ / ] | [ ] | [ ] | [ ] | [ ] |

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-312
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/03/88
ASSESSMENT ID: MPS-369X
NASA FMEA #: 0258-4

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 369
ITEM: ENGINE HELIUM SUPPLY CHECK VALVE
(CV25,26,36,37,41,42)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-313
APPENDIX C
ASSESSMENT WORKSHEET

| ASSESSMENT DATE: | 2/03/88 |
| ASSESSMENT ID:   | MPS-370X |
| NASA FMEA #:     | 0205-3   |
| NASA DATA:       |         |
| BASELINE [ ]     | NEW [ X ] |
| SUBSYSTEM:       | MPS      |
| MDAC ID:         | 370      |
| ITEM:            | ENGINE HELIUM PRESSURE REGULATOR (PRI, 2, 3, 7, 8, 9) |
| LEAD ANALYST:    | W.J. MCNICOLL |

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

THE REGULATOR IS NOT REQUIRED TO REMAIN CLOSED.

REPORT DATE 03/11/88 C-314
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/03/88
ASSESSMENT ID: MPS-371X
NASA FMEA #: 0207-3

BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 371
ITEM: ENGINE REGULATOR OUTLET CHECK VALVE (CV5,6,7,29,40,45)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-315
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/04/88
ASSESSMENT ID: MPS-372X
NASA FMEA #: 0262-2
SUBSYSTEM: MPS
MDAC ID: 372
ITEM: ENGINE HELIUM SUPPLY INTERCONNECT OUT VALVE (LV60,62,64)
LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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| COMPARE | N | N | N | N |

RECOMMENDATIONS: (If different from NASA)

| [ 3 /3 ] | [ NA] | [ NA] | [ NA] | [ D ] |

* CIL RETENTION RATIONALE: (If applicable)

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REMARKS:
FAILURE WILL HAVE NO EFFECT. RI/NASA CITES A LEAK AS A SECOND FAILURE, BUT A LEAK IS A 1/1 FAILURE IN ISOLATION AND THUS SKews THE ANALYSIS. ENGINES ARE NOT REDUNDANT.
REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-316
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/04/88
ASSESSMENT ID: MPS-373X
NASA FMEA #: 0261-3
NASA DATA: BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 373
ITEM: (CV28,39,44) ENGINE HELIUM INTERCONNECT OUT CHECK VALVE

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
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REMARKS:
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING
NOTES.

REPORT DATE 03/11/88 C-317
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/04/88
ASSESSMENT ID: MPS-374X
NASA FMEA #: 0259-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 374
ITEM: (CV27,38,43)
ENGINE HELIUM INTERCONNECT IN CHECK VALVE

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

CRITICALITY REDUNDANCY SCREENS CIL
FLIGHT HDW/FUNC A B C ITEM

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IOA [ 1 /1 ] [ NA] [ NA] [ NA] [ ]
COMPARE [ / ] [ ] [ ] [ ] [ N ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING
NOTES.

REPORT DATE 03/11/88 C-318
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/04/88
ASSESSMENT ID: MPS-375X
NASA FMEA #: 0202-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 375
ITEM: PNEUMATIC HELIUM SUPPLY CHECK VALVE (CV4)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
POSSIBLE OVERPRESSURIZATION.

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING

NOTES.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/04/88
ASSESSMENT ID: MPS-376X
NASA FMEA #: 0631-4

SUBSYSTEM: MPS
MDAC ID: 376
ITEM: GO2 PRESSURIZATION MANIFOLD REPRESSURIZATION CHECK VALVE (CV10)
LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-320
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/04/88
ASSESSMENT ID: MPS-377X
NASA FMEA #: 0603-4

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 377
ITEM: LO2 FEED MANIFOLD REPRESSURIZATION CHECK VALVE (CV12)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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COMPARE [ / ] [ ] [ ] [ ] [ N ]

RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-321
ASSESSMENT DATE: 2/04/88
ASSESSMENT ID: MPS-378X
NASA FMEA #: 0605-2

SUBSYSTEM: MPS
MDAC ID: 378
ITEM: GH2 PRESSURIZATION MANIFOLD REPRESSURIZATION CHECK VALVE (CV13)
LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
PRESSURIZATION IS NOT REQUIRED. DEGRADED DUMP.

REPORT DATE 03/11/88 C-322
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/04/88
ASSESSMENT ID: MPS-379X
NASA FMEA #: 0605-4
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 379
ITEM: GH2 PRESSURIZATION MANIFOLD REPRESSURIZATION CHECK VALVE (CV13)
LEAD ANALYST: W.J. McNicoll

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-323
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/04/88
ASSESSMENT ID: MPS-380X
NASA FMEA #: 0632-4

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 380
ITEM: LH2 RECIRCULATION MANIFOLD REPRESSURIZATION CHECK VALVE (CV14)

LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-324
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/05/88
ASSESSMENT ID: MPS-381X
NASA FMEA #: 0630-4

SUBSYSTEM: MPS
MDAC ID: 381
ITEM: LH2 FEED MANIFOLD NOMINAL REPRESS CHECK VALVE (CV15)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]

INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-325
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/05/88  NASA DATA:
ASSESSMENT ID: MPS-382X  BASELINE [  ]
NASA FMEA #: 0605-2  NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 382
ITEM: GH2 PRESSURIZATION MANIFOLD REPRESSURIZATION CHECK VALVE (CV24)

LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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|                  |          |          |          |          | (ADD/DELETE) |

* CIL RETENTION RATIONALE: (If applicable)

REMARKS:
LOSS OF REPRESS TO GH2 MANIFOLD. NO LOSS OF CREW OR VEHICLE.
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88  C-326
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/05/88
ASSESSMENT ID: MPS-383X
NASA FMEA #: 0605-4
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 383
ITEM: GH2 PRESSURIZATION MANIFOLD REPRESSION MANIFOLD REPRESSION
CHECK VALVE (CV24)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-327
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/05/88
ASSESSMENT ID: MPS-384X
NASA FMEA #: 0248-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 384
ITEM: LH2 FEED MANIFOLD RTLS REPRESSURIZATION CHECK
VALVE (CV30)

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)
[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
H2 LEAKAGE INOT AFT COMPARTMENT AFTER ISOLATION VALVE IS OPENED.
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/05/88
ASSESSMENT ID: MPS-385X
NASA FMEA #: 0238-4

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 385
ITEM: PNEUMATIC HELIUM SUPPLY ISOLATION VALVE (LV7, 8)

LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING

NOTES.

REPORT DATE 03/11/88 C-329
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/05/88
ASSESSMENT ID: MPS-386X
NASA FMEA #: 0290-1
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 386
ITEM: VALVE ACTUATION SOLENOIDS DOWNSTREAM OF CV9 (LV12,14,16,18,20,22,47,49,50,65,66,67,68,79,83,84,85)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-330
### APPENDIX C
### ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 2/05/88  
**NASA DATA:**  
| NASA FMEA # | 0290-2 |

**ASSESSMENT ID:** MPS-387X  
**BASELINE [ ]**  
**NEW [ X ]**  
**SUBSYSTEM:** MPS  
**MDAC ID:** 387  
**ITEM:** VALVE ACTUATION SOLENOIDS DOWNSTREAM OF CV9 (LV12,14,16,18,20,22,47,49,50,65,66,67,68,79,83,84,85)  
**LEAD ANALYST:** W.J. MCNICOLL

**ASSESSMENT:**

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**RECOMMENDATIONS:** (If different from NASA)

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* **CIL RETENTION RATIONALE:** (If applicable)

ADEQUATE [ ]

INADEQUATE [ ]

**REMARKS:**


**REPORT DATE** 03/11/88  
C-331
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/08/88
ASSESSMENT ID: MPS-388X
NASA FMEA #: 0291-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 388
ITEM: VALVE ACTUATION SOLENOID VALVES UPSTREAM OF CV9 (LV28,29,30,31,32,33,34,36,38,77,78)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(RECOMMENDATIONS: ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88  C-332
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/08/88
ASSESSMENT ID: MPS-389X
NASA FMEA #: 0291-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 389
ITEM: VALVE ACTUATION SOLENOID VALVES UPSTREAM OF CV9 (LV28,29,30,31,32,33,34,36,38,77,78)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-333
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: MPS-390X
NASA FMEA #: 0606-4

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 390
ITEM: LH2 MANIFOLD REPRESSURIZATION VALVES (LV42, 43)

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
INBOARD VALVE (LV42) IS 1/1. OUTBOARD VALVE (LV43) IS 2/1R.

REPORT DATE 03/11/88 C-334
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-391X
NASA FMEA #: 0215-4

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 391
ITEM: LH2 RECIRCULATION DISCONNECT VALVE OPENING
SOLENOID (LV50)

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-335
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-393X
NASA FMEA #: 0263-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 393
ITEM: LATCH LOCKING SOLENOIDS (OV65, 67)

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88  C-336
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-394X
NASA FMEA #: 0263-3
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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

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REMARKS:

REPORT DATE 03/11/88 C-337
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-395X
NASA FMEA #: 0263-4
SUBSYSTEM: MPS
MDAC ID: 395
ITEM: LATCH LOCK SOLENOID (LV65, 67)
LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-338
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-396X
NASA FMEA #: 0264-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 396
ITEM: LATCH UNLOCK SOLENOID (LV66, 68)

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-339
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88  
NASA DATA:  
ASSESSMENT ID: MPS-397X    
NASA FMEA #: 0264-2     
SUBSYSTEM: MPS  
MDAC ID: 397  
ITEM: LATCH UNLOCK SOLENOID (LV66, 68)  
LEAD ANALYST: W.J. McNICOLL  
ASSESSMENT:  
CRITICALITY REDUNDANCY SCREENS CIL ITEM  
FLIGHT HDW/FUNC A B C ITEM  
NASA [ 3 /1R ] [ P ] [ F ] [ P ] [ X ] *  
IOA [ 3 /1R ] [ P ] [ F ] [ P ] [ ]  
COMPARE [ / ] [ ] [ ] [ ] [ N ]  
RECOMMENDATIONS: (If different from NASA)  
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* CIL RETENTION RATIONALE: (If applicable)  
ADEQUATE [ ]  
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REMARKS:  
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-398X
NASA FMEA #: 0264-4

SUBSYSTEM: MPS
MDAC ID: 398
ITEM: LATCH UNLOCK SOLENOID (LV66, 68)

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:


REPORT DATE 03/11/88 C-341
APPENDIX C

ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/12/88
ASSESSMENT ID: MPS-399X
NASA FMEA #: 0246-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 399
ITEM: LH2 FEED MANIFOLD RTLS PRESSURIZATION VALVE (LV74, 75)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING
NOTES.

REPORT DATE 03/11/88 C-342
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: MPS-400X
NASA FMEA #: 0602-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 400
ITEM: LO2 MANIFOLD REPRESSURIZATION REGULATOR (PR5)

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
FAILURE OF REGULATOR FOLLOWED BY FAILURE OF BOTH SOLENOID VALVES (LV40, 41) WILL RESULT IN HELIUM INJECTION INTO THE LO2 MANIFOLD.
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88  C-343
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88  
ASSESSMENT ID: MPS-401X  
NASA FMEA #: 2071-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 401
ITEM: TOGGLE SWITCH (3)

LEAD ANALYST: R. O'DONNELL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
3 TOGGLE SWITCHES. THIS FMEA FAILURE MODE (NO OUTPUT IN OPEN POSITION) WAS NOT NOTED DURING THE ORIGINAL IOA ANALYSIS. FEEDLINE PRESSURE RELIEF, AFTER MECO, WILL EXIST THROUGH THE ENGINE. REFERENCE ASSESSMENT MPS-4150 (REMARKS).

REPORT DATE 03/11/88  C-344
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-402X
NASA FMEA #: 2072-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 402
ITEM: CLOSE RPC
LEAD ANALYST: R. O'DONNELL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
12 CLOSE RPC'S. THIS FMEA FAILURE MODE (INADVERTENT OUTPUT) WAS NOT NOTED DURING THE ORIGINAL IOA ANALYSIS.

REPORT DATE 03/11/88 C-345
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-403X
NASA FMEA #: 2073-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 403
ITEM: CLOSE RPC OUTPUT DIODE

LEAD ANALYST: R. O'DONNELL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
12 DIODES. THIS FMEA FAILURE MODE (DIODE SHORT, CURRENT LEAKAGE) WAS NOT NOTED DURING THE ORIGINAL IOA ANALYSIS.

