INDEPENDENT ORBITER ASSESSMENT

ASSESSMENT
OF THE
LANDING/DECELERATION
SUBSYSTEM

18 MARCH 1988

MCDONNELL DOUGLAS ASTRONAUTICS COMPANY
HOUSTON DIVISION

SPACE TRANSPORTATION SYSTEM ENGINEERING AND OPERATIONS SUPPORT

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INDEPENDENT ORBITER ASSESSMENT ASSESSMENT OF THE LANDING/DECELERATION (LDG/DEC) SUBSYSTEM FMEA/CIL

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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 Landing / Deceleration (LDG/DEC) hardware, generating draft failure modes and potential critical items. To preserve independence, this analysis was accomplished without reliance upon the results contained within the NASA FMEA/CIL documentation. The IOA results were then compared to the NASA FMEA/CIL baseline with proposed Post 51-L updates included. A resolution of each discrepancy from the comparison is provided through additional analysis as required. This report documents the results of that comparison for the Orbiter LDG/DEC hardware.

The IOA product for the LDG/DEC analysis consisted of 259 failure mode "worksheets" that resulted in 124 potential critical items being identified. Comparison was made to the NASA baseline (as of 19 November 1986) which consisted of 267 FMEA's and 120 CIL items. The comparison determined if there were any results which had been found by the IOA but were not in the NASA baseline. This comparison produced agreement on all but 75 FMEA's which caused differences in 51 CIL items. Figure 1 presents a comparison of the proposed Post 51-L NASA baseline, with the IOA recommended baseline, and any issues.

The issues arose due to differences between the NASA and IOA FMEA/CIL preparation instructions. NASA had used an older ground rules document which has since been superseded by the NSTS 22206 used by the IOA. After comparison, there were no discrepancies found that were not already identified by NASA, and the remaining issues may be attributed to differences in ground rules.

Figure 1 - LDG/DEC 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 re-evaluating 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-built drawings to breakdown the respective subsystem into components and low-level hardware items. Each hardware item is evaluated for failure mode, effects, and criticality. These data are documented in the respective subsystem analysis report, and are used to assess the proposed Post 51-L NASA and Prime Contractor FMEA/CIL. The IOA analysis approach is summarized in the following Steps 1.0 through 3.0. Step 4.0 summarizes the assessment of the NASA and Prime Contractor FMEA/CIL which is documented in this report.

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

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

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

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 limit the analysis to single-failed parts for each failure.

3.0 SUBSYSTEM DESCRIPTION

3.1 Design and Function

The Landing / Deceleration Subsystem consists of the hardware required to perform landing and rollout to a safe stop (Figure 2). In addition, the landing / deceleration system performs the function of transporting the Orbiter during the landing phase and towing during post mission operations. The Landing / Deceleration
Subsystem consists of the following components:

1. The Nose Landing Gear Shock Strut Assembly (NGSSA.) is the assembly that supports the nose of the Orbiter during landing and ground handling operations. The NGSSA consists of the Shock Strut, Axle, Steering / Damping Actuator, Torque Arms, Drag Brace, Lock Brace, and attaching hardware (Figures 3 & 4).

2. The Nose Landing Gear Doors and Uplock / Release Mechanisms (Figures 3 & 4) consists of the following components that function when the landing gear deploy switch is activated:

    - o Extend / Retract Hydraulic Strut Actuator
    - o Door Extend Retract Mechanism
    - o Door Over-Center Bungee
    - o Gear Uplock Hook
    - o Door Hooks
    - o Door Hook Actuation Linkage
    - o NLG Uplock Release Hydraulic Actuator
    - o Backup Pyro Uplock Release Actuator
    - o NLG Extension Booster Pyro Actuator
    - o Door Bungee Assist Assembly

3. The data for the Nose Landing Gear Wheels and Tires are not currently available for use in the evaluation of the wheels or the tires. B. F. Goodrich drawings were requested through NASA, Rockwell International - Downey Operations, and through B. F. Goodrich - in Troy, Ohio. Some analysis has been performed using the Rockwell Procurement Specifications which were available through NASA.

4. The two Main Landing Gear Shock Strut Assemblies (MGSSA) support the aft portion of the Orbiter during landing and ground handling activities. The MGSSA consists of the Shock Strut, Axle, Torque Arms, Drag Brace, Lock Brace, and attaching hardware (Figures 5 & 6).

5. The Main Landing Gear Doors and Uplock Mechanisms (Figures 5 & 6) consists of the following components that function when the landing gear deploy switch is activated:

   - o Extend / Retract Hydraulic Strut Actuator
   - o Door Extend Retract Mechanism
   - o Door Over-Center Bungee
   - o Gear Uplock Hook
   - o Door Hooks
   - o Door Hook Actuation Linkage
   - o MLG Uplock Release Hydraulic Actuator
   - o Backup Pyro Uplock Release Actuator
   - o Door Bungee Assist Mechanism

6. The data for the Main Landing Gear Wheels and Tires are not currently available for use in the evaluation of the wheels or the tires. B. F. Goodrich drawings were requested through NASA, Rockwell International - Downey Operations, and through B. F. Goodrich - in Troy, Ohio. Some analysis has been performed using the Rockwell Procurement Specifications which were available through NASA.

7. The data for the Brake and Anti-Skid Controls are limited and the assessment was performed using the data available in the Space Shuttle Systems Handbook, the Shuttle Flight Operations Manual - Volume 10D, the Rockwell Procurement Specification, Brake / Skid Control Subsystem, Wheel Brakes - Main Landing Gear, Orbiter, and the NASA Training Document on Landing / Deceleration systems, LNDG/DECEL 2102. Data were requested on the Mark III Skid Control System, but we were informed that the data were proprietary and that the data would not be made available for the assessment. Current data were requested through NASA and Rockwell International - Downey Operations. The Brake and Anti-Skid Controls consist of the Rudder / Brake Pedal Assembly and the Brake / Skid Control System as identified in Figure 7.

8. The data for the Brake System are not currently available for use in the evaluation of the system. B. F. Goodrich drawings were requested through NASA, Rockwell International - Downey Operations, and through B. F. Goodrich - in Troy, Ohio. Some analysis has been performed using the Rockwell Procurement Specifications which were available through NASA. Some data were found on the Orbiter braking system through Lockheed, in Clear Lake through the notes from the AD HOC COMMITTEE - ORBITER BRAKING SYSTEM ASSESSMENT documents. The brake system consists of four electro-hydraulic disc braking systems. Each assembly has nine discs: four rotors and five stators. The rotors are

splined to the inside of the wheel and they rotate with the wheel. The stators are splined to the outside of the axle assembly and they do not rotate. When the brakes are applied, eight hydraulic actuators in the brake assembly press the discs together, thus provid ing the braking torque. The hydraulic brake actuators are distributed evenly around the discs. four of the actuators are manifolded into a brake chamber and are powered by a single hydraulic system The remaining four are manifolded into a second braking chamber and are powered by a different hydraulic system.

9. The Rudder / Brake Pedal Assembly is the mechanical assembly that allows the crew to make manual inputs into the Landing / Deceleration Subsystems. The R/BPA converts the manual inputs into electrical data that is transmitted to the flight control systems, the brake controls and the nose wheel steering. Each rudder / brake pedal assembly contains two brake pedal transducer units called the Rudder Pedal Transducer Assemblies (RPTA). Each unit has four Linear Variable Differential Transducers (LVDT) which output 0-5 VDC brake signals to the brake / skid control boxes A and B. Each of the transducer units output four separate braking signals for the respective left / right brake control for the associated braking system.

10. The Electrical Power Distribution and Control (EPD&C) consists of two subsystems within the Landing / Deceleration Subsystem: Landing Gear Control and Brake and Antiskid. The Landing Gear Control system provides power to the Nose and Main Landing Gear Doors and Uplock Release Mechanisms on the orbiter (Figure 8). The Brake and Antiskid subsystem transfers brake and skid control power to the Brake/Skid Control Boxes A and B (Figure 7). Power is also provided to the hydraulic brake-line heater coils for orbiter hydraulic fluid heating. EPD&C powers the electronics for sensing and monitoring the discrete position of moving parts and assemblies within the Landing / Deceleration subsystem.

11. The responsibility for the Nose Wheel Steering system has been assigned to the NWS Group. The FMEA's for the NWS were originally included in the Landing / Decelera- tion Subsystem. The mechanical linkage portions of the NWS are still included in the Landing / Deceleration IOA reports as a portion of the Nose Landing Gear reports.

12. The Hydraulics Actuators on the Landing / Deceleration Subsystem consists of six actuators. Three actuators activate the mechanism to release the uplock mechanism to deploy the landing gear mechanisms, and three actuators perform the task of extending or retracting the landing gear. Landing gear retraction can only be performed while the vehicle is being supported by Ground Support Equipment (GSE), a landing gear retraction cannot be supported on orbit. These actuators are actually components of the subsystems listed in sections 2 and 5 of this paragraph. However, for this report they are broken out separately for the purpose of clarity.

3.2 Interfaces and Locations

The Landing / Deceleration hardware consists of six major subcomponents located in the Orbiter's cabin area and on the under carriage of the Orbiter. The interfaces for the subsystem are relatively simple in that there is a limited number of inter faces with the other subsystems on the Orbiter. The interfaces with the other subsystems are basically limited to interfaces with the Data Processing System (DPS) for backup flight control purposes (NWS) and for instrumentation on the Landing / Deceleration hardware, and the Hydraulics System (HYD) for hydraulics system pressure for the subsystem actuators and for the brakes. The remainder of the subsystem is capable of direct control, via wire, from the control device to the subsystem hardware.

3.3 Hierarchy

Figure 2 illustrates the hierarchy of the Landing / Deceleration Subsystem hardware and the corresponding subcomponents. Figures 3 through 8 comprise the detailed system representations.