REPORT DATE 03/11/88 C-346
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-404X
NASA FMEA #: 2073-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 404
ITEM: CLOSE RPC OUTPUT DIODE

LEAD ANALYST: R. O'DONNELL

ASSESSMENT CATEGORIZATION:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
12 DIODES. THIS FMEA FAILURE MODE (DIODE SHORT TO GND) WAS NOT NOTED DURING THE ORIGINAL IOA ANALYSIS. FAILURE WILL BE REFLECTED AS AN RPC FAIL OPEN.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-405X
NASA FMEA #: 2074-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 405
ITEM: CLOSE HDC III

LEAD ANALYST: R. O'DONNELL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
[ / ] [ ] [ ] [ ] [ ] [ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
12 HDC III DRIVERS. THIS FMEA FAILURE MODE (CLOSE HDC III DRIVER FAIL ON) WAS NOT NOTED DURING THE ORIGINAL IOA ANALYSIS. FUNCTIONAL CRITICALITY DETERMINED BY LIKE AND UNLIKE REDUNDANCY.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-406X
NASA FMEA #: 2075-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 406
ITEM: CLOSE HDC I
LEAD ANALYST: R. O'DONNELL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
3 CLOSE HDC Is. THIS FMEA FAILURE MODE (CLOSE HDC I DRIVER FAIL ON) WAS NOT NOTED DURING THE ORIGINAL IOA ANALYSIS. FUNCTIONAL CRITICALITY DETERMINED BY LIKE AND UNLIKE REDUNDANCY.

REPORT DATE 03/11/88 C-349
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88  NASA DATA:
ASSESSMENT ID: MPS-407X  BASELINE [ ]
NASA FMEA #: 2076-1  NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 407
ITEM: OPEN RPC

LEAD ANALYST: R. O'DONNELL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]

INADEQUATE [ ]

REMARKS:

12 OPEN RPCs. THIS FMEA FAILURE MODE (L02 OPEN PREVALVE RPC "LOSS OF OUTPUT") WAS NOT NOTED DURING THE ORIGINAL IOA ANALYSIS. FUNCTIONAL CRITICALITY DETERMINED BY LIKE AND UNLIKE REDUNDANCY.

REPORT DATE 03/11/88  C-350
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88          NASA DATA:
ASSESSMENT ID:  MPS-408X          BASELINE [ ]
NASA FMEA #:  2077-2              NEW [ X ]

SUBSYSTEM:  EPD&C/MPS
MDAC ID:  408
ITEM:  OPEN RPC OUTPUT DIODE

LEAD ANALYST:  R. O'DONNELL

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| IOA [ 3 /1R ]   | [ P ] | [ F ] | [ P ] | [ X ] |

COMPARE [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS:  (If different from NASA)

[ ] [ ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]

INADEQUATE [ ]

REMARKS:

12 OPEN DIODES. THIS FMEA FAILURE MODE (ISOLATION DIODE SHORTED) WAS NOT NOTED DURING THE ORIGINAL IOA ANALYSIS. FUNCTIONAL CRITICALITY DETERMINED BY LIKE AND UNLIKE REDUNDANCY.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-409X
NASA FMEA #: 2077-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 409
ITEM: OPEN RPC OUTPUT DIODE

LEAD ANALYST: R. O'DONNELL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
12 OPEN DIODES. THE FMEA FAILURE MODE (DIODE SHORTED TO GROUND) WAS NOT NOTED DURING THE ORIGINAL IOA ANALYSIS. SHORTED DIODE WILL BE REFLECTED BY THE RPC "ON MEASUREMENT" TURNING OFF.

REPORT DATE 03/11/88 C-352
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-410X
NASA FMEA #: 2079-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 410
ITEM: OPEN HDC I

LEAD ANALYST: R. O'DONNELL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
3 OPEN HDC IS. THE FMEA FAILURE MODE (DRIVER FAIL ON) WAS NOT NOTED DURING THE ORIGINAL IOA ANALYSIS. FUNCTIONAL CRITICALITY DETERMINED BY LIKE AND UNLIKE REDUNDANCY.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-411X
NASA FMEA #: 2180-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 411
ITEM: OPEN MDM BLOCKING DIODE

LEAD ANALYST: R. O'DONNELL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
12 OPEN MDM BLOCKING DIODES. THIS FMEA FAILURE MODE (DIODE SHORTED) WAS NOT NOTED DURING THE ORIGINAL IOA ANALYSIS.

REPORT DATE 03/11/88 C-354
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-412X
NASA FMEA #: 2181-2
NASA DATA:
BASELINE []
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 412
ITEM: CLOSE MDM BLOCKING DIODE

LEAD ANALYST: R. O'DONNELL

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| COMPARE [ / ] | [ ] | [ ] | [ ] | [ ] |

RECOMMENDATIONS: (If different from NASA)
[ / ] [ ] [ ] [ ] [ ] [ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
12 CLOSE MDM BLOCKING DIODES. THIS FMEA FAILURE MODE (DIODE SHORTED) WAS NOT NOTED DURING THE ORIGINAL IOA ANALYSIS.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-413X
NASA FMEA #: 2183-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 413
ITEM: CLOSE MDM BLOCKING DIODE

LEAD ANALYST: R. O'DONNELL

ASSESSMENT:

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COMPARE [ / ] [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)
[ / ] [ ] [ ] [ ] [ ]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
9 CLOSE MDM BLOCKING DIODES. THIS FMEA FAILURE MODE (DIODE SHORTS) WAS NOT NOTED DURING THE ORIGINAL IOA ANALYSIS.

REPORT DATE 03/11/88 C-356
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-414X
NASA FMEA #: 2185-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 414
ITEM: OPEN SWITCH BLOCKING DIODE

LEAD ANALYST: R. O'DONNELL

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
12 OPEN SWITCH BLOCKING DIODES. DIODE FAILS B SCREEN BECAUSE REDUNDANCY MASKS THE FAILURE, AND LACK OF INSTRUMENTATION. THIS FMEA FAILURE MODE (DIODE SHORTS) WAS NOT NOTED DURING THE ORIGINAL IOA ANALYSIS.

REPORT DATE 03/11/88 C-357
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-415X
NASA FMEA #: 2186-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 415
ITEM: CLOSE SWITCH BLOCKING DIODE

LEAD ANALYST: R. O'DONNELL

ASSESSMENT:

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| IOA [ 3 /1R ] | [ P ] | [ F ] | [ P ] | [ X ] |
| COMPARE [ / ] | [ ] | [ N ] | [ ] | [ N ] |

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
12 CLOSE SWITCH BLOCKING DIODES. LOSS OF ALL REDUNDANCY (GPC AND MANUAL) IN CLOSING THE LO2 PREVALVE COULD POSSIBLY CAUSE LOSS OF VEHICLE/CREW. FAILS B SCREEN BECAUSE REDUNDANCY MASKS THE FAILURE. THIS FMEA FAILURE MODE (DIODE SHORTS) WAS NOT NOTED DURING THE ORIGINAL IOA ANALYSIS.

REPORT DATE 03/11/88 C-358
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-416X
NASA FMEA #: 2188-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 416
ITEM: CLOSE SWITCH BLOCKING DIODE

LEAD ANALYST: R. O'DONNELL

ASSESSMENT:

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COMPARE [ / ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)
[ / ] [ ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
12 CLOSE SWITCH BLOCKING DIODES. LOSS OF ALL REDUNDANCY (GPC AND
MANUAL) IN CLOSING THE L02 PREVALVE COULD POSSIBLY CAUSE LOSS OF
VEHICLE/CREW. FAILS B SCREEN BECAUSE REDUNDANCY MASKS THE
FAILURE. THIS FMEA FAILURE MODE (DIODE SHORTS) WAS NOT NOTED
DURING THE ORIGINAL IOA ANALYSIS.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-417X
NASA FMEA #: 2011-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 417
ITEM: LO2 TOGGLE SWITCH
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

| CRITICALLY | REDUNDANCY SCREENS | CIL |
| FLIGHT | HDW/FUNC | A | B | C | ITEM |
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| IOA | [ 3 /1R ] | [ P ] | [ NA ] | [ P ] | [ ] |
| COMPARE | [ / ] | [ ] | [ ] | [ ] | [ ] |

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

THIS SWITCH IS NOT USED DURING NOMINAL ASCENT.

REPORT DATE 03/11/88 C-360
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-418X
NASA FMEA #: 2011-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 418
ITEM: LO2 TOGGLE SWITCH

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THIS SWITCH IS NOT USED BY THE CREW DURING NOMINAL ASCENT.

REPORT DATE 03/11/88 C-361
ASSESSMENT DATE: 1/28/88  
ASSESSMENT ID: MPS-419X  
NASA FMEA #: 2011-4  
SUBSYSTEM: EPD&C/MPS  
ITEM: LO2 TOGGLE SWITCH  
LEAD ANALYST: B. SLAUGHTER  

ASSESSMENT:

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RECOMMENDATIONS:  (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

Adequate [ ]  
Inadequate [ ]

REMARKS:

REPORT DATE 03/11/88 C-362
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-420X
NASA FMEA #: 2011-5
SUBSYSTEM: EPD&C/MPS
MDAC ID: 420
ITEM: LO2 TOGGLE SWITCH
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-363
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-421X
NASA FMEA #: 2238B-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 421
ITEM: BLOCKING DIODE, SWITCH

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
[ 3 /1R ] [ P ] [ F ] [ P ] [ A ]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ASSESSMENT IS FOR ONE DIODE. THE BLOCKING PROTECTION OF THE DIODE IS NOT STANDBY REDUNDANT.

REPORT DATE 03/11/88 C-364
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-422X
NASA FMEA #: 2239-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 422
ITEM: BLOCKING DIODE, MDM TO RPC

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-365
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-423X
NASA FMEA #: 2039-3
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 423
ITEM: DIODE RPC C OUTPUT, 12A

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS:  (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-366
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-424X
NASA FMEA #: 2240-3

SUBSYSTEM: EPD&C/MPS
MDAC ID: 424
ITEM: DIODE, RPC CROSSOVER, 12A

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

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REMARKS:

REPORT DATE 03/11/88 C-367
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-425X
NASA FMEA #: 2397-2
NASA DATA:
BASELINE [ ]
NEW [ X ]
SUBSYSTEM: EPD&C/MPS
MDAC ID: 425
ITEM: RPC A OUTPUT DIODE, 12A
LEAD ANALYST: B. Slaughter

ASSESSMENT:

CRITICALITY
FLIGHT
HDW/FUNC

REDOUNDANCY SCREENS
A B C

CIL ITEM

NASA [ ]
[ 3 /1R ]
[ F ]
[ F ]
[ P ]
[ X ] *

IOA [ ]
[ 3 /1R ]
[ P ]
[ F ]
[ P ]
[ X ]

COMPARE [ ]
[ / ]
[ N ]
[ ]
[ ]

RECOMMENDATIONS: (If different from NASA)
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[ ]
[ ]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NOT ENOUGH DATA AVAILABLE TO RESOLVE SCREEN A.

REPORT DATE 03/11/88 C-368
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/28/88
ASSESSMENT ID: MPS-426X
NASA FMEA #: 2397-3
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 426
ITEM: RPC A OUTPUT DIODE, 12A

LEAD ANALYST: B. SLAUGHTER

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COMPARE [ / ] [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/15/88
ASSESSMENT ID: MPS-427X
NASA FMEA #: 2056B-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 427
ITEM: DIODE, OP SW BLOCK (LCA)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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| NASA [ 3 /1R ] | [ P ] | [ F ] | [ P ] | [ X ] * |
| IOA [ 3 /1R ]  | [ P ] | [ P ] | [ P ] | [ ]    |

COMPARE [ / ] [ ] [ N ] [ ] [ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ] [ P ] [ P ] [ P ] [ D ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
PASSES SCREEN B DUE TO LO2 OUTBOARD F/D OPEN SW SCAN.