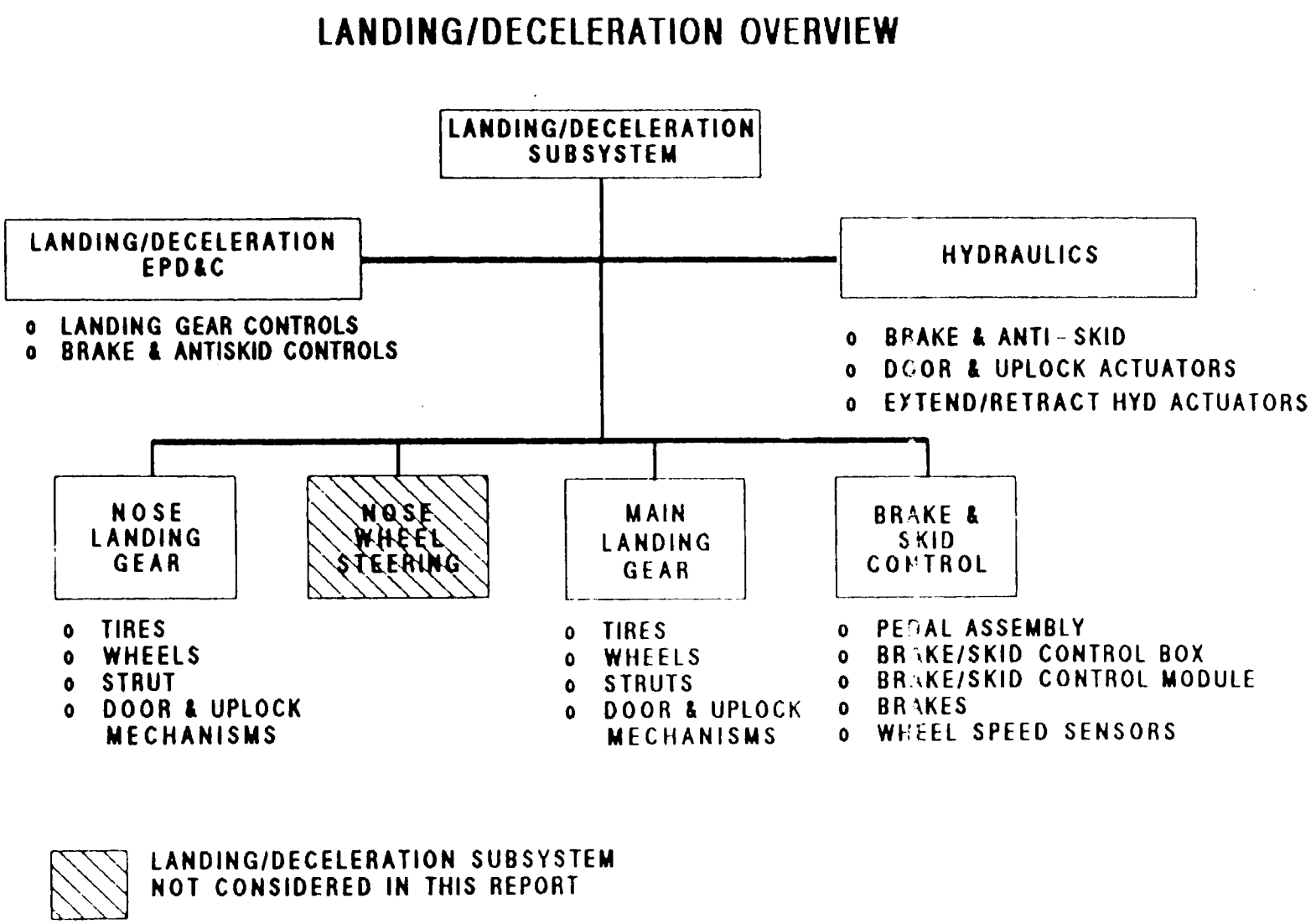

Figure 2 - LDG/DEC SUBSYSTEM OVERVIEW

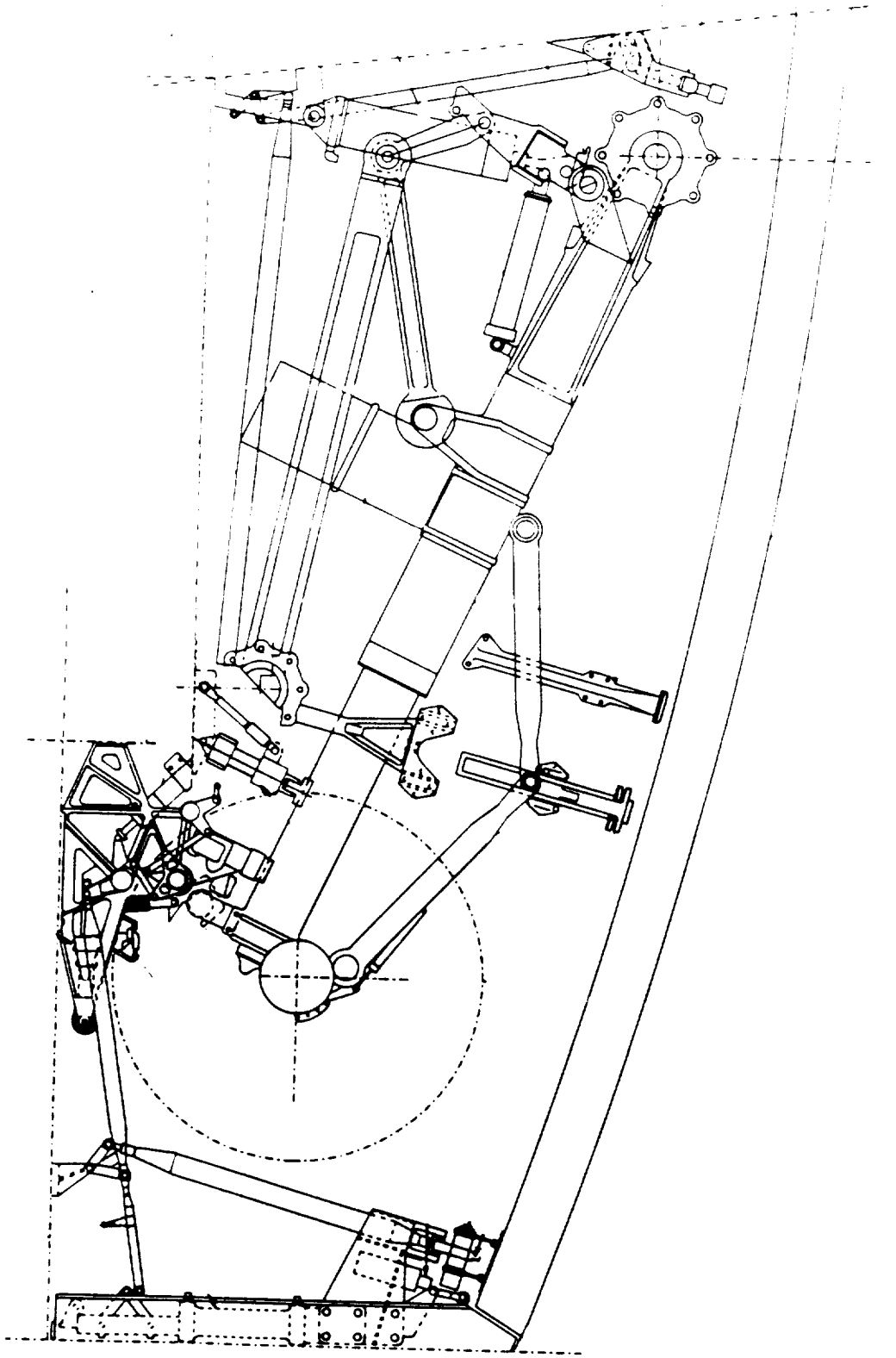

Figure 3 - NOSE LANDING GEAR - STOWED POSITION

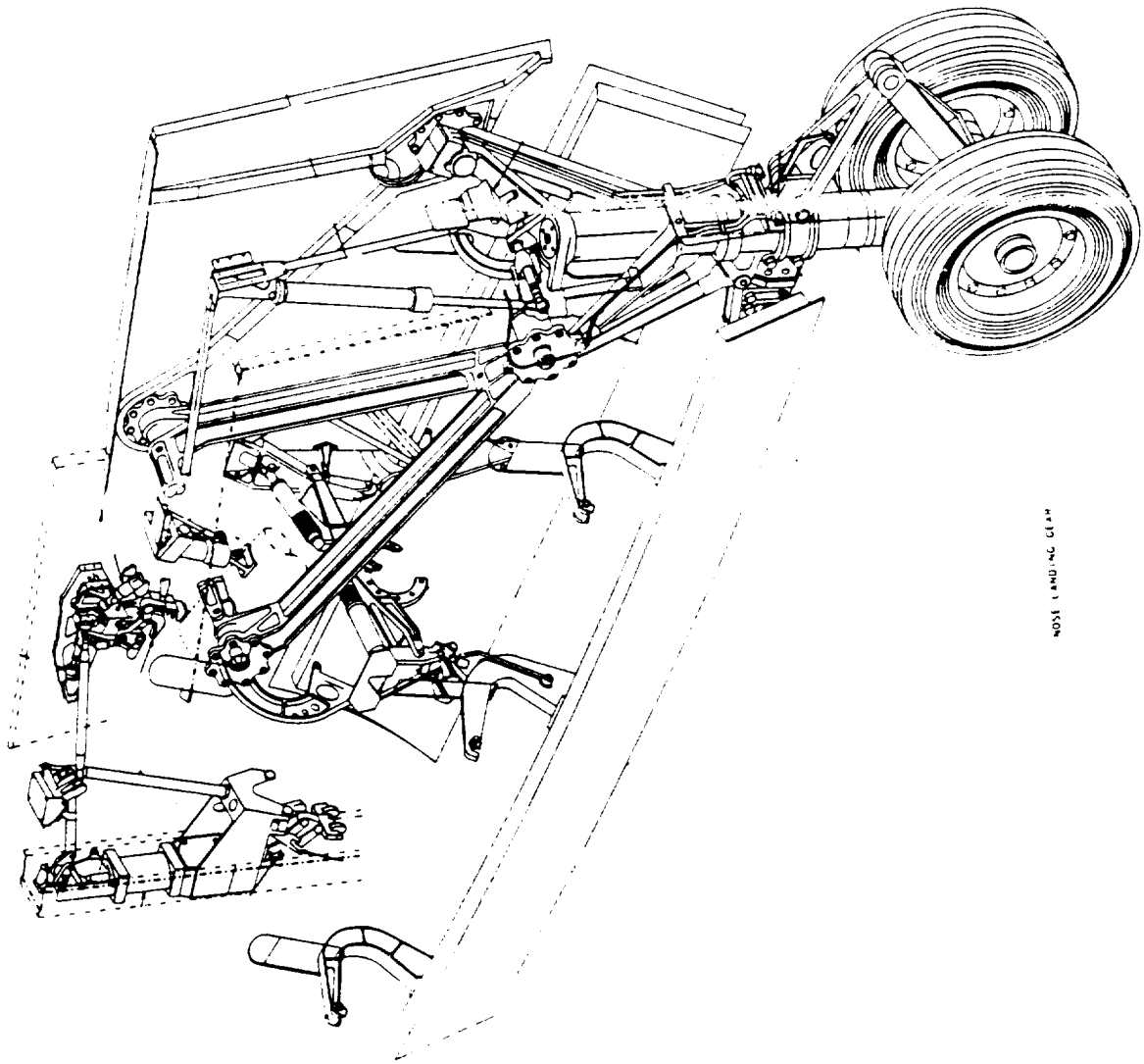

Figure 4 - NOSE LANDING GEAR - EXTENDED POSITION

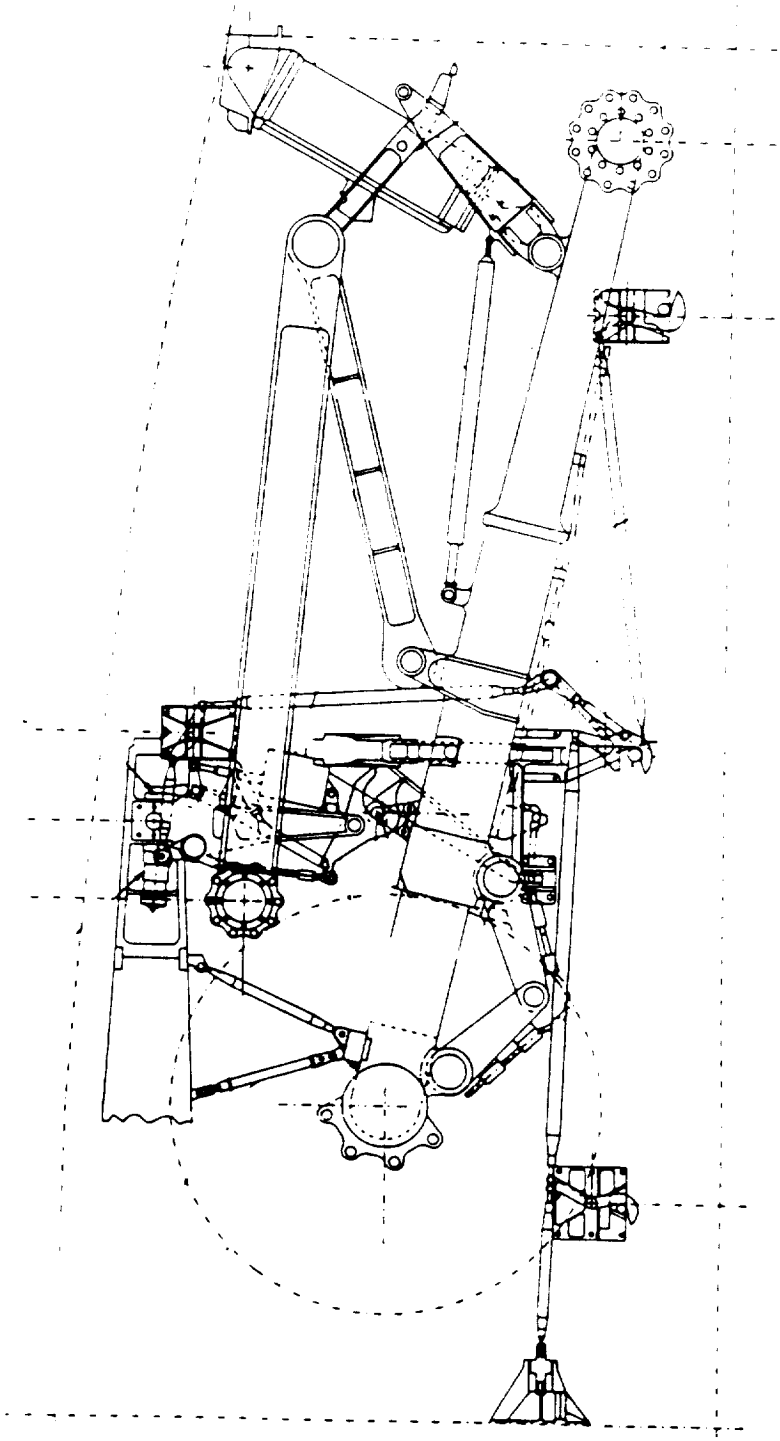

Figure 5 - MAIN LANDING GEAR - STOWED POSITION

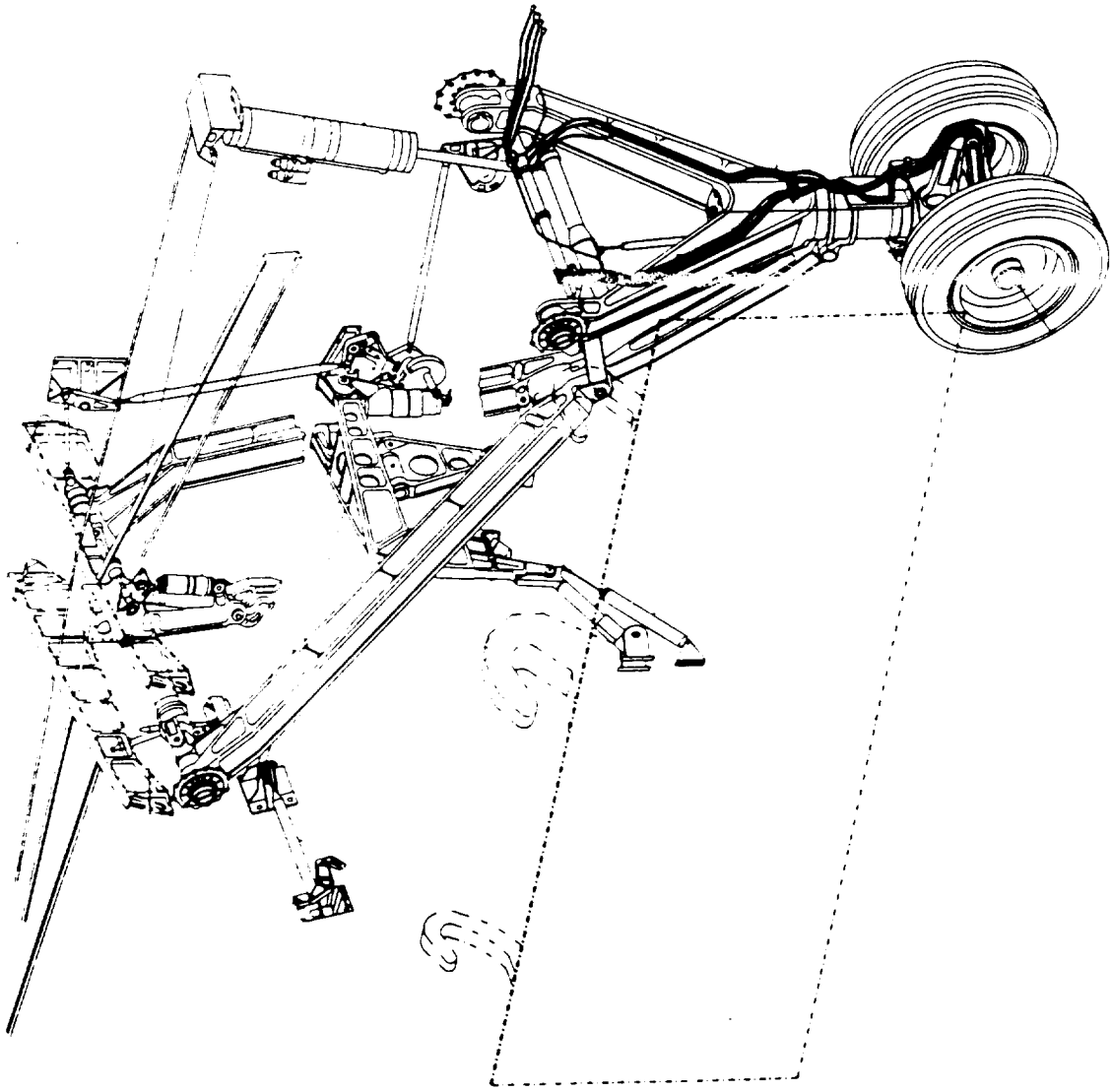

Figure 6 - MAIN LANDING GEAR - EXTENDED POSITION

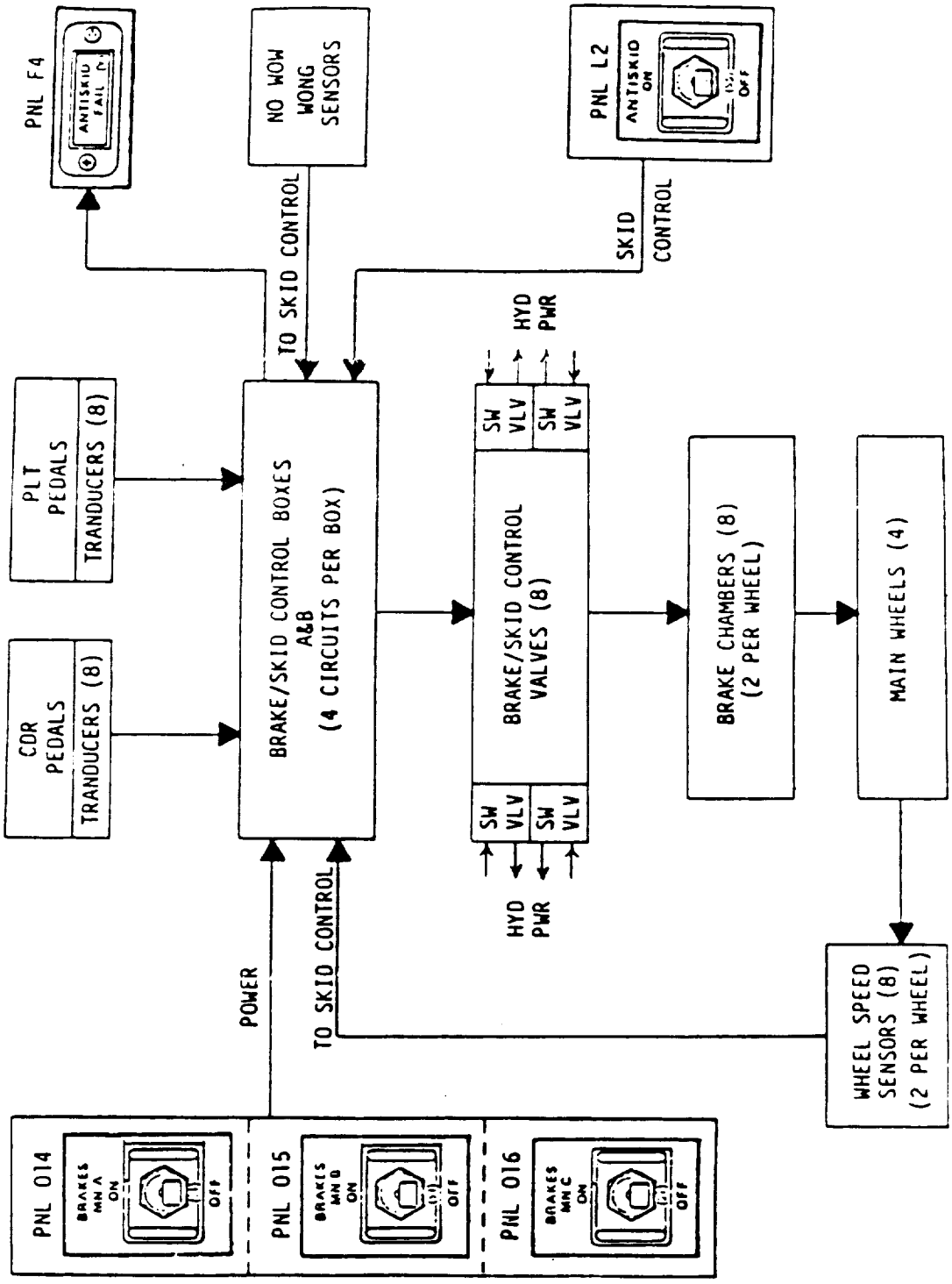

Figure 7 - BRAKE / SKID CONTROL SYSTEM OVERVIEW

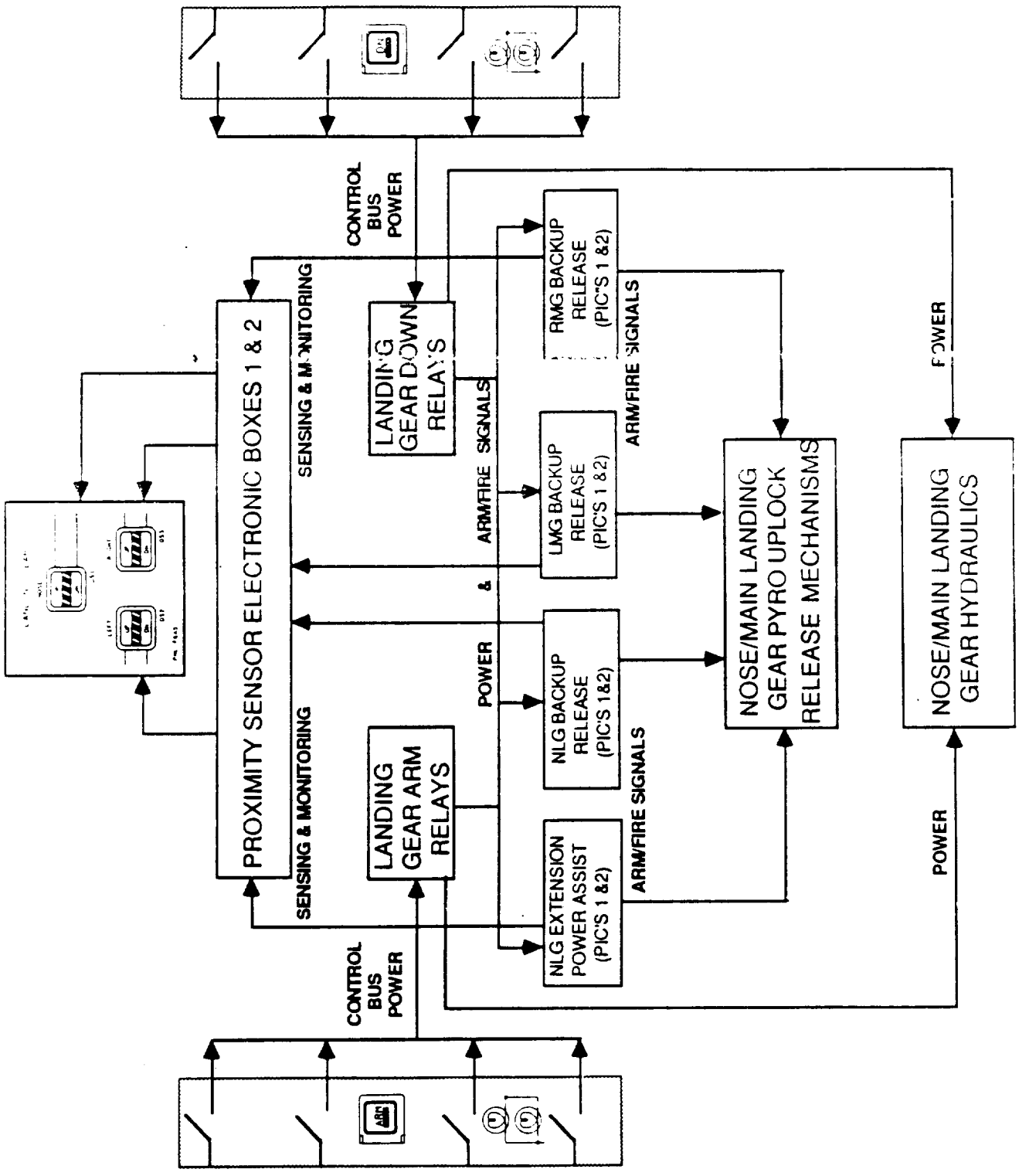

Figure 8 - LANDING GEAR CONTROL SYSTEM OVERVIEW

4.0 ASSESSMENT RESULTS

The IOA analysis of the Landing / Deceleration hardware initially generated 256 failure mode worksheets and identified 124 Potential Critical Items (PCIs) before starting the assessment process. The IOA supported the first NASA sponsored Landing / Deceleration hardware working group meeting on 20-24 January 1987. During the meeting a great deal of work was done to support the development of the OMRSD data and to support the tracking of the OMRSD data with the FMEA/CIL data. Meeting minutes and reports were requested during the meeting, but no minutes or reports were received by the IOA for an analysis. During May 1987, the IOA personnel went directly to the Subsystem Manager, and subsequently to his supervisor in order to have data released. Rough data was obtained and the data that the IOA personnel received was stamped as preliminary data and verbal instructions were given that the data not be used for a comparison of FMEA/CIL documentation. Additional attempts to obtain hardware data were unsuccessful, success was achieved in obtaining preliminary EPD&C in October 1987. The hardware portion of the NASA analysis was not completed until January 1988, there was insufficient time available to perform an analysis and prepare a comparison of the results.

In the analysis report, the Landing / Deceleration Subsystem was divided into six separate functional areas according to hardware and function. Difficulty was encountered in the hardware analysis due to the large amounts of proprietary data or unobtainable data on the brakes and skid control hardware, the tires and wheels, and many of the mechanisms of the landing gear and the hydraulics systems. The initial NASA document, STS 82-0013, consisted of five separate functional areas which included one hundred eighteen (118) FMEA/CIL's. After the initial definition of the subsystem the thirty two (32) NWS FMEA's were removed and a separate group was initiated to prepare the analysis for that subsystem. A decision was made to include the EPD&C data for the subsystem and one hundred twenty two (122) Electrical FMEA's were added to the subsystem. In November 1986 forty four (44) Hydraulics FMEA's were added to the subsystem. After the initial IOA Analasys was completed in January 1987, a decision was made to remove the pyrotechnic devices from the subsystem, which removed six FMEA's from the NLG and MLG subsystems. The seven areas of the Landing / Deceleration analysis that have been encompassed in this report and there status are as follows:

BRAKES AND ANTI-SKID (B&AS)

Forty two (42) FMEA's on the Brakes and Anti-Skid were included in the original data package. The study of the Anti-Skid system was accomplished utilizing data that was available through NASA. Difficulty was encountered in the preparation of the data on the actual brake hardware and the wheels and tires, for there was no data available through NASA to study or review, a large amount of the data involved