REPORT DATE 03/11/88 C-370
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/15/88
ASSESSMENT ID: MPS-428X
NASA FMEA #: 2058B-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 428
ITEM: HYBRID DRIVER, TYPE 3 (CLOSE)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-371
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/15/88
ASSESSMENT ID: MPS-429X
NASA FMEA #: 2354B-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 429
ITEM: DIODE, LA1 MDM ISOLATION

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-372
### APPENDIX C
#### ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 1/15/88  
**ASSESSMENT ID:** MPS-430X  
**NASA FMEA #:** 2355B-2

**SUBSYSTEM:** EPD&C/MPS  
**MDAC ID:** 430  
**ITEM:** DIODE, OP SW BLOCK (MODULE)

**LEAD ANALYST:** B. SLAUGHTER

**ASSESSMENT:**

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**RECOMMENDATIONS:** (If different from NASA)

[ 3 /3 ] [ NA] [ NA] [ NA] [ D ]

(ADD/DELETE)

* **CIL RETENTION RATIONALE:** (If applicable)

Adequate [ ]

Inadequate [ X ]

**REMARKS:**

There is no electrical ground on S6. NASA scenario is infeasible.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/15/88
ASSESSMENT ID: MPS-431X
NASA FMEA #: 2356B-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 431
ITEM: DIODE, OPEN MDM ISOLATION

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

AD oquate [ ]

IN ADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-374
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/15/88
ASSESSMENT ID: MPS-432X
NASA FMEA #: 2359B-1
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 432
ITEM: TRANSIENT SUPPRESSION DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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COMPARE [ /N ] [ N ] [ N ] [ N ] [ ]

RECOMMENDATIONS: (If different from NASA)
[ 3/1R ] [ P ] [ P ] [ P ] [ A ]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA ANALYSIS IS POSSIBLE AND MORE CRITICAL.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/15/88
ASSESSMENT ID: MPS-433X
NASA FMEA #: 2037-5
SUBSYSTEM: EPD&C/MPS
MDAC ID: 433
ITEM: LO2 INBOARD FILL & DRAIN TOGGLE SWITCH

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]
INADEQUATE [ ]

REMARKS:
PASS SCREEN B DUE TO DETECTION BY CLOSE SW SCAN.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/15/88
ASSESSMENT ID: MPS-434X
NASA FMEA #: 2281-2
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 434
ITEM: DIODE (2), OPEN SW BLOCK (MODULE)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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COMPARE [ / ] [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-377
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/15/88
ASSESSMENT ID: MPS-435X
NASA FMEA #: 2282-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 435
ITEM: DIODE (3A), OPEN BLOCK A (LCA)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]
INADEQUATE [ ]

REMARKS:

NOT DETECTABLE.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/14/88
ASSESSMENT ID: MPS-436X
NASA FMEA #: 2283-2
NASA DATA: BASELINE [ ] NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 436
ITEM: DIODE (3A), OPEN SW BLOCK B (LCA)

LEAD ANALYST: B. Slaughter

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ / ] [ ' ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-379
APPENDIX C  
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/15/88  
ASSESSMENT ID: MPS-437X  
NASA FMEA #: 2284-2

NASA DATA:  
BASELINE [ ]  
NEW [X]

SUBSYSTEM: EPD&C/MPS  
MDAC ID: 437  
ITEM: DIODE'(3A), FAI MDM BLOCK

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88  C-380
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/15/88
ASSESSMENT ID: MPS-438X
NASA FMEA #: 2285-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 438
ITEM: DIODE (3A), FA4 MDM BLOCK

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-381
APPENDIX C  
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/15/88  
ASSESSMENT ID: MPS-439X  
NASA FMEA #: 2286-2  

SUBSYSTEM: EPD&C/MPS  
MDAC ID: 439  
ITEM: DIODE (3A), CL SW BLOCK  

LEAD ANALYST: B. SLAUGHTER  

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ] [ P ] [ F ] [ P ] [ A ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

FAILURE NOT DETECTABLE.

REPORT DATE 03/11/88   C-382
# APPENDIX C
## ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 1/15/88  
**ASSESSMENT ID:** MPS-440X  
**NASA FMEA #:** 2287-2

**SUBSYSTEM:** EPD&C/MPS  
**MDAC ID:** 440  
**ITEM:** DIODE (3A), FA2 MDM BLOCK

**LEAD ANALYST:** B. SLAUGHTER

**ASSESSMENT:**

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**NASA DATA:**  
**BASELINE [ ]**  
**NEW [ X ]**

**RECOMMENDATIONS:** (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

| ADEQUATE [ ] | INADEQUATE [ ] |

**REMARKS:**

---

**REPORT DATE 03/11/88**  
**C-383**
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/15/88
ASSESSMENT ID: MPS-441X
NASA FMEA #: 2288-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 441
ITEM: DIODE, LA1 MDM BLOCK

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REPORT DATE 03/11/88 C-384
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-442X
NASA FMEA #: 2247-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 442
ITEM: HYBRID DRIVER, TYPE 1, CL

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

| CRITICALLY | REDUNDANCY SCREENS | CIL |
| FLIGHT | HDW/FUNC | A | B | C | ITEM |
| 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:

REPORT DATE 03/11/88 C-385
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-443X
NASA FMEA #: 2246-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 443
ITEM: HYBRID DRIVER, TYPE 1, OP

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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* CIL RETENTION RATIONALE: (If applicable)

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REMARKS:

REPORT DATE 03/11/88 C-386
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
NASA DATA:
ASSESSMENT ID: MPS-444X
NASA FMEA #: 2245-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 444
ITEM: HYBRID DRIVER, TYPE 3, CL
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ X ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-387
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/19/88
ASSESSMENT ID: MPS-445X
NASA FMEA #: 2245-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 445
ITEM: HYBRID DRIVER, TYPE 3, CL

LEAD ANALYST: B. SLAUGHTER

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COMPARE [ / ] [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] [ ]

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-388
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/15/88
ASSESSMENT ID: MPS-446X
NASA FMEA #: 2249-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 446
ITEM: DIODE (12A), CL RPC "B" OUT

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

*CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-389
### APPENDIX C
### ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 1/20/88  
**ASSESSMENT ID:** MPS-447X  
**NASA FMEA #:** 2249-3

**NASA DATA:**  
- **BASELINE [ ]**  
- **NEW [ X ]**

**SUBSYSTEM:**  
EPD&C/MPS  
**MDAC ID:** 447  
**ITEM:** DIODE (12A), CL RPC "B" OUT

**LEAD ANALYST:** B. SLAUGHTER

**ASSESSMENT:**

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- **NASA [ 3 /1R ]**
- **IOA [ 3 /1R ]**
- **COMPARE [ / ]**

**RECOMMENDATIONS:** (If different from NASA)  
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(ADD/DELETE)

* **CIL RETENTION RATIONALE:** (If applicable)  
ADEQUATE [ ]  
INADEQUATE [ ]

**REMARKS:**

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**REPORT DATE 03/11/88**  
C-390
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-448X
NASA FMEA #: 2251-2

NASA DATA:  
BASELINE [ ] 
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 448
ITEM: DIODE (12A), CL XOVER

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS:  (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ X ]
INADEQUATE [ ]

REMARKS:
THE FAILURE MAY NOT BE DETECTED.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-449X
NASA FMEA #: 2251-3

SUBSYSTEM: EPD&C/MPS
MDAC ID: 449
ITEM: DIODE (12A), CL XOVER

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

ASSOCIATE DATUMS:
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 449
ITEM: DIODE (12A), CL XOVER

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

CRITICALLY REDUNDANCY SCREENS CIL
FLIGHT HDW/FUNC A B C ITEM

NASA [ 2 /1R ] [ P ] [ P ] [ P ] [ X ] *
IOA [ 1 /1 ] [ NA] [ NA] [ NA] [ X ]
COMPARE [ N /N ] [ N ] [ N ] [ N ] [ ]

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ X ]
INADEQUATE [ ]

REMARKS:
FAILURE CAN SHORT ALL CLOSING COMMANDS TO GROUND, PREVENTING
VALVE CLOSURE. ET SEP WITH VALVE OPEN CAN CAUSE LOSS OF VEHICLE.
MECHANICAL LINKAGE PROVIDES REDUNDANCY.

REPORT DATE 03/11/88 C-392
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-450X
NASA FMEA #: 2254-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 450
ITEM: RESISTOR OP POS SW MONITOR
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88  C-393
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-451X
NASA FMEA #: 2255-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 451
ITEM: RESISTOR CL POS SW MONITOR
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

|             | ADEQUATE | [ ]   |
|             | INADEQUATE | [ ]   |

REMARKS:
LOSS OF MONITORING. ONLY REF AVAIL: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.

REPORT DATE 03/11/88 C-394
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-452X
NASA FMEA #: 2244-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 452
ITEM: HYBRID DRIVER, TYPE 3, OP

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

| CRITICALLY | REUNDANCY SCREENS | CIL |
| FLIGHT | | |
| HDW/FUNC | A | B | C | ITEM |
| NASA [ 3 /1R ] | [ P ] | [ F ] | [ P ] | [ X ] * |
| IOA [ 3 /1R ] | [ P ] | [ F ] | [ P ] | [ X ] |

COMPARE [ / ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)
[ / ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ X ]
INADEQUATE [ ]

REMARKS:
ASSESSMENT IS FOR 1 HDC.

REPORT DATE 03/11/88 C-395
### APPENDIX C
### ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 1/20/88  
**ASSESSMENT ID:** MPS-453X  
**NASA FMEA #:** 2244-1

**SUBSYSTEM:** EPD&C/MPS  
**MDAC ID:** 453  
**ITEM:** HYBRID DRIVER, TYPE 3, OP

**LEAD ANALYST:** B. SLAUGHTER

**ASSESSMENT:**

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**RECOMMENDATIONS:** (If different from NASA)

(ADD/DELETE)

**CIL RETENTION RATIONALE:** (If applicable)

**REMARKS:**  
ASSESSMENT IS FOR 1 HDC.

**REPORT DATE 03/11/88**  
C-396
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-454X
NASA FMEA #: 2398-2
NASA DATA: BASELINE [ ] NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 454
ITEM: DIODE CL RPC "C" OUT (12A)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ X ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-397
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/21/88
ASSESSMENT ID: MPS-455X
NASA FMEA #: 2398-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 455
ITEM: DIODE CL RPC "C" OUT (12A)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

CRITICALITY
FLIGHT
HDW/FUNC
REDUNDANCY SCREENS
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:
SECOND FAILURE CAN SHORT ALL CLOSE COMMANDS TO GROUND, PREVENTING VALVE CLOSURE. MECHANICAL LINKAGE PROVIDES REDUNDANCY.

REPORT DATE 03/11/88 C-398
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-456X
NASA FMEA #: 2026-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 456
ITEM: HDC I-GND C/O CMD PWR

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-399
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-457X
NASA FMEA #: 2026-2

NASA DATA:
BASELINE [  ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 457
ITEM: HDC I-GND C/O CMD PWR

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-400
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-458X
NASA FMEA #: 2031-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 458
ITEM: TRANSIENT SUPPRESSION DIODES
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
[ 3 /1R ] [ P ] [ F ] [ P ] [ A ]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THE IOA SCENARIO IS POSSIBLE.

REPORT DATE 03/11/88 C-401
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-459X
NASA FMEA #: 2031-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 459
ITEM: ZENER DIODES

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-402
APPENDIX C
ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 1/26/88  
**ASSESSMENT ID:** MPS-460X  
**NASA FMEA #:** 2032-1  

**NASA DATA:**  
BASELINE [ ]  
NEW [ X ]

**SUBSYSTEM:** EPD&C/MPS  
**MDAC ID:** 460  
**ITEM:** HDC I-RELAY CONTROL PWR

**LEAD ANALYST:** B. SLAUGHTER

**ASSESSMENT:**

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**RECOMMENDATIONS:**  
(If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* **CIL RETENTION RATIONALE:**  
(If applicable)

ADEQUATE [ ]

INADEQUATE [ ]

**REMARKS:**

**REPORT DATE 03/11/88**  
C-403
APPENDIX C  
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88  
ASSESSMENT ID: MPS-461X  
NASA FMEA #: 2032-2  
SUBSYSTEM: EPD&C/MPS  
MDAC ID: 461  
ITEM: HDC I-RELAY CONTROL PWR  
LEAD ANALYST: B. SLAUGHTER  
NASA DATA:  
BASELINE [ ]  
NEW [ X ]  

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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[ P ]  
[ F ]  
[ P ]  
[ ]

(ADD/DELETE)  

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]  
INADEQUATE [ ]

REMARKS:

NASA DOES NOT CALL THE FAILURE OF A TRANSDUCER AND THE SWITCH TO STANDBY TRANSDUCER A FAILURE.