is proprietary. Data on the brakes and tires is controlled by B.F. Goodrich, and the data on the antiskid subsystem is maintained by Crane Industries. An analysis on the Brakes, Wheels and Tires was not fully accomplished due to the lack of data available.

ELECTRICAL POWER DISTRIBUTION AND CONTROL (EPD&C)

EPD&C provides power to the Landing Gear Control Subsystem, Brake and Anti-Skid subsystem, and to the sensing and monitoring functions within the Landing / Deceleration Subsystem. The IOA Analysis generated 114 assessment worksheets associated with credible failure modes and defined criticality. Of the identified failure modes eleven (11) are criticality 2/1R, forty-six (46)are criticality 3/1R, and fifty seven (57) are criticality 3/3. Thirty one (31) failure modes are identified as PCI's. These PCI's are listed in Appendix D. The assessment between the IOA EPD&C worksheets and NASA Post 51-L FMEA/CIL (PRCB Review Presentation 1/25/88) Produced forty (40) issues. IOA recommends downgrading the criticality of nine (9) FMEA's, three (3) of which will be removed from the CIL. IOA recommends that fifteen (15) of the NASA baseline FMEA's be deleted because they represent non-credible failure modes for those particular components. These deletions would remove seven (7) items from the CIL. IOA recommends changes in the redundancy screens for six (6) NASA FMEA's. Resulting in two new additional CIL's. IOA also recommends the addition of fifteen (15) FMEA's to the NASA baseline for failure modes not present in the NASA baseline. One (1) of the additions will require a new CIL. IOA generated one (1) new analysis sheet to correspond to a NASA baseline FMEA not covered in the original IOA analysis. The IOA analysis agreed with the NASA failure mode and criticality evaluation.

FLIGHT CONTROLS

Originally, only one (1) FMEA was written on the flight controls and that was written against the Pedal Assembly.

HYDRAULICS (HYD)

Originally, no Hydraulics FMEAs were included in the Landing / Deceleration subsystem. Forty-four (44) FMEA's from the Hydraulics system were added to the subsystem in order to conform with the NASA configuration. The information about the addition of the Hydraulics data was transmitted to the IOA Subsystem manager in late November 1986 just prior to the initial submission of the data to the IOA Data Management Group. The Landing / Deceleration subsystem assumed responsibility for the actuators and the hydraulic

lines from the point where the hydraulic lines entered the landing gear compartment.

MAIN LANDING GEAR (MLG)

Twenty five (25) FMEA's were written against the MLG. Two (2) Pyrotechnic FMEA's were removed from this system after the IOA analysis was completed, these analysis have remained in this report.

NOSE LANDING GEAR (NLG)

Nineteen (19) FMEA's were written against the NLG. Four (4) Pyrotechnic FMEA's were removed from this system after the IOA analysis was completed, these analysis have remained in this report.

NOSE WHEEL STEERING (NWS)

Thirty two (32) FMEA's on the NWS were originally included in the Landing / Deceleration subsystem, these FMEA's were transfered to the NWS analysis group in order to align with the NASA configuration.

The following Pyrotechnic (PYRO) data was covered by the initial Independent Orbiter Assessment, and the data has been included in the initial assessment report. The data is not covered in the NASA Landing / Deceleration report.

FMEA NUMBER	IOA ASSESSMENT NUMBER
02-1-015-1	11102
02-1-015-2	11101
02-1-097-1	21101
02-1-097-2	21102
02-1-104-1	11202
02-1-104-2	11201

The data required to perform an analysis was not available for the following FMEA's, so no analysis was performed rather than preparing data with no documentation to support a position.