REPORT DATE 03/11/88  
C-404
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-462X
NASA FMEA #: 2033-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 462
ITEM: RELAY

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

INADEQUATE

REMARKS:

REPORT DATE 03/11/88  C-405
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/26/88
ASSESSMENT ID: MPS-463X
NASA FMEA #: 2033-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 463
ITEM: RELAY
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: MPS-464X
NASA FMEA #: 2225-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 464
ITEM: HDC III
LEAD ANALYST: B. SLAUGHTER

ASAessment:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]
INADEQUATE [   ]

REMARKS:

REPORT DATE 03/11/88  C-407
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-465X
NASA FMEA #: 2090-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 465
ITEM: CL HDC III
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
[ 2 /1R ] [ P ] [ F ] [ P ] [ A ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
The IOA SCENARIO IS MORE CRITICAL.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-466X
NASA FMEA #: 2090-2
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 466
ITEM: CL HDC III

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

| [ 2 /1R ] | [ P ] | [ F ] | [ P ] | [ A ] |

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THE IOA SCENARIO IS MORE CRITICAL.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-467X
NASA FMEA #: 2091-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 467
ITEM: CL HDC I
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
The IOA scenario is more critical.

REPORT DATE 03/11/88 C-410
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/03/88
ASSESSMENT ID: MPS-468X
NASA FMEA #: 2092-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 468
ITEM: CL RPC
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ P ] [ P ] [ A ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THE IOA SCENARIO IS MORE CRITICAL.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/03/88
ASSESSMENT ID: MPS-469X
NASA FMEA #: 2092-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 469
ITEM: CL RPC

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ P ] [ P ] [ A ]

(P/ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THE IOA SCENARIO IS MORE CRITICAL.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/03/88
ASSESSMENT ID: MPS-470X
NASA FMEA #: 2094-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 470
ITEM: CL RPC B OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

CRITICALITY
FLIGHT
HDW/FUNC

REDUNDANCY SCREENS
A B C

NASA [ 1 /1 ] [ NA ] [ NA ] [ NA ] [ ] *
IOA [ 1 /1 ] [ NA ] [ NA ] [ NA ] [ ]

COMPARE [ / ] [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-413
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/03/88
ASSESSMENT ID: MPS-471X
NASA FMEA #: 2095-3

SUBSYSTEM: EPD&C/MPS
MDAC ID: 471
ITEM: XOVER DIODE

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-414
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/03/88
ASSESSMENT ID: MPS-472X
NASA FMEA #: 2093-3

NASA DATA:
BASELINE [   ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 472
ITEM: CL RPC C OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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COMPARE [ / ] [ ] [N] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

[2/1R] [P] [P] [P] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

INSTRUMENTATION WILL DETECT THE FAILURE.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/03/88
ASSESSMENT ID: MPS-473X
NASA FMEA #: 2387-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 473
ITEM: POS SW MONITOR RESISTOR

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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COMPARE [ / ] [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-416
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-474X
NASA FMEA #: 2340-1
NASA DATA:
BASELINE [ ]
NEW [ X ]
SUBSYSTEM: EPD&C/MPS
MDAC ID: 474
ITEM: LOCK RPC (2)
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

CRITICALITY REDUNDANCY SCREENS CIL
FLIGHT HDW/FUNC A B C ITEM

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:

NASA FMEA NO 05-6J-2340-1 REV 10/10/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.

REPORT DATE 03/11/88 C-417
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-475X
NASA FMEA #: 2340-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 475
ITEM: LOCK RPC (2)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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COMPARE [ / ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

NASA FMEA NO 05-6J-2340-2 REV 10/10/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.

REPORT DATE 03/11/88 C-418
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-476X
NASA FMEA #: 2341-1

NASA DATA: BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 476
ITEM: UNLOCK RPC (2)

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA FMEA NO 05-6J-2341-1 REV 10/10/87 CONTAINS TEXT EXPLAINING
THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-477X
NASA FMEA #: 2341-2
NASA FMEA #: 2341-2

ASSESSMENT ID: MPS-477X
NASA FMEA #: 2341-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 477
ITEM: UNLOCK RPC (2)
LEAD ANALYST: B. SLAUGHTER

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COMPARE [ / ] [ ] [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA FMEA NO 05-6J-2341-2 REV 10/10/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.

REPORT DATE 03/11/88 C-420
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-478X
NASA FMEA #: 2342-1
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 478
ITEM: LOCK HDC I

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA FMEA NO 05-6J-2342-1 REV 10/10/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-479X
NASA FMEA #: 2342-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 479
ITEM: LOCK HDC I
LEAD ANALYST: B. SLAUGHTER

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COMPARE [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
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REMARKS:

NASA FMEA NO 05-6J-2342-2 REV 10/10/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-480X
NASA FMEA #: 2343-1
NASA DATA:
BASELINE [ ]
NEW [ X ]
SUBSYSTEM: EPD&C/MPS
MDAC ID: 480
ITEM: UNLOCK HDC I
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
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REMARKS:

NASA FMEA NO 05-6J-2343-1 REV 10/10/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-481X
NASA FMEA #: 2343-2
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 481
ITEM: UNLOCK HDC I
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

NASA FMEA NO 05-6J-2343-2 REV 10/10/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.

REPORT DATE 03/11/88 C-424
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-482X
NASA FMEA #: 2344-1
NASA FMEA #: 2344-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 482
ITEM: LOCK HDC III (2)

LEAD ANALYST: B. SLAUGHTER

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IOA [ 3 /IR ]
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COMPARE [ / ]
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RECOMMENDATIONS: (If different from NASA)
[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-425
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-483X
NASA FMEA #: 2344-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 483
ITEM: LOCK HDC III (2)

LEAD ANALYST: B. SLAUGHTER

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COMPARE [ / ] [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-426
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-484X
NASA FMEA #: 2345-1
NASA ID: MPS-484X
SUBSYSTEM: EPD&C/MDAC
MDAC ID: 484
ITEM: UNLOCK HDC III (2)
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88  C-427
APPENDIX C  
ASSESSMENT WORKSHEET  

ASSESSMENT DATE: 2/11/88  
ASSESSMENT ID:  MPS-485X  
NASA FMEA #:  2345-2  
SUBSYSTEM:  EPD&C/MPS  
MDAC ID:  485  
ITEM:  UNLOCK HDC III (2)  
LEAD ANALYST:  B. Slaughter  

ASSESSMENT:  

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RECOMMENDATIONS:  (If different from NASA)  

* CIL RETENTION RATIONALE: (If applicable)  
ADEQUATE [ ]  
INADEQUATE [ ]  

REMARKS:  

REPORT DATE 03/11/88  C-428
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-486X
NASA FMEA #: 2346-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 486
ITEM: LOCK RPC C OUTPUT DIODE
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88   C-429
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-487X
NASA FMEA #: 2346-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 487
ITEM: LOCK RPC C OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

CRITICALITY

REdundancy Screens

CIL

FLIGHT
HDW/FUNC
A  B  C

ITEM

NASA [ 3 /IR ] [ P ] [ F ] [ P ] [ X ] *
IOA [ 3 /IR ] [ P ] [ F ] [ P ] [ X ]

COMPARE [ / ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-430
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-488X
NASA FMEA #: 2346-3
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 488
ITEM: LOCK RPC C OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA FMEA NO 05-6J-2346-3 REV 11/4/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-489X
NASA FMEA #: 2347-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 489
ITEM: UNLOCK RPC B OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-432
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: MPS-490X
NASA FMEA #: 2347-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 490
ITEM: UNLOCK RPC B OUTPUT DIODE
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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| IOA  | [ 3 /1R ] | [ P ] | [ F ] | [ P ] | [ X ] |

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-433
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/12/88
ASSESSMENT ID: MPS-491X
NASA FMEA #: 2347-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 491
ITEM: UNLOCK RPC B OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA FMEA NO 05-6J-2347-3 REV 11/19/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.

REPORT DATE 03/11/88 C-434
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/12/88
ASSESSMENT ID: MPS-492X
NASA FMEA #: 2348-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 492
ITEM: LOCK RPC XOVER DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
[ / ] [ ] [ ] [ ] [ ] [ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88  C-435
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/12/88
ASSESSMENT ID: MPS-493X
NASA FMEA #: 2348-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 493
ITEM: LOCK RPC XOVER DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-436
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/12/88
ASSESSMENT ID: MPS-494X
NASA FMEA #: 2348-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 494
ITEM: LOCK RPC XOVER DIODE

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA FMEA NO 05-6J-2348-3 REV 11/04/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/12/88
ASSESSMENT ID: MPS-495X
NASA FMEA #: 2349-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 495
ITEM: UNLOCK RPC XOVER DIODE
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-438
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/12/88
ASSESSMENT ID: MPS-496X
NASA FMEA #: 2349-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 496
ITEM: UNLOCK RPC XOVER DIODE

LEAD ANALYST: B. SLAUGHTER

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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-439
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/12/88
ASSESSMENT ID: MPS-497X
NASA FMEA #: 2349-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 497
ITEM: UNLOCK RPC XOVER DIODE

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88  C-440
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/12/88
ASSESSMENT ID: MPS-498X
NASA FMEA #: 2350-1
NASA DATA: NASA FMEA 
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SUBSYSTEM: EPD&C/MPS
MDAC ID: 498
ITEM: TRANSIENT SUPPRESSOR DIODES (2)
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: MPS-498X.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/12/88
ASSESSMENT ID: MPS-499X
NASA FMEA #: 2351-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 499
ITEM: UNLOCK POS SW MONITOR RESISTORS (2)

LEAD ANALYST: B. SLAUGHTER

RECOMMENDATIONS: (If different from NASA)

* CIL RETENTION RATIONALE: (If applicable)

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. THE FAILURE CAUSES A LOSS OF MONITORING CAPABILITY.

REPORT DATE 03/11/88 C-442
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/12/88
ASSESSMENT ID: MPS-500X
NASA FMEA #: 2352-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 500
ITEM: LOCK POS SW MON RESISTOR (2)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-443
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/12/88
NASA DATA:
ASSESSMENT ID: MPS-501X
NASA FMEA #: 2353-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 501
ITEM: RPC AND SOL PWR MON RESISTORS (6)
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-444
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/12/88
ASSESSMENT ID: MPS-502X
NASA FMEA #: 2376-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 502
ITEM: LOCK RPC B OUTPUT DIODE
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/12/88
ASSESSMENT ID: MPS-503X
NASA FMEA #: 2376-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 503
ITEM: LOCK RPC B OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-446
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/12/88
ASSESSMENT ID: MPS-504X
NASA FMEA #: 2376-3

SUBSYSTEM: EPD&C/MPS
MDAC ID: 504
ITEM: LOCK RPC B OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
Adequate [ ]
Inadequate [ ]

REMARKS:
NASA FMEA NO 05-6J-2376-3 REV 11/04/87 CONTAINS TEXT EXPLAINING THAT THIS ITEM FAILS SCREEN B. THIS TEXT SHOULD BE DELETED.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/12/88
ASSESSMENT ID: MPS-505X
NASA FMEA #: 2377-1

NASA DATA:
BASELINE [   ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 505
ITEM: UNLOCK RPC C OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

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COMPARE [ / ] [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [   ]
INADEQUATE [   ]

REMARKS:

REPORT DATE 03/11/88 C-448
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/12/88
ASSESSMENT ID: MPS-506X
NASA FMEA #: 2377-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 506
ITEM: UNLOCK RPC C OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-449
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/12/88
ASSESSMENT ID: MPS-507X
NASA FMEA #: 2377-3

SUBSYSTEM: EPD&C/MPS
MDAC ID: 507
ITEM: UNLOCK RPC C OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-450
APPENDIX C  
ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 2/12/88  
**ASSESSMENT ID:** MPS-508X  
**NASA FMEA #:** 2378-1  

**SUBSYSTEM:** EPD&C/MPS  
**MDAC ID:** 508  
**ITEM:** BLEED RESISTORS (4)  

**LEAD ANALYST:** B. SLAUGHTER  

**ASSESSMENT:**

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**RECOMMENDATIONS:** (If different from NASA)  
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(ADD/DELETE)

* **CIL RETENTION RATIONALE:** (If applicable)  
  ADEQUATE [ ]  
  INADEQUATE [ ]

**REMARKS:**

**REPORT DATE 03/11/88  C-451**
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: MPS-601X
NASA FMEA #: 2167-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 601
ITEM: TOGGLE SWITCH
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. THE TOGGLE SWITCH IS NOT USED AT MECO.