FMEA NUMBER	
02-1-011-1	CLAMP FLEX LINE BRAKES
02-1-031-1	DISPLACEMENT LIMITER
02-1-056-1	THERMAL RELIEF PLUG MLG
02-1-066-1	WHEEL BRAKE ASSEMBLY
02-1-067-1	WHEEL TIE BOLTS, MLG
02-1-068-1	WHEEL ASSEMBLY, MLG
02-1-068-2	WHEEL ASSEMBLY, MLG
02-1-068-3	WHEEL ASSEMBLY, MLG
02-1-069-1	WHEEL ASSEMBLY OVERINFLATION PLUG MLG
02-1-070-1	WHEEL TIE BOLTS - NLG
02-1-071-1	WHEEL - NLG
02-1-071-2	WHEEL - NLG
02-1-105-1	NLG THERMAL RELIEF PLUG
02-1-110-2	NLG TIRES

The following Nose Wheel Steering (NWS) data were removed from the Landing / Deceleration Subsystem responsibility in order to align with the activities at NASA. A separate IOA team evaluated the NWS data.

02-1-084-1	02-1-090-2	02-1-096-2
02-1-086-1	02-1-091-1	02-1-100-1
02-1-086-2	02-1-091-2	02-1-100-2 CIL ONLY
02-1-087-1	02-1-092-1	02-1-101-1 CIL ONLY
02-1-087-2	02-1-092-2	02-1-101-2 CIL ONLY
02-1-088-1	02-1-093-1	02-1-106-2 CIL ONLY
02-1-088-2	02-1-093-2	02-1-SPA-1
02-1-089-1	02-1-094-1	02-1-SPA-2
02-1-089-2	02-1-094-2	02-1-SPT-1
02-1-089-3	02-1-095-1	02-1-SPT-2
02-1-090-1	02-1-096-1	

The IOA analysis of the LDG/DEC hardware generated 259 failure mode worksheets and identified 124 Potential Critical Items (PCI's). These analysis results were compared to the proposed NASA Post 51-L baseline of 267 FMEA's including 120 CIL items,which were generated using the NSTS 22206 FMEA/CIL instructions. Upon completion of the assessment, there were 75 issues with 51 pertaining to CIL items.

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

Table I SUMMARY OF IOA FMEA ASSESSMENT

Component	NASA	IOA	Issues
B&AS	28	28	9
EPD&C	135	122	40
Flight Controls	1	3	-
HYD	42	40	2
MLG	40	29	11
NLG	15	31	13
PYRO	6	6	-
TOTAL	267	259	75

FMEA count inlcudes CIL's

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

Table II SUMMARY OF IOA CIL ASSESSMENT

Component	NASA	IOA	Issues
B&AS	15	14	9
EPD&C	44	38	16
Flight Controls	1	2	-
HYD	10	16	2
MLG	33	23	11
NLG	11	25	13
PYRO	6	6	-
TOTAL	120	124	51

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-VA86001-25, Analysis of the Landing/Deceleration Subsystem (19 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. Further discussion of each of these subdivisions and the applicable failure modes is provided in subsequent paragraphs.

Table III SUMMARY OF IOA RECOMMENDED FAILURE CRITICALITIES

Criticality:	1/1	2/1R	2/2	3/1R	3/2R	3/3	TOTAL
B&AS	5	7	-	9	-	7	28
EPD&C	-	11	-	52	-	59	122
Flight Cntrls	2	-	-	-	-	1	3
HYD	6	10	-	-	-	24	40
MLG	22	-	-	1	-	6	29
NLG	23	-	-	2	-	6	31
PYRO	6	-	-	-	-	0	6
TOTAL	64	28	-	64	-	103	259

FMEA count includes CIL's

Of the failure modes analyzed, 124 were determined to be critical items. A summary of the IOA recommended critical items is presented in Table IV.

Table IV SUMMARY OF IOA RECOMMENDED FAILURE CRITICALITIES

Criticality:	1/1	2/1R	2/2	3/1R	3/2R	3/3	TOTAL
B&AS	5	7	-	2	-	-	14
EPD&C	-	11	-	27	-	-	38
Flight Cntrls	2	-	-	-	-	-	2
HYD	6	10	-	-	-	-	16
MLG	22	-	-	1	-	-	23
NLG	23	-	-	2	-	-	25
PYRO	6	-	-	-	-	-	6
TOTAL	64	28	-	32	-	-	124

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

Table V IOA WORKSHEET NUMBERS

Component	IOA ID Number
B&AS	LDGDEC - 30000
EPD&C	LDGDEC - 31000
Flight Controls	LDGDEC - 30000
HYD	LDGDEC - 10000, 11000, 20000, 21000
MLG	LDGDEC - 20000, 21000
NLG	LDGDEC - 10000, 11000
PYRO	LDGDEC - 11000, 21000

5.0 REFERENCES

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

1. AD HOC COMMITTEE - ORBITER BRAKING SYSTEM ASSESSMENT - Volume I, Data Book, January 1984.

2. AD HOC COMMITTEE - ORBITER BRAKING SYSTEM ASSESSMENT - Volume II, Assessment, March 1984.

3. AD HOC COMMITTEE - ORBITER BRAKING SYSTEM ASSESSMENT - Volume III, Interim Review, July 1985.

4. THIRD AD HOC COMMITTEE MEETING - ORBITER BRAKE DEVELOPMENT - July 1986.

5. JSC-12770 Shuttle Flight Operations Manual - Volume 10D. Preliminary, 15-12-78.

6. JSC-18341 Mechanical Systems Console Handbook - Volume II Systems Briefs, Basic, Revision A, PCN-3, 07-02-86.

7. NSTS-22206 Instructions For Preparation Of Failure Modes And Effects Analysis (FMEA) And Critical Items List (CIL), 10 October 1986.

8. MC197-0007 Rockwell Procurement Specification, Tires - Orbiter, 22 February 1984.

9. MC325-0006 Rockwell Procurement Specification, Thruster Assembly, Pyrotechnic, Emergency Nose Gear Uplock Release, 29 February 1984.

10. MC325-0019 Rockwell Procurement Specification, Thruster Assembly, Main Landing Gear - Gear Uplock Release, 6 June 1986.

11. MC621-0011 Rockwell Procurement Specification, Shock Strut Assembly - Main Landing Gear - Orbiter, 8 July 1985.

12. MC621-0012 Rockwell Procurement Specification, Shock Strut Assembly - Nose Landing Gear - Orbiter, 7 May 1981.

13. MC621-0043 Rockwell Procurement Specification, Space Shuttle Flight Control Subsystem, 4 October 1985.

14. MC621-0050 Rockwell Procurement Specification, Wheel Assembly, Nose Landing Gear - Orbiter, 30 March 1984.

15. MC621-0051 Rockwell Procurement Specification, Wheel and Brake Assembly - Main Landing Gear - Orbiter, 21 February 1986.

16. MC621-0055 Rockwell Procurement Specification, Brake / Skid Control Subsystem, Wheel Brakes - Main Landing Gear - Orbiter, 13 January 1986.

17. MC621-0058 Rockwell Procurement Specification, Steering and Damping Subsystem - Nose Landing Gear, 24 October 1985.

18. VO70-510001 Main Landing Gear - Installation. Revision B-13, 28 July 1986.

19. VO70-510101 Booster Assembly, Door Extension - Main Landing Gear. Revision B-08, 10 December 1985.

20. VO70-510201 Mechanical Installation - Main Landing Gear. Revision D-10, 8 July 1986.

21. VO70-510202 Assembly of the Uplock Arm - Main Landing Gear. Revision ?, 10 September 1974.

22. VO70-510300 Fitting Installation - Main Landing Gear. Revision C-05, 1 March 1984.

23. VO70-510301 Uplock Assembly - Main Landing Gear. Revision C-10, 30 November 1984.

24. VO70-510302 Fitting, Uplock, Assembly of, Main Landing Gear. Revision C-06, 20 September 1985.

25. VO70-510346 Hook, Center Door - Assembly of, Main Landing Gear. Revision B, 1 August 1978.

26. VO70-510400 Hook - Door, Assembly of, Main Landing Gear. Revision ?, 5 November 1980.

27. VO70-510476 Fitting, Inboard Trunnion, Assembly of, Main Landing gear. Revision ?, 26 April 1986.

28. VO70-510501 Installation - Nose Landing Gear. Revision C-05, 30 July 1986.

29. VO70-510502 Chassis Assembly - Nose Landing Gear. Revision E-09, 29 July 1986.

30. VO70-510550 Uplock Assembly - Nose Landing Gear. Revision B-10, 7 November 1985.

31. VO70-510601 Doors and Mechanical Installation - Nose Landing Gear. Revision E-24, 19 February 1985.

32. VO70-510711 Lock Assembly - Aft Door, Nose Landing Gear. Revision A-03, 9 February 1978.

33. VO70-510751 Bungee Assembly - Thruster, Nose Landing Gear. Revision B-05, 12 February 1982.

34. VO70-552001 Cartridge Installation - Nose Landing Gear Thrusters.

35. VO70-573001 Mechanical Installation - Yaw & Brake Control Pedals. Revision C-11, 25 October 1985.

36. VS70-510109 Schematic Diagram - Landing Gear Control Subsystem. Revision E-01, 6 June 1983.

37. VS70-510209 Schematic Diagram - Nose Wheel Steering Subsystem. Revision F-01, 23 August 1985.

38. VS70-520109 Schematic Diagram - Brake and Skid Control Subsystem. Revision E-01, 22 August 1985.

39. VS70-790149 Schematic Diagram - Rudder Pedal Transducer Assembly - Flight Control Subsystem. Revision ?, 1 December 1984.

40. 1170100 MENASCO - Shock Strut Assembly - Main Landing Gear - Orbiter. Revision 2-H, Date Unreadable.

41. 1170101 MENASCO - Cylinder Assembly, Shock Strut - Main Landing Gear - Orbiter. Revision D, Date Unreadable.

42. 1170114 MENASCO - Pin Meetering, Shock Strut - Main Landing Gear - Orbiter. Revision C, Date Unreadable.

43. 1170182 MENASCO - Axle Assembly, Shock Strut - Main Landing Gear - Orbiter. Revision A. 7 November 1984. (Reference Only)

44. 1170300 MENASCO - Drag Brace Assembly - Main Landing Gear - Orbiter. Revision D, Date Unreadable.

45. 1170301 MENASCO - Drag Brace Assembly - Lower - Main Landing Gear - Orbiter. Revision A, Date Unreadable.

46. 1170350 MENASCO - Lock Brace Assembly - Main Landing Gear - Orbiter. Revision E, 20 July 1976.

47. 1170493 MENASCO - Layout - Shock Strut - Main Landing Gear - Orbiter. Revision F, Date Unreadable.

48. Landing / Deceleration - LDG/DECEL 2102 - Training Document. 22-02-83

49. MC287-0034 Rockwell Procurement Specification, Actuator Strut, Landing Gear, Hydraulic. Revision H-6, 1 August 1983.

APPENDIX A
ACRONYMS

AOA	- Abort-Once-Around
ATO	- Abort-To-Orbit
B&AS	- Brakes and Antiskid
BFC	- Backup Flight Control
BFS	- Backup Flight System
BITE	- Built-In Test Equipment
C&W	- Caution and Warning
CIL	- Critical Items List
CPU	- Central Processing Unit
CRT	- Cathode-Ray Tube
D/A	- Digital to Analog
DPS	- Data Processing System (Subsystem)
EPD&C	- Electrical Power Distribution and Control
EVA	- Extravehicular Activity
FMEA	- Failure Modes and Effects Analysis
GFE	- Government Furnished Equipment
GPC	- General Purpose Computer
GSE	- Ground Support Equipment
HDC	- Hybrid Driver Controller
HYD	- Hydraulics
IOA	- Independent Orbiter Assessment
LCA	- Load Controller Assembly
LDG/DEC	- Landing/Deceleration
LVDT	- Linear Variable Differential Transformer
MDAC	- McDonnell Douglas Astronautics Company
MGSSA	- Main Gear Shock Strut Assembly
MLG	- Main Landing Gear
NA	- Not Applicable
NASA	- National Aeronautics and Space Administration
NGSSA	- Nose Landing Gear Shock Strut Assembly
NLG	- Nose Landing Gear
NO	- Number
NSTS	- National Space Transportation System
NWS	- Nose-Wheel Steering
OMRSD	- Operational Maintenance Requirements and Specifications Document
OPS	- Operations Sequence
PCA	- Power Control Assembly
PCI	- Potential Critical Item
PIC	- Pyro Initiator Controller
PYRO	- Pyrotechnic
R/BPA	- Rudder/Pedal Brake Assembly
REG	- Regulate, Regulator
RI	- Rockwell International
RPTA	- Rudder Pedal Transducer Assembly
RTLS	- Return-to-Landing Site

ACRONYMS

SFTWE	- Software
STS	- Space Transportation System
STSEOS	- Space Transportation System Engineering and Operations Support
TAL	- Transatlantic Abort Landing
TD	- Touch Down
THC	- Thruster Hand Controller
VAC	- Volts, ac
VDC	- Volts, dc
WONG	- Weight on Nose Gear
WOW	- Weight on Wheels

APPENDIX B

DEFINITIONS, 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).

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

10. Analysis of welds or brazed joints that cannot be inspected will not be performed nor FMEA's 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.

B.3 LDG/DEC-Specific Ground Rules and Assumptions

The IOA analysis was performed to the component or assembly level of the Landing and Deceleration (LDG/DEC) Subsystem. The analysis considered the worst case effects of the hardware or functional failure on the subsystem, mission, and crew and vehicle safety.

1. Pyrotechnic devices were not considered as emergency devices that were to be used in contingency operations. The Pyrotechnic devices were evaluated according to the usage or the demand for usage, if the devices were demanded and they failed to perform. (Pyrotechnic devices were removed from the NASA Analysis after the completion of the IOA Assessment).

   RATIONALE: The NLG extension Booster Pyro Actuator functions every time that the NLG is operated to insure that the system is able to overcome any wind forces that are acting on the landing gear doors.

   RATIONALE: The Backup Pyro Uplock Release Actuator is a backup or redundant actuator that operates two seconds after the deploy command is issued, if it does not receive a signal that the Uplock Release Hook has functioned properly.

2. The Landing / Deceleration Subsystem considers that all NORMAL and INTACT ABORT LANDINGS will be initiated during the Deorbit Phase and terminated post landing at the time of vehicle egress.

   RATIONALE: Under the IOA specific rules all landings will fall under two phase definitions, the deorbit Phase and the Landing/Safing Phase. The intent of this rule is to simplify the development of the analysis by not requiring an analysis for both operational phases.

3. Component age life will not be considered in the analysis.

   RATIONALE: Component age analysis is beyond the scope of this task.