REPORT DATE 03/11/88 C-452
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: MPS-602X
NASA FMEA #: 2167-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 602
ITEM: TOGGLE SWITCH

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]

INADEQUATE [ ]

REMARKS:

ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: MPS-603X
NASA FMEA #: 2167-3
NASA DATA:
BASELINE [ ]
NEW [ X ]

ASSESSMENT ID:
MPS-603X

SUBSYSTEM: EPD&C/MPS
MDAC ID: 603
ITEM: TOGGLE SWITCH
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. THE TOGGLE SWITCH IS NOT USED AT MECO.

REPORT DATE 03/11/88 C-454
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: MPS-604X
NASA FMEA #: 2168-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 604
ITEM: CIRCUIT BREAKER

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-455
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: MPS-605X
NASA FMEA #: 2168-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 605
ITEM: CIRCUIT BREAKER

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. THE FAILURE OF SOME BUT NOT ALL CIRCUIT BREAKERS CAN BE DETECTED.

REPORT DATE 03/11/88 C-456
APPENDIX C  
ASSESSMENT WORKSHEET  

ASSESSMENT DATE: 2/15/88  
ASSESSMENT ID:  MPS-606X  
NASA FMEA #:  2169-1  

NASA DATA:  
BASELINE [ ]  
NEW [  X ]  

SUBSYSTEM:  EPD&C/MPS  
MDAC ID:  606  
ITEM:  SW SCAN RESISTOR  

LEAD ANALYST:  B. SLAUGHTER  

ASSESSMENT:  

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RECOMMENDATIONS:  (If different from NASA)  

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* CIL RETENTION RATIONALE: (If applicable)  

ADEQUATE [ ]  
INADEQUATE [ ]  

REMARKS:  

REPORT DATE 03/11/88  C-457
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: MPS-607X
NASA FMEA #: 201300-1
NASA DATA: 
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 607
ITEM: CONTROLLER HEATER CIRCUIT

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS:  (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-458
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: MPS-615X
NASA FMEA #: 2165-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 615
ITEM: TOGGLE SWITCH

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-88

REPORT DATE 03/11/88 C-459
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: MPS-616X
NASA FMEA #: 2165-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 616
ITEM: TOGGLE SWITCH
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ 3/3 ] [ NA ] [ NA ] [ NA ]

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. NASA USES
A FAILURE UNRELATED TO THE SWITCH TO CAUSE AN ABORT. THE ABORT
CRITICALITY IS 2/1R.

REPORT DATE 03/11/88 C-460
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: MPS-617X
NASA FMEA #: 2165-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 617
ITEM: TOGGLE SWITCH

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. NASA USES A FAILURE UNRELATED TO THE SWITCH TO CAUSE AN ABORT. THE ABORT CRITICALITY IS 2/1R.

REPORT DATE 03/11/88 C-461
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: MPS-618X
NASA FMEA #: 2165-4
SUBSYSTEM: EPD&C/MPS
MDAC ID: 618
ITEM: TOGGLE SWITCH
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
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REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. NASA'S ANALYSIS IS FOR THE ABORT CASE.

REPORT DATE 03/11/88 C-462
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: MPS-619X
NASA FMEA #: 2166-1
NASA FMEA #: 2166-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 619
ITEM: FUSE

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. NASA'S ANALYSIS IS FOR THE ABORT CASE.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: MPS-620X
NASA FMEA #: 2170-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 620
ITEM: FUSE

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDS FMEA REVIEW SUMMARY 8-17-87. NASA'S ANALYSIS IS FOR AN ABORT. THE MANUAL SHUTDOWN CAPABILITY IS USED WHEN LIMIT CONTROL IS INHIBITED AND AN ENGINE HELIUM SHUTDOWN LIMIT VIOLATION OCCURS (I.E., ABORT CASE).

REPORT DATE 03/11/88    C-464
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: MPS-621X
NASA FMEA #: 2171-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 621
ITEM: PUSHBUTTON SWITCH

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. NASA'S ANALYSIS IS FOR AN ABORT. THE MANUAL SHUTDOWN CAPABILITY IS USED WHEN LIMIT CONTROL IS INHIBITED AND AN ENGINE HELIUM SHUTDOWN LIMIT VIOLATION OCCURS (I.E., ABORT CASE).
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: MPS-622X
NASA FMEA #: 2171-2
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 622
ITEM: PUSHBUTTON SWITCH

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. NASA ASSUMES THE FAILURE OF A SINGLE WIPER WITHIN THE SWITCH. THIS IS INCONSISTENT WITH PRIOR DEFINITIONS OF THIS FAILURE MODE. IOA ASSUMES PREMATURE CLOSURE OF THE SWITCH.

REPORT DATE 03/11/88 C-466
ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: MPS-625X
NASA FMEA #: 2226-1
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 625
ITEM: ALL ECO SIM OPEN CMD HDC

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] [ ]

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88
C-467
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-626X
NASA FMEA #: 2226-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 626
ITEM: ALL ECO SIM OPEN CMD HDC
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.

REPORT DATE 03/11/88 C-468
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-627X
NASA FMEA #: 2227-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 627
ITEM: ALL ECO SIM DRY CMD HDC

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-469
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-628X
NASA FMEA #: 2227-2

NASA DATA:
BASELINE [ ]
NEW [ x ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 628
ITEM: ALL ECO SIM DRY CMD HDC

LEAD ANALYST: B. SLAUGHTER

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COMPARE [ / ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDS FMEA REVIEW SUMMARY 8-17-87.

REPORT DATE 03/11/88 C-470
## APPENDIX C
### ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 2/17/88  
**ASSESSMENT ID:** MPS-629X  
**NASA FMEA #:** 2228-1  
**SUBSYSTEM:** EPD&C/MPS  
**MDAC ID:** 629  
**ITEM:** ECO SIM WET CMD 1-4 HDC

**LEAD ANALYST:** B. SLAUGHTER

**ASSESSMENT:**

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**IOA**  
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**COMPARE**  
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**RECOMMENDATIONS:** (If different from NASA)  
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* CIL RETENTION RATIONALE: (If applicable)  
  - ADEQUATE [ ]  
  - INADEQUATE [ ]

**REMARKS:**

REPORT DATE 03/11/88  
C-471
APPENDIX C  
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88  
ASSESSMENT ID: MPS-630X  
NASA FMEA #: 2228-2

NASA DATA:  
BASELINE [ ]  
NEW [ X ]

SUBSYSTEM: EPD&C/MPS  
MDAC ID: 630  
ITEM: ECO SIM WET CMD 1-4 HDC

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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*CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.

REPORT DATE 03/11/88  
C-472
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-631X
NASA FMEA #: 2229-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 631
ITEM: LVL SENSOR SIM OPEN CMD HDC
LEAD ANALYST: B. SLAUGHTER

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM:
EPD&C/MPS
MDAC ID: 631
ITEM:
LVL SENSOR SIM OPEN CMD HDC
LEAD ANALYST:
B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-473
ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-632X
NASA FMEA #: 2229-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 632
ITEM: LVL SENSOR SIM OPEN CMD HDC
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
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REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-633X
NASA FMEA #: 2230-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 633
ITEM: LVL SENSOR SIM DRY CMD HDC

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
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INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88  C-475
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-634X
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COMPARE [ / ] [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

Adequate [ ]
Inadequate [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-635X
NASA FMEA #: 2231-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 635
ITEM: LVL SENSOR SIM WET CMD HDC

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
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INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-477
### APPENDIX C
#### ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 2/17/88  
**ASSESSMENT ID:** MPS-636X  
**NASA FMEA #:** 2231-2  
**SUBSYSTEM:** EPD&C/MPS  
**MDAC ID:** 636  
**ITEM:** LVL SENSOR SIM WET CMD HDC  
**LEAD ANALYST:** B. SLAUGHTER

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**RECOMMENDATIONS:** (If different from NASA)

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(ADD/DELETE)

* **CIL RETENTION RATIONALE:** (If applicable)

  **ADEQUATE** [ ]  
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**REMARKS:**

ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-640X
NASA FMEA #: 2027-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 640
ITEM: BUS 2 AND 3 UPSTREAM HDC

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

Adequate [ ]
Inadequate [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. AN UNDERLOAD WOULD NOT OCCUR BECAUSE OF THE FIRST FAILURE. SENSORS ARE AVAILABLE AT 100.15%, 100%, 100%, AND 99.85% AND ARE ALL POWERED BY A SEPARATE BUS.

REPORT DATE 03/11/88 C-479
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-641X
NASA FMEA #: 2027-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 641
ITEM: BUS 2 AND 3 UPSTREAM HDC

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REPORT DATE 03/11/88 C-480
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-642X
NASA FMEA #: 2028-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 642
ITEM: BUS 2 AND 3 DOWNSTREAM AND BUS 1 HDC

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. AN UNDERLOAD WOULD NOT OCCUR BECAUSE OF THE FIRST FAILURE. SENSORS ARE AVAILABLE AT 100.15%, 100%, AND 99.85% AND ARE ALL POWERED BY A SEPARATE BUS.

REPORT DATE 03/11/88 C-481
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-643X
NASA FMEA #: 2028-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 643
ITEM: BUS 2 AND 3 DOWNSTREAM AND BUS 1 HDC
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-482
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-644X
NASA FMEA #: 2232-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 644
ITEM: BUS 4 RPC
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. PARALLEL POWER PATHS PROVIDE REDUNDANCY FOR THE FIRST FAILURE. A SECOND FAILURE WILL NOT ELIMINATE TWO POWER SUPPLIES.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-645X
NASA FMEA #: 2232-2

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-484
ASSESSMENT DATE: 2/17/88  NASA DATA:  
ASSESSMENT ID: MPS-646X   BASELINE [ ]
NASA FMEA #: 2233-1   NEW [ X ]

SUBSYSTEM: EPD&C/MPS  
MDAC ID: 646  
ITEM: RPC OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS:  
(If different from NASA)

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* CIL RETENTION RATIONALE:  (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.  PARALLEL POWER PATHS PROVIDE REDUNDANCY FOR THE FIRST FAILURE. A SECOND FAILURE WILL NOT ELIMINATE TWO POWER SUPPLIES.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-647X
NASA FMEA #: 2233-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 647
ITEM: RPC OUTPUT DIODE
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.

REPORT DATE 03/11/88 C-486
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-648X
NASA FMEA #: 2233-3

SUBSYSTEM: EPD&C/MPS
MDAC ID: 648
ITEM: RPC OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. PARALLEL POWER PATHS PROVIDE REDUNDANCY FOR THE FIRST FAILURE. A SECOND FAILURE WILL NOT ELIMINATE TWO POWER SUPPLIES.

REPORT DATE 03/11/88 C-487
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-649X
NASA FMEA #: 2234-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 649
ITEM: MONITORING RESISTOR

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-488
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-650X
NASA FMEA #: 2395-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 650
ITEM: BLEED RESISTORS

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-489
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-655X
NASA FMEA #: 2256-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 655
ITEM: RPC

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.

REPORT DATE 03/11/88 C-490
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-656X
NASA FMEA #: 2256-2

NASA DATA:
Baseline [ ]
New [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 656
ITEM: RPC

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-491
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-657X
NASA FMEA #: 2257-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 657
ITEM: HDC

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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NASA [ ]

IOA [ ]

COMPARE [ ]

RECOMMENDATIONS: (If different from NASA)

[ ]

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.

REPORT DATE 03/11/88 C-492
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-658X
NASA FMEA #: 2257-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 658
ITEM: HDC
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88    C-493
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-659X
NASA FMEA #: 2258-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 659
ITEM: MONITORING RESISTOR
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-494
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-660X
NASA FMEA #: 2259-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 660
ITEM: RPC OUTPUT DIODE
LEAD ANALYST: B. SLAUGHTER

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COMPARE [ / ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.

REPORT DATE 03/11/88 C-495
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-661X
NASA FMEA #: 2259-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 661
ITEM: RPC OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

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COMPARE [ / ] [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.

REPORT DATE 03/11/88 C-496
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-662X
NASA FMEA #: 2259-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 662
ITEM: RPC OUTPUT DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.

REPORT DATE 03/11/88 C-497
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-663X
NASA FMEA #: 2380-1
NASA DATA:
BASELINE [   ]
NEW [  X  ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 663
ITEM: BLEED RESISTORS

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS:  (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

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REMARKS:

REPORT DATE 03/11/88 C-498
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-667X
NASA FMEA #: 2161-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 667
ITEM: BACKUP LH2 VLV SWITCH FUSE
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

| [ 3 /1R ] | [ P ] | [ P ] | [ P ] | [ D ] |

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. IOA CALLS COMPUTER DUMP COMMAND REDUNDANT TO THE SWITCH DUMP COMMAND.

REPORT DATE 03/11/88

C-499
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-668X
NASA FMEA #: 2162-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 668
ITEM: DUMP SEQUENCE SWITCH S1

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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| IOA  | [ 3/3 ] | [ NA] | [ NA] | [ NA] | [ ] |   |

COMPARE [ / ] [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)
[ / ] [ ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-500
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-669X
NASA FMEA #: 2162-3
SUBSYSTEM: EPD&C/MPS
MDAC ID: 669
ITEM: DUMP SEQUENCE SWITCH S1
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87.
INSTRUMENTATION WOULD DETECT THE FAILURE.

REPORT DATE 03/11/88 C-501
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-670X
NASA FMEA #: 2163-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 670
ITEM: BACKUP LH2 VALVE SWITCH S2
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ] [ P ] [ P ] [ P ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]

INADEQUATE [ ]

REMARKS:

ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. IOA CALLS COMPUTER DUMP COMMAND REDUNDANT TO THE SWITCH DUMP COMMAND.

REPORT DATE 03/11/88 C-502
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-671X
NASA FMEA #: 2163-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 671
ITEM: BACKUP LH2 VALVE SWITCH S2

LEAD ANALYST: B. Slaughter

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-503
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-672X
NASA FMEA #: 2163-3

SUBSYSTEM: EPD&C/MPS
MDAC ID: 672
ITEM: BACKUP LH2 VALVE SWITCH S2

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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COMPARE: [ N /N ]

RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. PROPELLANT VENTING DURING BOOST COULD CAUSE FIRE/EXPLOSION. SOFTWARE INHIBITS WERE NOT CONSIDERED.

REPORT DATE 03/11/88 C-504
### APPENDIX C
#### ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 2/16/88  
**ASSESSMENT ID:** MPS-673X  
**NASA FMEA #:** 2163-4  
**NASA DATA:**  
- BASELINE [ ]  
- NEW [ X ]  

**SUBSYSTEM:** EPD&C/MPS  
**MDAC ID:** 673  
**ITEM:** BACKUP LH2 VALVE SWITCH S2  
**LEAD ANALYST:** B. SLAUGHTER

**ASSESSMENT:**  
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**RECOMMENDATIONS:** (If different from NASA)  

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

* CIL RETENTION RATIONALE: (If applicable)  

Adequate [ ]  
Inadequate [ ]

**REMARKS:**  
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. THE FAILURE IS DETECTABLE.

**REPORT DATE 03/11/88**  
**C-505**
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-675X
NASA FMEA #: 2023-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 675
ITEM: LIMIT RESISTORS

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-506
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: MPS-676X
NASA FMEA #: 2396-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 676
ITEM: BLEED RESISTORS
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]

INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-507
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-680X
NASA FMEA #: 2416-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 680
ITEM: STATUS LIGHT

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. NASA VIOLATES NTS 22206 3.3.3F.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-681X
NASA FMEA #: 2407-1

SUBSYSTEM: EPD&C/MPS
MDAC ID: 681
ITEM: METER M1 (PC)

ASSESSMENT ID: MPS-681X
NASA FMEA #: 2407-1

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

|     |     |     |     |     |
| [ 3 /3 ] | [ NA] | [ NA] | [ NA] | [ D ] |

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. NASA VIOLATES NTS 22206 3.3.3F.

REPORT DATE 03/11/88 C-509
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE:  2/17/88
ASSESSMENT ID:  MPS-682X
NASA FMEA #:  2408-1

SUBSYSTEM:  EPD&C/MPS
MDAC ID:  682
ITEM:  METER M2 (LO2/LH2 MANF. PRESSURE)

LEAD ANALYST:  B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS:  (If different from NASA)

[3/3] | [NA] | [NA] | [NA] | [D] | (ADD/DELETE)

* CIL RETENTION RATIONALE:  (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF:  MPS/EPDC FMEA REVIEW SUMMARY 8-17-87. NASA VIOLATES NTS 22206 3.3.3F.

REPORT DATE 03/11/88  C-510
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-683X
NASA FMEA #: 2409-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 683
ITEM: METER M4 (HELIUM PRESSURE)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
[ 3 /3 ] [ NA] [ NA] [ NA] [ D ]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA VIOLATES NTS 22206 2.3.3F. ONLY AVAIL REF: MPS/EPDC FMEA
REVIEW SUMMARY 8-17-87.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-684X
NASA FMEA #: 2410-1
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 684
ITEM: TOGGLE SWITCH (TANK/REG SELECT FOR METER M4)

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA VIOLATES NTS 22206 2.3.3F. ONLY AVAIL REF: MPS/EPDC FMEA
REVIEW SUMMARY 8-17-87.

REPORT DATE 03/11/88 C-512
### APPENDIX C
#### ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 2/01/88  
**ASSESSMENT ID:** MPS-801X  
**NASA FMEA #:** 2018-1  
**NASA DATA:**  
- BASELINE [ ]  
- NEW [ X ]

**SUBSYSTEM:** EPD&C/MPS  
**MDAC ID:** 801  
**ITEM:** LH2 FEED MANIFOLD RTLS PRESS VALVES REMOTE POWER CONTROLLERS (4)  
**LEAD ANALYST:** B. SLAUGHTER

**ASSESSMENT:**

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**RECOMMENDATIONS:** (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)  
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  - INADEQUATE [ ]

**REMARKS:**  
ABORT CRITICALITY IS 2/1R FOR AN RTLS.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-802X
NASA FMEA #: 2019-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 802
ITEM: LH2 FEED MANIFOLD RTLS PRESS VALVES RPC A OUTPUT
DIODE (2)

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
CRITICALITY IS 2/1R FOR AN RTLS ABORT

REPORT DATE 03/11/88 C-514
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-803X
NASA FMEA #: 2048-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 803
ITEM: LH2 FEED MANIFOLD RTLS PRESS VALVES HYBRID DRIVER CONTROLLERS (4)

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]

INADEQUATE [ ]

REMARKS:
CRITICALITY IS 2/1R FOR AN RTLS ABORT

REPORT DATE 03/11/88 C-515
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-804X
NASA FMEA #: 2382-3

SUBSYSTEM: EPD&C/MPS
MDAC ID: 804
ITEM: LH2 FEED MANIFOLD RTLS PRESS VALVES RPC C OUTPUT DIODE (2)

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]

INADEQUATE [ ]

REMARKS:
CRITICALITY IS 2/1R FOR AN RTLS ABORT

REPORT DATE 03/11/88 C-516
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-805X
NASA FMEA #: 2383-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 805
ITEM: LH2 FEED MANIFOLD RTLS PRESS VALVES RPC C CROSSOVER DIODES (2)

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THE FAILURE IS CRITICALITY 1/1 DURING AN RTLS.

REPORT DATE 03/11/88 C-517
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-806X
NASA FMEA #: 2050-1
SUBSYSTEM: EPD&C/MPS
MDAC ID: 806
ITEM: HELIUM SUPPLY BLOWDOWN VALVES HYBRID DRIVER CONTROLLER
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ 3 /3 ] [ NA ] [ NA ] [ NA ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
CRITICALITY FOR AN ABORT IS 1/1.

REPORT DATE 03/11/88 C-518
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-807X
NASA FMEA #: 2111-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 807
ITEM: HELIUM ISOLATION B VALVE TOGGLE SWITCH

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88  C-519
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
ASSESSMENT ID: MPS-808X
NASA FMEA #: 2114-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 808
ITEM: HELOM ISOLATION "B" VALVE SWITCH BLOCKING DIODE
LEAD ANALYST: MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ] [ P ] [ F ] [ P ] [ ]

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
A LOSS OF ALL REDUNDANCY COULD RESULT IN AN EXPLOSION DUE TO LACK OF HELIOM PURGE IN A SSME.

REPORT DATE 03/11/88 C-520
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/01/88
NASA DATA:
ASSESSMENT ID: MPS-809X
BASELINE [ ]
NASA FMEA #: 2115-3
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 809
ITEM: HELIUM ISOLATION "B" VALVE RPC OUTPUT DIODE (6)

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THE FAILURE IS DETECTABLE.

REPORT DATE 03/11/88 C-521
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-810X
NASA FMEA #: 2117-2
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 810
ITEM: HELIUM ISOLATION "A" VALVE TOGGLE SWITCH

LEAD ANALYST: B. SLAUGHTER

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| NASA | 3 /1R | P | P | P |   |
| IOA  | 3 /1R | P | P | P |   |

COMPARE [ / ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)
[ / ] [ ] [ ] [ ] [ ]

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-522
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-811X
NASA FMEA #: 2119-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 811
ITEM: HELIUM ISOLATION "A" VALVE SWITCH BLOCKING DIODE
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
LOSS OF ALL REDUNDANCY COULD RESULT IN AN EXPLOSION DUE TO LACK OF HELIUM PURGE IN A SSME.
**APPENDIX C**
**ASSESSMENT WORKSHEET**

**ASSESSMENT DATE:** 2/02/88

**ASSESSMENT ID:** MPS-812X

**NASA FMEA #:** 2119-2

**NASA DATA:**
- BASELINE [ ]
- NEW [ X ]

**SUBSYSTEM:** EPD&C/MPS

**MDAC ID:** 812

**ITEM:** HELIUM ISOLATION "A" VALVE SWITCH BLOCKING DIODE

**LEAD ANALYST:** B. SLAUGHTER

**ASSESSMENT:**
- CRITICALITY
- REDUNDANCY SCREENS
- CIL

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**RECOMMENDATIONS:** (If different from NASA)

[ 3 /1R ] [ P ] [ F ] [ P ] [ A ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

- ADEQUATE [ ]
- INADEQUATE [ ]

**REMARKS:**
LOSS OF ALL REDUNDNCY COULD RESULT IN AN EXPLOSION DUE TO LACK OF HELIUM PURGE IN A SSME.

**REPORT DATE 03/11/88**

C-524
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88  
ASSESSMENT ID: MPS-813X  
NASA FMEA #: 2120-1  

NASA DATA:
BASELINE [   ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS  
MDAC ID: 813  
ITEM: HELIUM ISOLATION VALVE TRANSIENT SUPPRESSION DIODES  
LEAD ANALYST: B. SLÀUGHTER  

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)  
ADEQUATE [   ]  
INADEQUATE [   ]

REMARKS:
LOSS OF ALL REDUNDANCY COULD RESULT IN AN EXPLOSION DUE TO LACK OF HELIUM PURGE IN A SSME.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-814X
NASA FMEA #: 2300-1
NASA DATA:
BASELINE [   ]
NEW [  X  ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 814
ITEM: FUSES (2)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
PARALLEL PATH MASKS THE FAILURE.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-815X
NASA FMEA #: 2301-1
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 815
ITEM: HDC III (2)
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ 3/3 ] [ NA ] [ NA ] [ NA ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAILABLE REF: EPDC/MPS FMEA REVIEW SUMMARY 8-17-87 AFT PURGE AFTER A NOMINAL MISSION IS NON-CRITICAL. CRITICALITY FOR AN ABORT IS 2/1R.

REPORT DATE 03/11/88 C-527
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-816X
NASA FMEA #: 2301-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 816
ITEM: HDC III (2)
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
OPENING OF ALL REDUNDANT VALVES WOULD VENT HELIUM SUPPLY.

REPORT DATE 03/11/88 C-528
# APPENDIX C
## ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 2/02/88  
**ASSESSMENT ID:** MPS-817X  
**NASA FMEA #:** 2302-1  
**SUBSYSTEM:** EPD&C/MPS  
**MDAC ID:** 817  
**ITEM:** TOGGLE SWITCH  
**LEAD ANALYST:** B. SLAUGHTER  

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### RECOMMENDATIONS:

(If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]

INADEQUATE [ ]

### REMARKS:

CRITICALITY FOR AN ABORT IS 2/1R.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-818X
NASA FMEA #: 2302-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 818
ITEM: TOGGLE SWITCH

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
A LOSS OF ALL REDUNDANCY COULD RESULT IN THE LOSS OF HELIUM SUPPLY.