APPENDIX C
DETAILED ASSESSMENT

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

LEGEND FOR IOA ASSESSMENT WORKSHEETS

Hardware Criticalities:

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

Functional Criticalities:

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

Redundancy Screens A, B and C:

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

NASA Data :

- Baseline = 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: 12/15/86
ASSESSMENT ID: LDGDEC-20201
NASA FMEA #: 02-1-001-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20201
ITEM: SHOCK STRUT STRUCTURE

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]

REMARKS:

THE NASA FMEA/CIL ONLY COVERS THE SHOCK STRUT PISTON INNER AND OUTER CYLINDER AND NOT THE REMAINING STRUCTURE OF THE MLGSSA

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20202
NASA FMEA #: 02-1-001-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20202
ITEM: SHOCK STRUT PISTON ASSEMBLY

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[NA]	[NA]	[NA]	[ ] *
IOA	[1 /1]	[NA]	[NA]	[NA]	[X]
COMPARE	[N /N]	[ ]	[ ]	[ ]	[N]
RECOMMENDATIONS: (If different from NASA)					
	[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:
THE NASA FMEA COVERS ONLY THE LOSS OF NITROGEN.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20203
NASA FMEA #: 02-1-001-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20203
ITEM: SHOCK STRUT PISTON ASSEMBLY

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[3 /1R]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

- NASA FMEA ASSUMES LOSS OF NITROGEN ELASTIC MEDIUM ONLY.

- HYD FLUID IS CONSIDERED AS CAPABLE OF ABSORBING A LANDING SHOCK PER MC621-0011.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20101
NASA FMEA #: 02-1-002-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20101
ITEM: TIRES, MLG TYPE I

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[1 /1]	[NA]	[NA]	[NA]	[X] *
IOA	[1 /1]	[NA]	[NA]	[NA]	[X]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

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

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20206
NASA FMEA #: 02-1-003-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20206
ITEM: LOWER DRAG BRACE STRUT

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:
ALSO SEE 20219.

- NASA FMEA CONSIDERS ONLY THE ASSEMBLY AND DOES NOT CONSIDER THE INDIVIDUAL CRITICAL PARTS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20207
NASA FMEA #: 02-1-003-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20207
ITEM: UPPER DRAG BRACE TRUNIONS (2 EA)

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ALSO SEE 20219.

- NASA FMEA CONSIDERS ONLY THE ASSEMBLY AND DOES NOT CONSIDER THE INDIVIDUAL CRITICAL PARTS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20219
NASA FMEA #: 02-1-003-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20219
ITEM: UPPER DRAG BRACE STRUTS (2 EA)

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[1 /1] [NA] [NA] [NA] [A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:
SEE 20206, 20220, 20221 & 20223.

- NASA FMEA 02-1-003-1 DEALS WITH THE DRAG BRACE ASSEMBLY AS A SINGLE PART. THE ASSEMBLY CONSISTS OF SEVERAL COMPONENTS MOST OF WHICH ARE CRITICAL.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20220
NASA FMEA #: 02-1-003-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20220
ITEM: CENTER DRAG BRACE TRUNION (AT LOCK BRACE)

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:
SEE 20219 & 20221.

- NASA FMEA 02-1-003-1 DEALS WITH THE DRAG BRACE ASSEMBLY AS A SINGLE PART. THE ASSEMBLY CONSISTS OF SEVERAL COMPONENTS MOST OF WHICH ARE CRITICAL.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20221
NASA FMEA #: 02-1-003-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20221
ITEM: LOWER DRAG BRACE TRUNION (ATTACHES TO SHOCK STRUT)

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:

- NASA FMEA 02-1-003-1 DEALS WITH THE DRAG BRACE ASSEMBLY AS A SINGLE PART. THE ASSEMBLY CONSISTS OF SEVERAL COMPONENTS MOST OF WHICH ARE CRITICAL.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20204
NASA FMEA #: 02-1-004-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20204
ITEM: TORQUE ARM ASSEMBLY

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20208
NASA FMEA #: 02-1-005-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20208
ITEM: LOCK BRACE ASSEMBLY

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20222
NASA FMEA #: 02-1-005-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20222
ITEM: LOCK BRACE CENTER TRUNION

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[1 /1] [NA] [NA] [NA] [A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:
NASA CONSIDERS THE ASSEMBLY AS A COMPONENT NOT AS THE (5) FIVE SINGLE POINT FAILURES THAT COULD OCCUR DUE TO THE THREE TRUNIONS AND THE TWO ARMS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-20216 BASELINE [X]
NASA FMEA #: 02-1-006-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20216
ITEM: UPLOCK ROLLER RETAINING ASSEMBLY

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20211
NASA FMEA #: 02-1-007-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20211
ITEM: MLG DOWN AND LOCK SENSORS

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
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:
ALSO SEE 20212.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20209
NASA FMEA #: 02-1-008-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20209
ITEM: DOWN LOCK BUNGEE

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /1R]	[P]	[NA]	[P]	[ ] *
IOA	[1 /1]	[NA]	[NA]	[NA]	[X]
COMPARE	[N /N]	[N]	[ ]	[N]	[N]
RECOMMENDATIONS: (If different from NASA)					
	[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

UNTIL THE SAFETY PIN IS INSTALLED IN THE LOCK BRACE THERE IS A MAJOR PROBLEM. FROM THE TIME THE HYD SYS 1 IS SHUTDOWN UNTIL THE SAFETY IS INSTALLED THERE IS AN IMINENT THREAT OF COLLAPSE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20210
NASA FMEA #: 02-1-008-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20210
ITEM: DOWN LOCK BUNGEE

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /1R]	[P]	[NA]	[P]	[ ] *
IOA	[1 /1]	[NA]	[NA]	[NA]	[X]
COMPARE	[N /N]	[N]	[ ]	[N]	[N]
RECOMMENDATIONS: (If different from NASA)					
	[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

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

REMARKS:
SEE IOA EFFECTS/RATIONALE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20212
NASA FMEA #: 02-1-009-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20212
ITEM: MLG DOWN AND LOCK SENSORS

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20213
NASA FMEA #: 02-1-009-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20213
ITEM: MLG DOWN AND LOCK SENSORS

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20217
NASA FMEA #: 02-1-010-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20217
ITEM: TORQUE TUBE ASSEMBLY

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20501
NASA FMEA #: 02-1-012-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20501
ITEM: DOOR EXTEND / RETRACT MECH

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:
THIS ASSEMBLY WAS CALLED OUT BY NAME ON THE DRAWING. THE NASA FMEA'S CALL OUT THE VARIOUS RODS, FITTINGS, HOOKS AND TUBES WHICH MAKE UP OUR ASSEMBLIES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-20701 BASELINE [X]
NASA FMEA #: 02-1-012-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20701
ITEM: MLG UPLOCK HOOK ASSEMBLY

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

THIS ASSEMBLY WAS CALLED OUT BY NAME ON THE DRAWING.

THE NASA FMEA'S CALL OUT THE VARIOUS RODS, FITTINGS, HOOKS AND TUBES WHICH MAKEUP OUR ASSEMBLIES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20901
NASA FMEA #: 02-1-012-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20901
ITEM: DOOR HOOK ACTUATUON LINKAGE

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:
THIS ASSEMBLY WAS CALLED OUT BY NAME ON THE DRAWING.

THE NASA FMEA'S CALL OUT THE VARIOUS RODS, FITTINGS, HOOKS AND TUBES WHICH MAKEUP OUR ASSEMBLIES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20501A
NASA FMEA #: 02-1-013-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20501
ITEM: DOOR EXTEND / RETRACT MECH

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:
THIS ASSEMBLY WAS CALLED OUT BY NAME ON THE DRAWING. THE NASA FMEA'S CALL OUT THE VARIOUS RODS, FITTINGS, HOOKS AND TUBES WHICH MAKE UP OUR ASSEMBLIES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20701A
NASA FMEA #: 02-1-013-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20701
ITEM: MLG UPLOCK HOOK ASSEMBLY

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:
THIS ASSEMBLY WAS CALLED OUT BY NAME ON THE DRAWING.

THE NASA FMEA'S CALL OUT THE VARIOUS RODS, FITTINGS, HOOKS AND TUBES WHICH MAKEUP OUR ASSEMBLIES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-20901A BASELINE [X]
NASA FMEA #: 02-1-013-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20901
ITEM: DOOR HOOK ACTUATUON LINKAGE

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

THIS ASSEMBLY WAS CALLED OUT BY NAME ON THE DRAWING.

THE NASA FMEA'S CALL OUT THE VARIOUS RODS, FITTINGS, HOOKS AND TUBES WHICH MAKEUP OUR ASSEMBLIES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20501B
NASA FMEA #: 02-1-014-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20501
ITEM: DOOR EXTEND / RETRACT MECH

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:
THIS ASSEMBLY WAS CALLED OUT BY NAME ON THE DRAWING. THE NASA FMEA'S CALL OUT THE VARIOUS RODS, FITTINGS, HOOKS AND TUBES WHICH MAKE UP OUR ASSEMBLIES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-20701B BASELINE [X]
NASA FMEA #: 02-1-014-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20701
ITEM: MLG UPLOCK HOOK ASSEMBLY

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:
THIS ASSEMBLY WAS CALLED OUT BY NAME ON THE DRAWING.

THE NASA FMEA'S CALL OUT THE VARIOUS RODS, FITTINGS, HOOKS AND TUBES WHICH MAKEUP OUR ASSEMBLIES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20901B
NASA FMEA #: 02-1-014-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20901
ITEM: DOOR HOOK ACTUATUON LINKAGE

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:
THIS ASSEMBLY WAS CALLED OUT BY NAME ON THE DRAWING.

THE NASA FMEA'S CALL OUT THE VARIOUS RODS, FITTINGS, HOOKS AND TUBES WHICH MAKEUP OUR ASSEMBLIES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-21101
NASA FMEA #: 02-1-015-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 21101
ITEM: MLG PYRO UPLOCK RELEASE

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-21102
NASA FMEA #: 02-1-015-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 21102
ITEM: MLG PYRO UPLOCK RELEASE

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[2 /1R]	[N]	[N]	[N]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:

THIS SYSTEM IS NEVER CALLED UPON TO FUNCTION UNLESS THERE IS AN INITIAL HYDRAULICS/MECHANICAL SYSTEM MALFUNCTION THAT INITIATES THE PYRO BACKUP.

ACCORDING TO THE REDUNDANCY RULES IN 22206, THIS SYSTEM IS A 2/1R CRITICALITY, BUT A FAILED HYDRAULICS SYSTEM ACTIVATES THIS SYSTEM. THIS SYSTEMS FAILURE WILL NOT ACTIVATE THE HYDRAULICS. THERE IS A LINEAR OPERATION HERE THAT WILL NOT ALLOW REVERSAL OF THE ROLES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-20218 BASELINE [X]
NASA FMEA #: 02-1-017-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20218
ITEM: SHOCK STRUT ATTACHING TRUNIONS

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20223
NASA FMEA #: 02-1-018-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20223
ITEM: SUPPORT BEAM

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:
THE SUPPORT BEAM IS THE COMPONENT THAT HOLDS THE TRUNIONS OF THE DRAG BRACE ASSEMBLY (AT THE ORBITER ATTACHING POINTS) IN ALIGNMENT. THE SUPPORT BEAM IS A COMPONENT OF THE DRAG BRACE ASSEMBLY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20501C
NASA FMEA #: 02-1-019-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20501
ITEM: DOOR EXTEND / RETRACT MECH

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:
THIS ASSEMBLY WAS CALLED OUT BY NAME ON THE DRAWING. THE NASA FMEA'S CALL OUT THE VARIOUS RODS, FITTINGS, HOOKS AND TUBES WHICH MAKE UP OUR ASSEMBLIES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20701C
NASA FMEA #: 02-1-019-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20701
ITEM: MLG UPLOCK HOOK ASSEMBLY

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:
THIS ASSEMBLY WAS CALLED OUT BY NAME ON THE DRAWING.

THE NASA FMEA'S CALL OUT THE VARIOUS RODS, FITTINGS, HOOKS AND TUBES WHICH MAKEUP OUR ASSEMBLIES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-20901C BASELINE [X]
NASA FMEA #: 02-1-019-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20901
ITEM: DOOR HOOK ACTUATUON LINKAGE

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

THIS ASSEMBLY WAS CALLED OUT BY NAME ON THE DRAWING.

THE NASA FMEA'S CALL OUT THE VARIOUS RODS, FITTINGS, HOOKS AND TUBES WHICH MAKEUP OUR ASSEMBLIES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20501D
NASA FMEA #: 02-1-020-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20501
ITEM: DOOR EXTEND / RETRACT MECH

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:
THIS ASSEMBLY WAS CALLED OUT BY NAME ON THE DRAWING. THE NASA FMEA'S CALL OUT THE VARIOUS RODS, FITTINGS, HOOKS AND TUBES WHICH MAKE UP OUR ASSEMBLIES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-20701D BASELINE [X]
NASA FMEA #: 02-1-020-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20701
ITEM: MLG UPLOCK HOOK ASSEMBLY

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

THIS ASSEMBLY WAS CALLED OUT BY NAME ON THE DRAWING.

THE NASA FMEA'S CALL OUT THE VARIOUS RODS, FITTINGS, HOOKS AND TUBES WHICH MAKEUP OUR ASSEMBLIES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20901D
NASA FMEA #: 02-1-020-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20901
ITEM: DOOR HOOK ACTUATUON LINKAGE

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:
THIS ASSEMBLY WAS CALLED OUT BY NAME ON THE DRAWING.

THE NASA FMEA'S CALL OUT THE VARIOUS RODS, FITTINGS, HOOKS AND TUBES WHICH MAKEUP OUR ASSEMBLIES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20501E
NASA FMEA #: 02-1-021-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20501
ITEM: DOOR EXTEND / RETRACT MECH

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:
THIS ASSEMBLY WAS CALLED OUT BY NAME ON THE DRAWING. THE NASA FMEA'S CALL OUT THE VARIOUS RODS, FITTINGS, HOOKS AND TUBES WHICH MAKE UP OUR ASSEMBLIES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20701E
NASA FMEA #: 02-1-021-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20701
ITEM: MLG UPLOCK HOOK ASSEMBLY

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:
THIS ASSEMBLY WAS CALLED OUT BY NAME ON THE DRAWING.

THE NASA FMEA'S CALL OUT THE VARIOUS RODS, FITTINGS, HOOKS AND TUBES WHICH MAKEUP OUR ASSEMBLIES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20901E
NASA FMEA #: 02-1-021-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20901
ITEM: DOOR HOOK ACTUATUON LINKAGE

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

THIS ASSEMBLY WAS CALLED OUT BY NAME ON THE DRAWING.

THE NASA FMEA'S CALL OUT THE VARIOUS RODS, FITTINGS, HOOKS AND TUBES WHICH MAKEUP OUR ASSEMBLIES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30114
NASA FMEA #: 02-1-022-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30114
ITEM: DISPLACEMENT LIMITER, HYD MODULE ASSY

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-30113 BASELINE [X]
NASA FMEA #: 02-1-022-2 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30113
ITEM: DISPLACEMENT LIMITER, HYD MODULE ASSY

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[2 /1R]	[P]	[P]	[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:
LOSS OF ONE DISPLACEMENT LIMITER WILL CAUSE LOSS OF ONE BRAKE LINE. NEXT FAILURE WILL LOSE ANOTHER BRAKE LINE, BUT CREW SHOULD STILL ROLLOUT SAFELY IF RUNWAY LONG ENOUGH.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30119
NASA FMEA #: 02-1-023-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30119
ITEM: SELECTOR VALVE, HYD MODULE ASSY

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
WITH VALVE OPEN, FLUID IS AVAILABLE ASSUMING HYDRAULIC SYSTEM OKAY. CONTROL VALVE WILL STILL REGULATE PRESSURE TO BRAKES BASED ON DEMAND.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-30117 BASELINE [X]
NASA FMEA #: 02-1-023-2 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30117
ITEM: SELECTOR VALVE, HYD MODULE ASSY

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30118
NASA FMEA #: 02-1-023-3

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30118
ITEM: SELECTOR VALVE, HYD MODULE ASSY

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[1 /1]	[NA]	[NA]	[NA]	[X] *
IOA	[3 /1R]	[P]	[P]	[P]	[X]
COMPARE	[N /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:
IF VALVE JAMS CLOSED BEFORE BRAKES APPLIED, BRAKING WILL NOT BE AVAILABLE THROUGH THIS SYSTEM (HALF BRAKING TO BOTH WHEELS IN WHEEL-WELL). IF BRAKES APPLIED, FLUID WILL BE TRAPPED IN LINES WITH CONTINUOUS PRESSURE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30101
NASA FMEA #: 02-1-024-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30101
ITEM: ANTI-SKID SELECT SWITCH

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

SWITCH IS REDUNDANT, BUT VEHICLE CAN LAND SAFELY WITHOUT ANTISKID.

NO NASA CIL AVAILABLE ON THIS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30106
NASA FMEA #: 02-1-025-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30106
ITEM: BRAKE CIRCUIT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30105
NASA FMEA #: 02-1-025-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30105
ITEM: BRAKE CIRCUIT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[2 /1R]	[P]	[F]	[P]	[X] *
IOA	[1 /1]	[NA]	[NA]	[NA]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[ ]
RECOMMENDATIONS: (If different from NASA)					
	[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:

WITH BRAKE PRESSURE BEING APPLIED AT TOUCHDOWN, TIRE ON THAT WHEEL WILL PROBABLY BLOW RIGHT AFTER TOUCHDOWN CAUSING POSSIBLE LOSS OF VEHICLE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30108
NASA FMEA #: 02-1-026-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30108
ITEM: SKID CIRCUIT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NO CIL AVAILABLE. WILL RESULT IN LOSS OF 12.5% BRAKING CAPABILITY. SYSTEM IS NOT REDUNDANT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30107
NASA FMEA #: 02-1-026-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30107
ITEM: SKID CIRCUIT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:

LOSS OF ANTISKID PROTECTION TO ONE BRAKE. SHOULD NOT PRESENT A PROBLEM SINCE CREW NOTIFIED OF ANTISKID PROBLEM AND SHOULD AVOID HEAVY BRAKING. CIL NOT NEEDED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30109
NASA FMEA #: 02-1-027-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30109
ITEM: ANTI-SKID FAIL CIRCUIT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:
CIL NOT REQUIRED. FAIL CIRCUIT MONITORS SYSTEM AND IN WORST CASE DESELECT A GOOD CIRCUIT RESULTING IN REDUCED BRAKING CAPABILITY. CREW NOTIFIED OF A PROBLEM AND SHOULD AVOID HEAVY BRAKING.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30109A
NASA FMEA #: 02-1-027-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30109
ITEM: ANTI-SKID FAIL CIRCUIT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:

CIL NOT REQUIRED. FAIL CIRCUIT MONITORS SYSTEM AND IN WORST CASE DESELECT A GOOD CIRCUIT RESULTING IN REDUCED BRAKING CAPABILITY. CREW NOTIFIED OF A PROBLEM AND SHOULD AVOID HEAVY BRAKING.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30122
NASA FMEA #: 02-1-028-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30122
ITEM: BRAKE / SKID CONTROL VALVE

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
NO CIL AVAILABLE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-30121 BASELINE [X]
NASA FMEA #: 02-1-028-2 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30121
ITEM: BRAKE / SKID CONTROL VALVE

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30120
NASA FMEA #: 02-1-028-3

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30120
ITEM: BRAKE / SKID CONTROL VALVE

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
NO CIL AVAILABLE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-30115 BASELINE [X]
NASA FMEA #: 02-1-029-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30115
ITEM: BY - PASS VALVE, HYD MODULE ASSY

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30116
NASA FMEA #: 02-1-029-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30116
ITEM: BY - PASS VALVE, HYD MODULE ASSY

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THIS VALVE HAS VERY LITTLE VALUE SINCE HYD. SYS. 1 IS SHUTDOWN AND LINE CLOSED OFF DURING FLIGHT. FLUID NOT AVAILABLE TO VALVE UNTIL JUST PRIOR TO LANDING. IF BOTH PRIMARY AND STANDBY SYSTEMS FAIL TO OPEN BOTH SYSTEMS MUST BE SO SLUGGISH THAT
THE BRAKES ON THIS CONTROL MODULE WON'T FUNCTION. ALSO SEE 30131.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30131
NASA FMEA #: 02-1-029-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30131
ITEM: BY - PASS VALVE, HYD MODULE ASSY (SYS 2&3)

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
SEE 30116. SINCE CIRC PUMPS ARE ON FOR THESE SYSTEMS ONORBIT, THIS FAILURE COULD BE DETECTED INFLIGHT.

C-2

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30112
NASA FMEA #: 02-1-030-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30112
ITEM: INLET FILTER, HYD MODULE ASSY

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NO CIL AVAILABLE. SHOULD BE 2/1R BECAUSE IF STANDBY FILTER GETS CLOGGED, HALF BRAKING CAPABILITY TO BRAKES IN THAT WHEEL WELL WILL BE LOST. SEE 30130.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30130
NASA FMEA #: 02-1-030-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30130
ITEM: INLET FILTER, HYD MODULE ASSY (SYS 1)

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
SEE 30112 - SYS 1 DOES NOT PASS REDUNDANCY SCREEN B.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30103
NASA FMEA #: 02-1-032-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30103
ITEM: BRAKE PEDAL TRANSDUCER

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 CIL NOT AVAILABLE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30102
NASA FMEA #: 02-1-032-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30102
ITEM: BRAKE PEDAL TRANSDUCER

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30110
NASA FMEA #: 02-1-033-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30110
ITEM: HYDRAULIC PRESSURE REGULATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-30111 BASELINE [X]
NASA FMEA #: 02-1-033-2 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30111
ITEM: HYD PRESS REG (SYS 2 & 3)

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
SEE 30129. SHOULD BE A 2 BECAUSE IF STANDBY SYSTEM HAD SOME FAILURE VERY LITTLE BRAKING WOULD BE AVAILABLE - ONLY FROM LAST REMAINING SYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30129
NASA FMEA #: 02-1-033-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30129
ITEM: HYD PRESS REG (SYS 1)

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:
SEE 30111 - DIFFERENT BECAUSE THIS DOESN'T PASS REDUNDANCY SCREEN B.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-21301 BASELINE [X]
NASA FMEA #: 02-1-034-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 21301
ITEM: MLG DOOR BOOSTER BUNGEE

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30125
NASA FMEA #: 02-1-044-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30125
ITEM: RUDDER / BRAKE PEDAL ASSEMBLY

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-30126 BASELINE [X]
NASA FMEA #: 02-1-044-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30126
ITEM: RUDDER / BRAKE PEDAL ASSEMBLY

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30123
NASA FMEA #: 02-1-050-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30123
ITEM: EXCITER RING - WHEEL SENSOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[2 /1R]	[P]	[P]	[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]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:
EXCITER RING USED TO FEED WHEEL SPEED INFORMATION BACK TO CIRCUIT CONTROL BOX. IF INPUT NOT RECEIVED THEN ANTISKID FUNCTION FOR THAT CIRCUIT INOPERATIVE. CREW SHOULD GET FAILURE LIGHT AND AVOID HEAVY BRAKING.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30123A
NASA FMEA #: 02-1-051-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30123
ITEM: EXCITER RING - WHEEL SENSOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[2 /1R]	[P]	[P]	[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]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:

EXCITER RING USED TO FEED WHEEL SPEED INFORMATION BACK TO CIRCUIT CONTROL BOX. IF INPUT NOT RECEIVED THEN ANTISKID FUNCTION FOR THAT CIRCUIT INOPERATIVE. CREW SHOULD GET FAILURE LIGHT AND AVOID HEAVY BRAKING.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30123B
NASA FMEA #: 02-1-051-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30123
ITEM: EXCITER RING - WHEEL SENSOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[2 /1R]	[P]	[P]	[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]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:
EXCITER RING USED TO FEED WHEEL SPEED INFORMATION BACK TO CIRCUIT CONTROL BOX. IF INPUT NOT RECEIVED THEN ANTISKID FUNCTION FOR THAT CIRCUIT INOPERATIVE. CREW SHOULD GET FAILURE LIGHT AND AVOID HEAVY BRAKING.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-30123C BASELINE [X]
NASA FMEA #: 02-1-053-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30123
ITEM: EXCITER RING - WHEEL SENSOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[2 /1R]	[P]	[P]	[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]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:

EXCITER RING USED TO FEED WHEEL SPEED INFORMATION BACK TO CIRCUIT CONTROL BOX. IF INPUT NOT RECEIVED THEN ANTISKID FUNCTION FOR THAT CIRCUIT INOPERATIVE. CREW SHOULD GET FAILURE LIGHT AND AVOID HEAVY BRAKING.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30124
NASA FMEA #: 02-1-066-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30124
ITEM: STATORS, ROTORS, CLIPS

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IF LOCKUP OCCURS AT HIGH SPEED, TIRE WILL BLOW CAUSING POSSIBLE LOSS OF CREW AND VEHICLE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10215
NASA FMEA #: 02-1-075-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10215
ITEM: SHOCK STRUT

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

THE NGSSA CAN LOSE THE NITROGEN PRESSURE DOWN TO 1 ATMOSPHERE AND STILL PERFORM A SAFE LANDING, BUT ONCE A LOSS OF HYDRAULIC FLUID OCCURS THE SHOCK ATTENUATION CAPABILITY OF THE NGSSA IS DEGRADED BEYOND THE REQUIREMENTS FOR A SAFE LANDING.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10216
NASA FMEA #: 02-1-075-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10216
ITEM: SHOCK STRUT

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[3 /1R]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:
ALSO SEE IOA 10215.

THIS ASSESSMENT RELATES DIRECTLY TO THE LOSS OF THE NITROGEN ELASTIC MEDIUM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10211
NASA FMEA #: 02-1-076-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10211
ITEM: TORQUE ARM ASSEMBLY

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:
A NOSE WHEEL SLAPDOWN WHERE THE NOSE WHEEL ROTATES BEYOND A SAFE ANGLE OF ATTACK WILL CAUSE AN IMMEDIATE COLLAPSE OF THE NLG.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10202
NASA FMEA #: 02-1-077-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10202
ITEM: DRAG BRACE

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:

ALSO SEE 10203, 10202, 10221

CONCUR WITH THE BASIC ANALYSIS BUT THE ANALYSIS IS NOT COMPREHENSIVE ENOUGH TO COVER SINGLE POINT FAILURES WITHIN THE COMPONENT.

NASA FMEA TREATS THE DRAG BRACE AS A SINGLE COMPONENT WHEN THERE ARE SEVERAL PARTS THAT ARE CRITICAL INDIVIDUALLY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-10203 BASELINE [X]
NASA FMEA #: 02-1-077-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10203
ITEM: DRAG BRACE TRUNION

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[1 /1] [NA] [NA] [NA] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:
THE DRAG BRACE TRUNIONS WERE NOT CONSIDERED AS AN INDIVIDUAL COMPONENT.
SEE LDGDEC-10203

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10221
NASA FMEA #: 02-1-077-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10221
ITEM: DRAG BRACE

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:
ALSO SEE 10202, 10203

FMEA 02-1-077-1 COVERS THE NLG DRAG BRACE ASSEMBLY BUT IT DOES NOT COVER THE CRITICAL PARTS INDIVIDUALLY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10222
NASA FMEA #: 02-1-077-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10222
ITEM: DRAG BRACE TRUNION

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[1 /1] [NA] [NA] [AN] [A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

ALSO SEE 10202, 10203

FMEA 02-1-077-1 COVERS THE NLG DRAG BRACE ASSEMBLY BUT IT DOES NOT COVER THE CRITICAL PARTS INDIVIDUALLY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-10223 BASELINE [X]
NASA FMEA #: 02-1-077-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10223
ITEM: DRAG BRACE TRUNION

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[1 /1] [NA] [NA] [AN] [A] (ADD/DELETE)

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

REMARKS:
ALSO SEE 10202, 10203

FMEA 02-1-077-1 COVERS THE NLG DRAG BRACE ASSEMBLY BUT IT DOES NOT COVER THE CRITICAL PARTS INDIVIDUALLY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-10224 BASELINE [X]
NASA FMEA #: 02-1-077-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10224
ITEM: SUPPORT BEAM

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[1 /1] [NA] [NA] [AN] [A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:

ALSO SEE 10202, 10203

FMEA 02-1-077-1 COVERS THE NLG DRAG BRACE ASSEMBLY BUT IT DOES NOT COVER THE CRITICAL PARTS INDIVIDUALLY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10204
NASA FMEA #: 02-1-078-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10204
ITEM: LOCK BRACE ASSEMBLY

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-10205 BASELINE [X]
NASA FMEA #: 02-1-079-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10205
ITEM: DOWNLOCK BUNGEE

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

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

REMARKS:
ALSO SEE 10206

THE DOWNLOCK BUNGEE IS A MECHANICAL DEVICE THAT IF BENT OR JAMMED IN THE EXTENDED POSITION COULD CAUSE A FORCE THAT WOULD UNLOCK THE LOCK BRACE.