REPORT DATE 03/11/88 C-530
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/02/88
ASSESSMENT ID: MPS-819X
NASA FMEA #: 2302-3

SUBSYSTEM: EPD&C/MPS
MDAC ID: 819
ITEM: TOGGLE SWITCH
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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| NASA DATA: | BASELINE [ ] | NEW [ X ] |

RECOMMENDATIONS: (If different from NASA)

| NASA DATA: | BASELINE [ ] | NEW [ ] |

* CIL RETENTION RATIONALE: (If applicable)

| ADEQUATE [ ] |

REMARKS:
AFT PURGE AFTER A NOMINAL MISSION IS NON-CRITICAL. CRITICALITY FOR AN ABORT IS 2/1R.

REPORT DATE 03/11/88 C-531
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/03/88
ASSESSMENT ID: MPS-820X
NASA FMEA #: 2131-3

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 820
ITEM: HELIUM CROSSOVER VALVE TOGGLE SWITCH

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THE NASA SCENARIO CALLS THE LOSS OF A SECOND UNRELATED ENGINE REDUNDANCY. THE SWITCH IS STANDBY REDUNDANT. NSTS 22206 2.3.3L REQUIRES ASSIGNMENT OF 3/1R FOR FAILURES RESULTING IN AN ENGINE SHUTDOWN.

REPORT DATE 03/11/88 C-532
APPENDIX C
ASSESSMENT WORKSHEET

ASSessment Date: 2/03/88
ASSessment ID: MPS-821X
NASA FMEA #: 2131-4

SUBSYSTEM: EPD&C/MPS
MDAC ID: 821
ITEM: HELIUM CROSSOVER VALVE TOGGLE SWITCH

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY. THE SWITCH IS STANDBY REDUNDANT. NSTS 22206 2.3.3L REQUIRES ASSIGNMENT OF 3/1R FOR FAILURES RESULTING IN AN ENGINE SHUTDOWN.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/03/88
ASSESSMENT ID: MPS-822X
NASA FMEA #: 2132-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 822
ITEM: HELIUM CROSSOVER VALVE CIRCUIT HDC
LEAD ANALYST: B. SLAUGHTER

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 822
ITEM: HELIUM CROSSOVER VALVE CIRCUIT HDC
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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|            |      | [ ] | [ ] | [ ] | [ ] |

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THE NASA SCENARIO CALLS THE LOSS OF A SECOND UNRELATED ENGINE REDUNDANCY. NSTS 22206 2.3.3L REQUIRES ASSIGNMENT OF 3/1R FOR FAILURES RESULTING IN AN ENGINE SHUTDOWN. NSTS 22206 2.3.3L REQUIRES ASSIGNMENT OF 3/1R FOR FAILURES RESULTING IN AN ENGINE SHUTDOWN.

REPORT DATE 03/11/88
C-534
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/03/88
ASSESSMENT ID: MPS-823X
NASA FMEA #: 2133-2
SUBSYSTEM: EPD&C/MPS
MDAC ID: 823
ITEM: HELIUM CROSSOVER VALVE CIRCUIT BLOCKING DIODES (2)
LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

* CIL RETENTION RATIONALE: (If applicable)

* REMARKS:

REPORT DATE 03/11/88 C-535
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/04/88
ASSESSMENT ID: MPS-824X
NASA FMEA #: 2311-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 824
ITEM: LO2 MANIFOLD REPRESS VALVES CIRCUIT FUSE (2)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-536
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/04/88
ASSESSMENT ID: MPS-825X
NASA FMEA #: 2312-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 825
ITEM: LO2 MANIFOLD REPRESS VALVES TOGGLE SWITCH

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-537
## APPENDIX C

### ASSESSMENT WORKSHEET

**ASSESSMENT DATE:** 2/04/88  
**NASA DATA:**  
**BASELINE [ ]**  
**NEW [ X ]**  
**SUBSYSTEM:** EPD&C/MPS  
**MDAC ID:** 826  
**ITEM:** LO2 MANIFOLD REPRESS VALVES CIRCUIT HDC III (2)  
**LEAD ANALYST:** B. SLAUGHTER

**ASSESSMENT:**

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**RECOMMENDATIONS:**  
* (If different from NASA)*  

**REMARKS:**

**REPORT DATE 03/11/88 C-538**
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/04/88
ASSESSMENT ID: MPS-827X
NASA FMEA #: N/A

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 827
ITEM: LO2 MANIFOLD REPRESS VALVES CIRCUIT MDM OA3

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-539
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/04/88
ASSESSMENT ID: MPS-828X
NASA FMEA #: 2310-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 828
ITEM: LH2 MANIFOLD REPRESS VALVES CIRCUIT FUSE

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/04/88
ASSESSMENT ID: MPS-829X
NASA FMEA #: 2064-1

ASSESSMENT ID: NASA FMEA #:
SUBSYSTEM: EPD&C/MPS
MDAC ID: 829
ITEM: LH2 MANIFOLD REPRESS VALVES TOGGLE SWITCH

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-541
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/04/88
ASSESSMENT ID: MPS-830X
NASA FMEA #: 2065-1
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 830
ITEM: LH2 MANIFOLD REPRESS VALVES CIRCUIT HDC III (2)

LEAD ANALYST: B. Slaughter

ASSESSMENT:

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COMPARE [ / ] [ ] [ ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-542
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/04/88
ASSESSMENT ID: MPS-831X
NASA FMEA #: N/A

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 831
ITEM: LH2 MANIFOLD REPRESS VALVES CIRCUIT MONITOR MDM OA2

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-543
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/03/88  
ASSESSMENT ID: MPS-832X  
NASA FMEA #: 2135-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 832
ITEM: TRANSIENT SUPPRESSION DIODE

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

CRITICALITY REDUNDANCY SCREENS CIL ITEM
FLIGHT HDW/FUNC A B C

NASA [ 3 /3 ] [ NA ] [ NA ] [ NA ] [ ] *
IOA [ 3 /IR ] [ P ] [ F ] [ P ] [ X ]
COMPARE [ /N ] [ N ] [ N ] [ N ] [ N ]

RECOMMENDATIONS: (If different from NASA)

[ 3 /IR ] [ P ] [ F ] [ P ] [ A ]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
FAILURES COULD LEAD TO GROUNDING OF THE OPEN POWER SOLENOID.

REPORT DATE 03/11/88   C-544
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/04/88
ASSESSMENT ID: MPS-833X
NASA FMEA #: 2141-5

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 833
ITEM: TOGGLE SWITCH, 2P3T (3)

LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA CALLS LOSS OF AN UNRELATED ENGINE A REDUNDANT FAILURE. NSTS 22206 2.3.3L REQUIRES ASSIGNMENT OF 3/1R FOR FAILURES RESULTING IN AN ENGINE SHUTDOWN.
ONLY AVAIL REF: MPS/EPDC FMEA REVIEW SUMMARY 8-17-88.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/04/88
ASSESSMENT ID: MPS-834X
NASA FMEA #: 2141-3
SUBSYSTEM: EPD&C/MPS
MDAC ID: 834
ITEM: HYBRID DRIVER, TYPE I (6)
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

NASA ASSUMES A HELIUM LEAK WHICH IS CRITICALITY 1/1 BY ITSELF TO GET THEIR 1R.

REPORT DATE 03/11/88 C-546
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/04/88
ASSESSMENT ID: MPS-835X
NASA FMEA #: 2143-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 835
ITEM: REMOTE POWER CONTROLLER (6)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA ASSUMES A HELIUM LEAK WHICH IS CRITICALITY 1/1 BY ITSELF TO GET THEIR 1R.

REPORT DATE 03/11/88 C-547
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/05/88
ASSESSMENT ID: MPS-836X
NASA FMEA #: 2144-3
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: EPD&C/MPS
MDAC ID: 836
ITEM: ISOLATION DIODES (6)

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THE NASA SCENARIO CAUSES THE LOSS OF ONE ENGINE (LOSS OF MISSION). THE SHORT TO GROUND WILL BE DETECTED. NSTS 22206 2.3.3L REQUIRES ASSIGNMENT OF 3/1R FOR FAILURES RESULTING IN AN ENGINE SHUTDOWN.

REPORT DATE 03/11/88 C-548
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/05/88
ASSESSMENT ID: MPS-837X
NASA FMEA #: 2145-2
SUBSYSTEM: EPD&/C/MPS
MDAC ID: 837
ITEM: ISOLATION DIODES
LEAD ANALYST: B. SLAUGHTER

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

THE LOSS OF ONE ENGINE COULD RESULT IF ALL REDUNDANCY WERE LOST. THE FAILURE IS NOT READILY DETECTABLE. NSTS 22206 2.3.3L REQUIRES ASSIGNMENT OF 3/1R FOR FAILURES RESULTING IN AN ENGINE SHUTDOWN.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/05/88
ASSESSMENT ID: MPS-838X
NASA FMEA #: 2146-2

SUBSYSTEM: EPD&C/MPS
MDAC ID: 838
ITEM: ISOLATION DIODES

LEAD ANALYST: B. SLAUGHTER

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-550
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: MPS-901X
NASA FMEA #: 0602-5

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 901
ITEM: LO2 MANIFOLD REPRESS REGULATOR (PR5)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

CRITICALITY
FLIGHT

HDW/FUNC
A   B   C

NASA [ 3 /1R ] [ P ] [ F ] [ P ] [ X ] *
IOA [ 2 /1R ] [ P ] [ F ] [ P ] [ ]

COMPARE [ N / ] [ ] [ ] [ ] [ ] [ N ]

RECOMMENDATIONS: (If different from NASA)

[ 2 /1R ] [ P ] [ F ] [ P ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
REGULATOR WILL REMAIN OPEN, PRESSURIZING THE MANIFOLD. FAILURE
OF RELIEF SYSTEM DURING ENTRY MAY CAUSE MANIFOLD RUPTURE. NO
HAZARD DURING DUMP PRESSURIZATION.
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING
NOTES.

REPORT DATE 03/11/88 C-551
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
NASA DATA:
ASSESSMENT ID: MPS-902X
NASA FMEA #: 0629-2

SUBSYSTEM: MPS
MDAC ID: 902
ITEM: LH2 MANIFOLD REPRESSURIZATION REGULATOR (PR6)

LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ 3 /1R ] [ P ] [ P ] [ P ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THREE FAILURES MUST OCCUR BEFORE HELIUM WILL BE INJECTED INTO THE LH2 MANIFOLD. NO EFFECT PRE-MECO. FAILURE OF RELIEF SYSTEM (FOUR FAILURES TOTAL) DURING ON-ORBIT OPERATIONS CAN CAUSE MANIFOLD OVERPRESSURIZATION AND RUPTURE.

REPORT DATE 03/11/88 C-552
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: MPS-903X
NASA FMEA #: 0251-1
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 903
ITEM: PNEUMATIC HELIUM SUPPLY RELIEF VALVE (RV4)

LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-553
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: MPS-904X
NASA FMEA #: 0247-2

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SUBSYSTEM: MPS
MDAC ID: 904
ITEM: LH2 FEED MANIFOLD RTLS REPRESSURIZATION ORIFICE (RP9)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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COMPARE [ / ] [ ] [ ] [ ] [ ] [ N ]

RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-554
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: MPS-905X
NASA FMEA #: 0145-2

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 905
ITEM: PNEUMATIC HELIUM SUPPLY FILTER (FL5)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING
NOTES.

REPORT DATE 03/11/88 C-555
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-906X
NASA FMEA #: 0253-1
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 906
ITEM: ENGINE HELIUM LINE (CV25,26,36,37,41,42 TO LV1,2,3,4,5,6)

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-556
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-907X
NASA FMEA #: 0254-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 907
ITEM: ENGINE HELIUM SUPPLY LINE (LV1,2,3,4 TO PR1,2,3,7,8,9)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-557
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-908X
NASA FMEA #: 0111-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 908
ITEM: ENGINE HELIUM SUPPLY LINE (PR1,2,3,7,8,9 TO CV5,6,7,29,40,45)

LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

| CRITICALLY | REDUNDANCY SCREENS | CIL |
| FLIGHT | HDW/FUNC | A | B | C |
| NASA | [ 1 /1 ] | [ NA] | [ NA] | [ NA] | [ X ] * |
| IOA | [ 1 /1 ] | [ NA] | [ NA] | [ NA] | [ ] |
| COMPARE | [ / ] | [ ] | [ ] | [ ] | [ N ] |

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING
NOTES.