HYDRAULICS - THE EXTEND/RETRACT HYD ACTUATOR IS THE ONLY REDUNDANT ITEM. WHEN THE VEHICLE IS SHUT DOWN POST LANDING THERE IS NO REDUNDANCY. THE NASA FMEA/CIL DOES NOT CONSIDER APU SHUTDOWN OCCURRING BEFORE CREW EGRESS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-10206 BASELINE [X]
NASA FMEA #: 02-1-079-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10206
ITEM: DOWNLOCK BUNGEE

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /1R]	[P]	[NA]	[P]	[ ] *
IOA	[1 /1]	[NA]	[NA]	[NA]	[X]
COMPARE	[N /N]	[N]	[ ]	[N]	[N]
RECOMMENDATIONS: (If different from NASA)					
	[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

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

REMARKS:
SEE 10205.
THERE WILL BE NO COMPLICATIONS THROUGHOUT THE LANDING UNTIL AFTER THE VEHICLE IS SHUTDOWN. ONCE THE HYDRAULICS SYSTEM IS DEACTIVATED THERE IS NO SYSTEM TO HOLD THE LOCK BRACE IN POSITION, AND A GUST OF WIND, AN IMPACT FROM APPROACHING VEHICLES OR MOVEMENT INSIDE THE VEHICLE COULD CAUSE NLG COLLAPSE. A COLLAPSE OF THE NLG WOULD CAUSE STRUCTURAL DAMAGE AND A POSSIBLE LOSS OF LIFE.
THIS SITUATION CAN BE BYPASSED BY INSTALLING THE LANDING GEAR SAFETY PINS IN THE LOCK BRACE PRIOR TO HYDRAULICS SYSTEM 1 SHUTDOWN.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-10214 BASELINE [X]
NASA FMEA #: 02-1-080-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10214
ITEM: WEIGHT ON WHEELS SENSORS - NLG

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /1R]	[P]	[NA]	[P]	[ ] *
IOA	[3 /3]	[P]	[P]	[P]	[ ]
COMPARE	[/N]	[ ]	[N]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)					
	[3 /3]	[P]	[P]	[P]	[A] (ADD/DELETE)

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

REMARKS:
2 SWITCHES ARE ON THE NLG, EITHER OF WHICH WILL ACTIVATE NWS AND B&A'S. THE SWITCHES CAN ALSO BE BYPASSED VIA THE ET SEP SWITCH/SRB SEP SWITCH.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10218
NASA FMEA #: 02-1-080-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10218
ITEM: WEIGHT ON WHEELS SENSORS - NLG

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:
SEE 10214, 10219.
- SWITCHES CAN BE BYPASSED BY THE ET/SRB SEP SWITCH.
- DIFFERENTIAL BRAKING CAN BE USED AS BACKUP STEERING.
- NASA FMEA ASSUMES THE FAILURE OF BOTH SENSOR SWITCHES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-10219 BASELINE [X]
NASA FMEA #: 02-1-080-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10219
ITEM: WEIGHT ON WHEELS SENSORS - NLG

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /1R]	[P]	[NA]	[P]	[ ] *
IOA	[3 /3]	[P]	[P]	[P]	[ ]
COMPARE	[/N]	[ ]	[N]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)					
	[3 /3]	[P]	[P]	[P]	[ ] (ADD/DELETE)

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

REMARKS:
SEE 10214.

- SENSOR CAN BE BYPASSED WITH THE ET/SRB SEP SWITCH.

- DIFFERENTIAL BRAKING CAN BE USED AS THE ALTERNATE STEERING METHOD.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10207
NASA FMEA #: 02-1-081-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10207
ITEM: NLG - DOWN AND LOCK SENSOR

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10208
NASA FMEA #: 02-1-081-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10208
ITEM: NLG - DOWN AND LOCK SENSOR

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
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:
MECHANICAL FAILURE CAUSING A LOSS OF SIGNAL.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10217
NASA FMEA #: 02-1-082-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10217
ITEM: UPLOCK ROLLER RETAINING ASSEMBLY

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:
NASA FMEA 02-1-083-1 COVERS THE SAME ASSY BUT THE FAILURE MODES ARE NOT ALIKE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10701
NASA FMEA #: 02-1-082-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10701
ITEM: NLG UPLOCK HOOK ASSEMBLY

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10217A
NASA FMEA #: 02-1-083-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10217
ITEM: UPLOCK ROLLER RETAINING ASSEMBLY

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[1 /1] [NA] [NA] [NA] [A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:
NASA FMEA 02-1-082-1 COVERS THE SAME ASSY BUT THE FAILURE MODES ARE NOT ALIKE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-10209 BASELINE [X]
NASA FMEA #: 02-1-085-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10209
ITEM: STEERING COLLAR ASSEMBLY

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:

THE ONLY PORTION OF THE FLIGHT THAT THIS FUNCTION CAN BE OBSERVED IS DURING THE LANDING ROLLOUT AND AT THAT POINT THE INFORMATION IS VIRTUALLY USELESS. IN ORDER TO RECEIVE A FAILURE SIGNAL THE NLG MUST HAVE WEIGHT ON THE NLG WHICH MEANS THAT THE VEHICLE IS IN THE ROLLOUT PHASE OF THE LANDING. IF A FAILURE OCCURS THE PILOT WOULD HAVE TAKEN OVER MANUALLY BEFORE HE WOULD RECOGNIZE THE FAILURE SIGNAL ON PANEL F3. THE VEHICLE WILL STOP BEFORE A COMPLETE ANALYSIS OF THE SITUATION IS PERFORMED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-11102
NASA FMEA #: 02-1-097-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 11102
ITEM: NLG B/U PYRO UPLOCK RELEASE MECH

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:

SYSTEM IS NOT USED UNLESS HYDRAULIC UPLOCK RELEASE SYSTEM FAILS. IF THIS SYSTEM FAILS WHEN CALLED ON TO FUNCTION, THERE IS NO OTHER BACKUP.

ACCORDING TO THE REDUNDANCY RULES IN 22206, THIS SYSTEM IS A 2/1R CRITICALITY BUT, A FAILED HYDRAULICS SYSTEM ACTIVATES THIS SYSTEM. THIS SYSTEMS FAILURE WILL NOT ACTIVATE THE HYDRAULICS. THERE IS A LINEAR OPERATION HERE THAT WILL NOT ALLOW REVERSAL OF THE ROLES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-11101 BASELINE [X]
NASA FMEA #: 02-1-097-2 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 11101
ITEM: NLG B/U PYRO UPLOCK RELEASE MECH

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10501
NASA FMEA #: 02-1-098-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10501
ITEM: NLG DOOR EXTEND / RETRACT MECHANISM

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-10901 BASELINE [X]
NASA FMEA #: 02-1-098-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10901
ITEM: NLG DOOR HOOK ACT LINKAGE

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10501A
NASA FMEA #: 02-1-099-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10501
ITEM: NLG DOOR EXTEND / RETRACT MECHANISM

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:
DOORS COULD IMPACT AND DAMAGE ELECTRICAL AND HYDRAULIC COMPONENTS OR OTHER ITEMS LOCATED ON THE SHOCK STRUT ASSEMBLY

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-10901A BASELINE [X]
NASA FMEA #: 02-1-099-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10901
ITEM: NLG DOOR HOOK ACT LINKAGE

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-11301
NASA FMEA #: 02-1-102-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 11301
ITEM: NLG DOOR BUNGEE ASSIST ASSY

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-11202
NASA FMEA #: 02-1-104-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 11202
ITEM: NLG EXTENSION BOOSTER PYRO ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-11201
NASA FMEA #: 02-1-104-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 11201
ITEM: NLG EXTENSION BOOSTER PYRO ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10201
NASA FMEA #: 02-1-109-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10201
ITEM: NOSE LANDING GEAR TRUNION

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:

ALSO SEE 10203, 10222, 10223

THE NASA FMEA DOES NOT COVER ANYTHING BUT THE NLG SHOCK STRUT TRUNIONS. THERE ARE SEVERAL OTHER TRUNNIONS IN THE NLG AND THEY ARE LOCATED IN THE NLG DRAGBRACE, THE NLG LOCKBRACE AND THE SUPPORT BEAM

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10101
NASA FMEA #: 02-1-110-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10101
ITEM: TIRES, NLG TYPE II

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-21005 BASELINE [X]
NASA FMEA #: 02-6-G08-A01 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 21005
ITEM: MLG UPLOCK ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[2 /1R]	[P]	[P]	[P]	[ ] *
IOA	[2 /1R]	[P]	[F]	[P]	[X]
COMPARE	[/]	[ ]	[N]	[ ]	[N]
RECOMMENDATIONS: (If different from NASA)					
	[/]	[ ]	[F]	[ ]	[A] (ADD/DELETE)

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

REMARKS:
REDUNDANCY SCREEN B FAILS BECAUSE HYD. SYS. 1 FLUID IS NOT CIRCULATED TO THIS ACTUATOR ONORBIT, THUS FAILURE NOT DETECTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-21003
NASA FMEA #: 02-6-G08-A02

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 21003
ITEM: MLG UPLOCK ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /1R]	[P]	[F]	[P]	[X]
COMPARE	[/]	[ ]	[N]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[F]	[ ]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:
POSSIBLE LOSS OF HYDRAULICS SYSTEM 1. IF SYSTEM FAILS, THEN THE ORBITER IS ONE FAILURE AWAY FROM LOSS OF LIFE OR VEHICLE. PYRO BACKUP. HYDRAULIC FLUID IS NOT CIRCULATED TO THIS ACTUATOR ONORBIT, THUS FAILURE CANNOT BE DETECTED - FAILS REDUNDANCY SCREEN B.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-21006
NASA FMEA #: 02-6-G08-A03

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 21006
ITEM: MLG UPLOCK ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20404
NASA FMEA #: 02-6-G09-A01

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20404
ITEM: MLG EXTEND / RETRACT HYD STRUT ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:
SAME FOR NOSE LANDING GEAR - SEE LDGDEC - 10404.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20402
NASA FMEA #: 02-6-G09-A02

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20402
ITEM: MLG EXTEND / RETRACT HYD STRUT ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

POSSIBLE LOSS OF HYDRAULICS SYSTEM 1. IF SYSTEM FAILS, THEN THE ORBITER IS ONE FAILURE AWAY FROM LOSS OF LIFE OR VEHICLE. THE GEAR HAS A PYRO BACKUP TO UNLOCK THE GEAR. IF IT FAILS, THE GEAR WILL NOT DEPLOY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20403
NASA FMEA #: 02-6-G09-A03

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20403
ITEM: MLG EXTEND / RETRACT HYD STRUT ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20416
NASA FMEA #: 02-6-G09-A04

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20416
ITEM: MLG EXTEND / RETRACT HYD STRUT ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:

REDUNDANCY SCREEN B FAILS BECAUSE HYD SYS 1 FLUID IS NOT CIRCULATED TO THIS ACTUATOR ONORBIT, THUS, THE FAILURE IS NOT DETECTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20412
NASA FMEA #: 02-6-G09-B01

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20412
ITEM: MLG EXTEND / RETRACT HYD STRUT ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-20413 BASELINE [X]
NASA FMEA #: 02-6-G09-B02 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20413
ITEM: MLG EXTEND / RETRACT HYD STRUT ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20411
NASA FMEA #: 02-6-G09-C01

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20411
ITEM: MLG EXTEND / RETRACT HYD STRUT ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-20409 BASELINE [X]
NASA FMEA #: 02-6-G09-D01 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20409
ITEM: MLG EXTEND / RETRACT HYD STRUT ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-20410 BASELINE [X]
NASA FMEA #: 02-6-G09-D02 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20410
ITEM: MLG EXTEND / RETRACT HYD STRUT ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-20408 BASELINE [X]
NASA FMEA #: 02-6-G09-E01 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20408
ITEM: MLG EXTEND / RETRACT HYD STRUT ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20408A
NASA FMEA #: 02-6-G09-E02

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20408
ITEM: MLG EXTEND / RETRACT HYD STRUT ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20414
NASA FMEA #: 02-6-G09-F01

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20414
ITEM: MLG EXTEND / RETRACT HYD STRUT ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20406
NASA FMEA #: 02-6-G09-G01

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20406
ITEM: MLG EXTEND / RETRACT HYD STRUT ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-20415 BASELINE [X]
NASA FMEA #: 02-6-G09-H01 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20415
ITEM: MLG EXTEND / RETRACT HYD STRUT ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20415A
NASA FMEA #: 02-6-G09-H02

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20415
ITEM: MLG EXTEND / RETRACT HYD STRUT ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20407
NASA FMEA #: 02-6-G09-J01

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20407
ITEM: MLG EXTEND / RETRACT HYD STRUT ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20407A
NASA FMEA #: 02-6-G09-J02

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20407
ITEM: MLG EXTEND / RETRACT HYD STRUT ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20405
NASA FMEA #: 02-6-G09-K01

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20405
ITEM: MLG EXTEND / RETRACT HYD STRUT ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30128
NASA FMEA #: 02-6-G12-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30128
ITEM: BRAKE HYDRAULIC LINE HEATERS

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
CIL NOT AVAILABLE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10404
NASA FMEA #: 02-6-H01-A01

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10404
ITEM: NLG EXTEND / RETRACT HYD STRUT ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:
SAME FOR MAIN LANDING GEAR - SEE LDGDEC 20404.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10402
NASA FMEA #: 02-6-H01-A02

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10402
ITEM: NLG EXTEND / RETRACT HYD STRUT ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:

POSSIBLE LOSS OF HYDRAULICS SYSTEM 1. IF THE SYSTEM FAILS, THEN THE ORBITER IS ONE FAILURE AWAY FROM LOSS OF LIFE OR VEHICLE. THE GEAR HAS A PYRO BACKUP TO UNLOCK THE GEAR. IF IT FAILS, THE GEAR WILL NOT DEPLOY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10403
NASA FMEA #: 02-6-H01-A03

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10403
ITEM: NLG EXTEND / RETRACT HYD STRUT ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10416
NASA FMEA #: 02-6-H01-A04