REPORT DATE 03/11/88       C-558
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-909X
NASA FMEA #: 0235-1
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 909
ITEM: ENGINE HELIUM SUPPLY LINE (CV5, 6, 7, 29, 40, 45 TO SSME)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-559
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-910X
NASA FMEA #: 0115-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 910
ITEM: HELIUM INTERCONNECT IN LINE (LV59,61,63 TO CV27,38,43)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

<p>| CRITICALLY | REDUNDANCY SCREENS | CIL |</p>
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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
HAZARD EXISTS WHEN INTERCONNECT IN VALVES ARE OPEN (MECO TO MECO+20 SEC). AT ALL OTHER TIMES, THIS FAILURE IS 2/1R.
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-560
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: MPS-911X
NASA FMEA #: 0116-1
NASA DATA: BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 911
ITEM: HELIUM INTERCONNECT OUT LINE (LV60,62,64 TO CV28,39,44)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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| IOA    | [ 1 /1 ] | [ NA] | [ NA] | [ NA] | [ ]    |
| COMPARE| [ / ]    | [ ]   | [ ]   | [ ]   | [ N ]  |

RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

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REMARKS:
HAZARD EXISTS WHEN INTERCONNECT OUT VALVES ARE OPEN (MECO+20 SEC). WHEN THE VALVES ARE CLOSED, THIS FAILURE IS 2/I1R.
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-561
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-912X
NASA FMEA #: 0704-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 912
ITEM: HELIUM METALLIC BOSS SEALS (K SEALS)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REPORT DATE 03/11/88 C-562
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-913X
NASA FMEA #: 0705-1

SUBSYSTEM: MPS
MDAC ID: 913
ITEM: NAFLEX HELIUM TANK SEALS (FOR TK4)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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COMPARE [ ] [ ] [ ] [ ] [ N ]

RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

*CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-563
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-914X
NASA FMEA #: 0706-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 914
ITEM: COMBINATION HELIUM TANK SEALS (FOR TK6, 8, 10)

LEAD ANALYST: W.J. McNicoll

ASSESSMENT:

CRITICALITY REDUNDANCY SCREENS CIL
FLIGHT HDW/FUNC A B C ITEM

NASA [ 1 /1 ] [ NA] [ NA] [ NA] [ X ] *
IOA [ 1 /1 ] [ NA] [ NA] [ NA] [ ]

COMPARE [ / ] [ ] [ ] [ ] [ N ]

RECOMMENDATIONS: (If different from NASA)
[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-564
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-915X
NASA FMEA #: 0626-8
SUBSYSTEM: MPS
MDAC ID: 915
ITEM: ENGINE HELIUM SUPPLY PRESSURE TRANSDUCERS (3)
LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THERE ARE FOUR PRESSURE TRANSDUCERS THAT ALL SHOULD INDICATE THE SAME PRESSURE DURING FILL. FAILURE OF ALL FOUR CAN CAUSE TANK UNDERFILL AND LOSS OF VEHICLE DURING ASCENT. FAILURE OF INDICATOR(S) DURING ASCENT WILL HAVE NO EFFECT.
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88  C-565
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-916X
NASA FMEA #: 0626-9

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 916
ITEM: PNEUMATIC HELIUM SUPPLY PRESSURE TRANSDUCER

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
FOUR PRESSURE TRANSDUCERS (INCLUDES ENGINE TRANSDUCERS) ALL SHOULD INDICATE THE SAME PRESSURE DURING TANK FILL. FAILURE OF ALL FOUR CAN CAUSE TANK UNDERFILL AND LOSS OF VEHICLE DURING ASCENT. FAILURE OF INDICATOR(S) DURING ASCENT WILL HAVE NO EFFECT.

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-566
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-917X
NASA FMEA #: 0626-10

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 917
ITEM: ENGINE HELIUM REGULATOR OUTLET PRESSURE
TRANSUDCERS (6)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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COMPARE [   ] [   ] [   ] [   ] [ N ]

RECOMMENDATIONS: (If different from NASA)
[ 3 /3 ] [ NA ] [ NA ] [ NA ] [ D ]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
FAILURE OF TRANSDUCER WILL HAVE NO EFFECT. NO REDUNDANCY. A LEAK IS NOT A LOSS OF REDUNDANCY.
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-567
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-918X
NASA FMEA #: 0626-11

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 918
ITEM: PNEUMATIC HELIUM REGULATOR OUTLET PRESSURE TRANSUDER

LEAD ANALYST: W.J. MCNICOLL

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| NASA | 3 /1R | [ P ] | [ F ] | [ P ] | [ X ] * |
| IOA | 3 /1R | [ P ] | [ F ] | [ P ] | [ ] |
| COMPARE | / | | | | [ N ] |

RECOMMENDATIONS: (If different from NASA)
[ 3 /3 ] [ NA ] [ NA ] [ NA ] [ D ]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

REMARKS:
FAILURE OF TRANSUDER WILL HAVE NO EFFECT. NO REDUNDANCY. A LEAK IS NOT A LOSS OF REDUNDANCY.
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-568
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-919X
NASA FMEA #: 0626-12
NASA DATA: BASELINE [ ] NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 919
ITEM: HELIUM ACCUMULATOR PRESSURE TRANSDUCER

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
TRANSDUCER FAILURE WILL HAVE NO EFFECT. NO REDUNDANCY. A LEAK IS NOT A LOSS OF REDUNDANCY.
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING
NOTES.

REPORT DATE 03/11/88 C-569
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-920X
NASA FMEA #: 0627-6

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 920
ITEM: ENGINE HELIUM SUPPLY TEMPERATURE TRANSDUCERS (6)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

CRITICALITY REDUNDANCY SCREENS CIL ITEM
FLIGHT HDW/FUNC A B C ITEM

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:
MULTIPLE FAILURE OF TRANSDUCERS MAY ALLOW STRUCTURAL TEMPERATURE LIMITS TO BE VIOLATED DURING TANK FILL AND CAUSE RUPTURE AND LOSS OF VEHICLE. FAILURE DURING ASCENT WILL HAVE NO EFFECT.
REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-570
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-921X
NASA FMEA #: 0627-7

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 921
ITEM: PNEUMATIC HELIUM SUPPLY TEMPERATURE TRANSDUCER

LEAD ANALYST: W.J. MCNICOLL

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RECOMMENDATIONS: (If different from NASA)
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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-571
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-922X
NASA FMEA #: 0409-4

SUBSYSTEM: MPS
MDAC ID: 922
ITEM: GN2 PURGE DISCONNECT (PD14)

LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]

INADEQUATE [ ]

REMARKS:
POSSIBLE OVERPRESSURIZATION AND/OR SHARPNEL DAMAGE.
REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-572
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-923X
NASA FMEA #: 0426-1

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 923
ITEM: GN2 PURGE LINE
LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REF: RI/NASA CIL OF 12-23-87 AND RI/NASA FMEA/CIL REVIEW MEETING NOTES.

REPORT DATE 03/11/88 C-573
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/17/88
ASSESSMENT ID: MPS-924X
NASA FMEA #: 0901-1
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 924
ITEM: STRUCTURAL ATTACH POINTS
LEAD ANALYST: W.J. MCNICOLL

ASSESSMENT:

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RECOMMENDATIONS: *(If different from NASA)*

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

* CIL RETENTION RATIONALE: *(If applicable)*

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NSTS 22206 2.3.1 DOES NOT REQUIRE A FMEA FOR STRUCTURE. DELETE 0901-1.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
NASA DATA:
ASSESSMENT ID: MPS-1001
NASA FMEA #: NA
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 1001
ITEM: GO2 PRESSURE ISOLATION CHECK VALVE (CV18, 19, 20)

LEAD ANALYST: K.A. HOLDEN

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THIS WORKSHEET SHOULD BE COMBINED WITH MPS-1005, WHICH IS THE
WORST CASE FOR THIS FAILURE MODE. MPS-1005 MATCHES AND AGREES
WITH 0514-1. THE VEHICLE'S ACCELERATION HAS A MUCH LARGER EFFECT
ON THE LO2 NET POSITIVE SUCTION PRESSURE (NPSP) THAN THE
ULLAGE PRESSURE DOES. THEREFORE, NEITHER CAVITATION AT THE LPOT
NOR LOSS OF LO2 IS VALID. HOWEVER, THE LOSS OF GO2 ULLAGE
PRESSURE CAUSES AN OPPOSITE PRESSURE DIFFERENTIAL THAN WHAT THE
LO2 TANK WAS DESIGNED FOR. THIS COULD CAUSE THE LO2 TANK TO
BUCKLE DUE TO AERODYNAMIC LOADS ON A TANK WHICH IS NOT
PRESSURIZED. THERE ARE 3 SUCH CHECK VALVES.

REPORT DATE 03/11/88 C-575
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-1002
NASA FMEA #: 0514-2

SUBSYSTEM: MPS
MDAC ID: 1002
ITEM: GO2 PRESSURE ISOLATION CHECK VALVE (CV18, 19, 20)

LEAD ANALYST: K.A. HOLDEN

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)
[ 3 /1R ] [ P ] [ F ] [ F ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)
ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
The IOA criticality for an abort was originally reported as a 1/1 due to ullage pressure lost through a shutdown engine. The main oxidizer valve, which is closed during an engine shutdown, adds 2 levels of redundancy to this failure mode. The loss of LO2 ullage pressure could cause a pressure differential between the inside and outside of the tank that the tank was not designed to hold. The resultant lack of pressure in the tank could cause the tank to buckler due to the atmosphere forces. NASA information is based on the NASA/RI Critical Items List of 12-23-87.

REPORT DATE 03/11/88 C-576
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-1003
NASA PMEA #: 0514-4

NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 1003
ITEM: GO2 PRESSURE ISOLATION CHECK VALVE (CV18, 19, 20)

LEAD ANALYST: K.A. HOLDEN

ASSESSMENT:

CRITICALITY REDUNDANCY SCREENS CIL
FLIGHT HDW/FUNC A B C ITEM

NASA [ 1/1 ] [ NA] [ NA] [ NA] [ X ] *
IOA  [ 1/1 ] [ NA] [ NA] [ NA] [ X ]

COMPARE [ / ] [ ] [ ] [ ]

RECOMMENDATIONS: (If different from NASA)

[ / ] [ ] [ ] [ ] [ ]

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA INFORMATION IS BASED ON THE RI/NASA CRITICAL ITEMS LIST OF 12-23-87.

REPORT DATE 03/11/88 C-577
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-1004
NASA FMEA #: 0514-3
NASA DATA:
BASELINE [ ]
NEW [ X ]

SUBSYSTEM: MPS
MDAC ID: 1004
ITEM: GO2 PRESSURE ISOLATION CHECK VALVE (CV18, 19 20)

LEAD ANALYST: K.A. HOLDEN

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| IOA [ 1/1 ] | [ NA] | [ NA] | [ NA] | [ X ]
| COMPARE [ N/N ] | [ ] | [ ] | [ ] | [ N ]

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
The heat exchanger in the SSME is designed to handle O2 at about 3700 psia. Helium leaking into the heat exchanger at 20 psia would not have any significant effect. Therefore, it is 3/3. NASA information is based on NASA FMEA/CIL review meeting notes (Ref. J. Borches).

REPORT DATE 03/11/88
C-578
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-1005
NASA FMEA #: 0514-1

SUBSYSTEM: MPS
MDAC ID: 1005
ITEM: GO2 PRESSURE ISOLATION CHECK VALVE (CV18, 19, 20)
LEAD ANALYST: K.A. HOLDEN

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RECOMMENDATIONS: (If different from NASA)

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*CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
FAILURE OF THE CHECK VALVE TO OPEN WILL ALLOW INCREASING GO2 PRESSURE TO RUPTURE THE HEAT EXCHANGER, POSSIBLY RESULTING IN ENGINE EXPLOSION. NASA/RI INFORMATION IS TAKEN FROM THE RI/NASA CRITICAL ITEMS LIST OF 12-23-87.
APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/20/88
ASSESSMENT ID: MPS-1006
NASA FMEA #: NA
NASA DATA: BASELINE [ ]
NEW [ X ]
SUBSYSTEM: MPS
MDAC ID: 1006
ITEM: GO2 PRESSURE ISOLATION CHECK VALVE (CV18, 19, 20)
LEAD ANALYST: K.A. HOLDEN

ASSESSMENT:

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RECOMMENDATIONS: (If different from NASA)

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* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THE BURNING OF THIS VALVE COULD CAUSE A HOLE WHICH WOULD ALLOW HOT GO2 TO ENTER THE AFT COMPARTMENT. THIS WOULD RESULT IN OVERPRESSURIZATION AND A POSSIBLE FIRE/EXPLOSION.

REPORT DATE 03/11/88 C-580