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10416
ITEM: NLG EXTEND / RETRACT HYD STRUT ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:
REDUNDANCY SCREEN B BECAUSE HYD SYS 1 FLUID IS NOT CIRCULATED TO THIS ACTUATOR ONORBIT, THUS THE FAILURE IS NOT DETECTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-10412 BASELINE [X]
NASA FMEA #: 02-6-H01-B01 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10412
ITEM: NLG EXTEND / RETRACT HYD STRUT ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-10413 BASELINE [X]
NASA FMEA #: 02-6-H01-B02 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10413
ITEM: NLG EXTEND / RETRACT HYD STRUT ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [X]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10411
NASA FMEA #: 02-6-H01-C01

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10411
ITEM: NLG EXTEND / RETRACT HYD STRUT ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10409
NASA FMEA #: 02-6-H01-D01

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10409
ITEM: NLG EXTEND / RETRACT HYD STRUT ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10410
NASA FMEA #: 02-6-H01-D02

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10410
ITEM: NLG EXTEND / RETRACT HYD STRUT ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10408
NASA FMEA #: 02-6-H01-E01

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10408
ITEM: NLG EXTEND / RETRACT HYD STRUT ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-10408A BASELINE [X]
NASA FMEA #: 02-6-H01-E02 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10408
ITEM: NLG EXTEND / RETRACT HYD STRUT ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10414
NASA FMEA #: 02-6-H01-F01

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10414
ITEM: NLG EXTEND / RETRACT HYD STRUT ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-10406 BASELINE [X]
NASA FMEA #: 02-6-H01-G01 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10406
ITEM: NLG EXTEND / RETRACT HYD STRUT ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10415
NASA FMEA #: 02-6-H01-H01

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10415
ITEM: NLG EXTEND / RETRACT HYD STRUT ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10415A
NASA FMEA #: 02-6-H01-H02

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10415
ITEM: NLG EXTEND / RETRACT HYD STRUT ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10407
NASA FMEA #: 02-6-H01-J01

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10407
ITEM: NLG EXTEND / RETRACT HYD STRUT ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-10407A BASELINE [X]
NASA FMEA #: 02-6-H01-J02 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10407
ITEM: NLG EXTEND / RETRACT HYD STRUT ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10405
NASA FMEA #: 02-6-H01-K01

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10405
ITEM: NLG EXTEND / RETRACT HYD STRUT ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-11005 BASELINE [X]
NASA FMEA #: 02-6-H03-1 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 11005
ITEM: NLG UPLOCK ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

REDUNDANCY SCREEN B FAILS BECAUSE HYD SYS. 1 FLUID IS NOT CIRCULATED TO THIS ACTUATOR ONORBIT, THUS FAILURE NOT DETECTED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-11003
NASA FMEA #: 02-6-H03-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 11003
ITEM: NLG UPLOCK ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
POSSIBLE LOSS OF HYDRAULICS SYSTEM 1. IF SYSTEM FAILS, THEN THE ORBITER IS ONE FAILURE AWAY FROM LOSS OF LIFE OR VEHICLE. PYRO BACKUP. HYDRAULIC FLUID IS NOT CIRCULATED TO THIS ACTUATOR ONORBIT, THUS FAILURE CANNOT BE DETECTED - FAILS REDUNDANCY SCREEN B.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-11006 BASELINE [X]
NASA FMEA #: 02-6-H03-3 NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 11006
ITEM: NLG UPLOCK ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[NA]	[NA]	[NA]	[ ] *
IOA	[3 /3]	[NA]	[NA]	[NA]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

RECOMMENDATIONS: (If different from NASA)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31147
NASA FMEA #: 05-06BA-2401-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31147
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA DOES CONCUR WITH NASA'S EVALUATION OF FMEA 2401-1.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31147A
NASA FMEA #: 05-06BA-2401-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31147
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA DOES CONCUR WITH NASA'S EVALUATION OF FMEA 2401-2, AND IOA RECOMMENDS THAT FMEA 2401-2 SHOULD COMBINED WITH 2401-1. NASA REEVALUATION COMBINED FMEA 2401-2 IN WITH 2401-1.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31224
NASA FMEA #: 05-2106-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31224
ITEM: TOGGLE SWITCH, 3PST

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE "MAIN C" TOGGLE SWITCH.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31155
NASA FMEA #: 05-2409-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31155
ITEM: HYBRID DRIVER CONTROLLER (TYPE 3)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE TYPE 3 HDC'S.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31163
NASA FMEA #: 05-6BA-200200-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31163
ITEM: HYBRID DRIVER CONTROLLER (TYPE II)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION.
NASA GENERATED SEPARATE FMEA'S TO COVER THE HDC'S FAILURE MODES INSTEAD OF LUMPING THEM TOGETHER WITH UNLIKE COMPONENTS IN FMEA 200200-1. REFER TO LDGDEC-31164.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31164 BASELINE [X]
NASA FMEA #: 05-6BA-200200-1 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31164
ITEM: HYBRID DRIVER CONTROLLER (TYPE II)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA GENERTED SEPARATE FMEA'S TO COVER THE FAILURE MODES INSTEAD OF LUMPING THEM TOGETHER WITH UNLIKE COMPONENTS IN FMEA 200200-1. FAILURE MODES EVALUATED IN FMEAS 05-6BA-2209-1, 2209-2, 2356-1, 2356-2, 2408-1, 2408-2, 2409-1, 2409-2, 2410-1, 2410-2, 2575-1, AND 2575-2.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31165
NASA FMEA #: 05-6BA-200200-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31165
ITEM: HYBRID DRIVER CONTROLLER (TYPE III)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA INCORPORATED FMEA INTO OTHER FMEA. SEE ASSESSMENT LDGDEC-31164.

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APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31166
NASA FMEA #: 05-6BA-200200-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31166
ITEM: HYBRID DRIVER CONTROLLER (TYPE III)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /1R]	[P]	[P]	[P]	[ ] *
IOA	[3 /1R]	[P]	[F]	[P]	[X]
COMPARE	[/]	[ ]	[N]	[ ]	[N]
RECOMMENDATIONS: (If different from NASA)					
	[/]	[ ]	[F]	[ ]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
NASA INCORPORATED FMEA INTO OTHER FMEAS. SEE ASSESSMENT LDGDEC-31164.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31181
NASA FMEA #: 05-6BA-200200-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31181
ITEM: MAIN GEAR BRAKE UPLOCK RELEASE CIRCUITS 1 & 2

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA RECOMMENDS: (1) DELETING THIS FMEA AND COVERING EACH TYPE OF COMPONENT WITH ITS OWN FMEA (E.G. MDAC ID'S 31120, 31128, 31129, 31156, 31157, 31163 THROUGH 31166 COVER ALL THE COMPONENTS LISTED IN THIS FMEA) INTO OTHER FMEAS, REFER TO MDAC ASSESSMENTS NOTED ABOVE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31119
NASA FMEA #: 05-6BA-2113-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31119
ITEM: EVENT INDICATORS (6)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)					
	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE LANDING GEAR EVENT INDICATORS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31113
NASA FMEA #: 05-6BA-2115-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31113
ITEM: PUSHBUTTON SWITCH (2), LANDING GEAR DOWN

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[3 /1R]	[P]	[F]	[P]	[X]
COMPARE	[N /]	[ ]	[N]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:
PROVIDES REDUNDANT MANUAL "ON" CONTROL FROM CONTROL BUS TO LATCHING RELAYS FOR LANDING GEAR DOWN CIRCUIT. AFTER FURTHER REVIEW/ANALYSIS IOA DOES CONCUR FULLY WITH NASA'S EVALUATION.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31114A BASELINE [X]
NASA FMEA #: 05-6BA-2115-2 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31114
ITEM: PUSHBUTTON SWITCH (2), LANDING GEAR DOWN

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[/]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[N /N]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
PROVIDES REDUNDANT MANUAL "ON" CONTROL FROM CONTROL BUS TO LATCHING RELAYS FOR LANDING GEAR DOWN CIRCUIT. IOA DOES CONCUR WITH NASA'S EVALUATION THAT FMEA 2115-2 (SHORTS TO GROUND) IS NOT A CREDIBLE FAILURE AND THAT IT BE DELETED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31114
NASA FMEA #: 05-6BA-2115-3

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31114
ITEM: PUSHBUTTON SWITCH (2), LANDING GEAR DOWN

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
PROVIDES REDUNDANT MANUAL "ON" CONTROL FROM CONTROL BUS TO LATCHING RELAYS FOR LANDING GEAR DOWN CIRCUIT. IOA DOES NOT CONCUR WITH NASA'S EVALUATION AND IOA RECOMMENDS DOWNGRADING FMEA 2115-3 CRITICALITY TO 3/3.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31115 BASELINE [X]
NASA FMEA #: 05-6BA-2116-1 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31115
ITEM: LANDING GEAR TOGGLE SWITCH, S13

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCUR WITH NASA'S EVALUATION, FAILURE HAS NO EFFECT ON SUBSYSTEM. CB60 REMAINS "OFF" UNTIL NEEDED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31115A
NASA FMEA #: 05-6BA-2116-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31115
ITEM: LANDING GEAR TOGGLE SWITCH, S13

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA RECOMMENDS THAT THE FAILURE MODE OF FMEA 2116-2 BE DELETED, BECAUSE IT IS NOT A CREDIBLE FAILURE FOR THIS COMPONENT. NASA EVALUATION DELETED NASA 2116-2.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31115B
NASA FMEA #: 05-6BA-2116-3

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31115
ITEM: LANDING GEAR TOGGLE SWITCH, S13

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES NOT CONCUR WITH NASA'S EVALUATION, FAILURE HAS NO EFFECT ON SUBSYSTEM. CB60 REMAINS "OFF" UNTIL NEEDED. IOA RECOMMENDS DOWNGRADING THE CRITICALITY AND COMBINING FMEA'S 2116-1 AND 2116-3 TOGETHER, SINCE THEY ARE BOTH CRITICALITY 3/3, TO CONFORM TO NSTS 22206.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31117
NASA FMEA #: 05-6BA-2117-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31117
ITEM: PUSHBUTTON SWITCH, LDG GR ARM, 4PDT, ILLUMINATED

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
PROVIDES REDUNDANT MANUAL "ON" CONTROL FROM CONTROL BUS TO LATCHING RELAYS FOR LANDING GEAR ARM CIRCUIT. IOA DOES NOT CONCUR FULLY WITH NASA'S EVALUATION AND IOA RECOMMENDS: (1) CHANGING THE REDUNDANCY SCREENS, IT FAILS REDUNDANCY SCREEN B, AND
LOWERING THE CRITICALITY TO 3/1R.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31118A BASELINE [X]
NASA FMEA #: 05-6BA-2117-2 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31118
ITEM: PUSHBUTTON SWITCH, LDG GR ARM, 4 PDT, ILLUMINATED

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /1R]	[NA]	[NA]	[NA]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/N]	[N]	[N]	[N]	[ ]
RECOMMENDATIONS: (If different from NASA)					
	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
PROVIDES REDUNDANT MANUAL "ON" CONTROL FROM CONTROL BUS TO LATCHING RELAYS FOR LANDING GEAR ARM CIRCUIT. NASA FMEA 2117-2 (SHORTS TO GROUND) IS NOT A CREDIBLE FAILURE AND IOA RECOMMENDS THAT IT BE DELETED FROM THE CIL.
NASA DELETED THIS FMEA FROM THE BASELINE

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31118
NASA FMEA #: 05-6BA-2117-3

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31118
ITEM: PUSHBUTTON SWITCH, LDG GR ARM, 4 PDT, ILLUMINATED

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
PROVIDES REDUNDANT MANUAL "ON" CONTROL FROM CONTROL BUS TO LATCHING RELAYS FOR LANDING GEAR ARM CIRCUIT. IOA DOES NOT CONCUR WITH NASA'S EVALUATION AND IOA RECOMMENS DOWNGRADING FMEA 2117-3 CRITICALITY TO 3/3, AND DELETING IT FROM THE CIL.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31101 BASELINE [X]
NASA FMEA #: 05-6BA-2118-4 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31101
ITEM: PROXIMITY SENSOR BOX (2)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE PROXIMITY SENSOR BOXES FOR THE FAILURE MODE: INADVERTENT OUTPUT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31100
NASA FMEA #: 05-6BA-2204-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31100
ITEM: ISOLATION DIODE (12), 1 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE ISOLATION DIODES.
LOSS OF EVENT INDICATION NOT CRITICAL TO FLIGHT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31100A
NASA FMEA #: 05-6BA-2204-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31100
ITEM: ISOLATION DIODE (12), 1 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE ISOLATION DIODES. LOSS OF EVENT INDICATION NOT CRITICAL TO FLIGHT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31105
NASA FMEA #: 05-6BA-2205-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31105
ITEM: TRANSIENT SUPPRESSOR DIODE (4), 3 AMPS

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF FMEA 2205-1 FOR THE TRANSIENT SUPPRESSOR DIODES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31105A
NASA FMEA #: 05-6BA-2205-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31105
ITEM: TRANSIENT SUPPRESSOR DIODE (4), 3 AMPS

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES NOT CONCUR WITH NASA'S EVALUATION AND IOA RECOMMENDS DOWNGRADING THE CRITICALITY AND REMOVING THIS ITEM FROM CIL. LOSS OF TWO DIODES IS LOSS OF A HYDRAULIC SYSTEM WHICH THEN RESULTS IN 3/1R CRITICALITY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31107
NASA FMEA #: 05-6BA-2206-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31107
ITEM: BLOCKING DIODE (2) 12 AMP, 400V

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA CONCURS WITH NASA'S EVALUATION AND RATIONALE, LOSS OF ELECTRICAL POWER MIGHT LEAD TO LOSS OF CREW/VEHICLE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31108
NASA FMEA #: 05-6BA-2206-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31108
ITEM: BLOCKING DIODE (2) 12 AMP, 400V

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE BLOCKING DIODES. IF A BLOCKING DIODE FAILS SHORTED, POSSIBLE LOSS OF RETURN BUS ISOLATION MIGHT OCCUR.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31109
NASA FMEA #: 05-6BA-2207-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31109
ITEM: BLOCKING DIODE (2) 12 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA CONCURS WITH NASA'S EVALUATION AND RATIONALE, LOSS OF ELECTRICAL POWER FROM AN RPC MIGHT CAUSE LOSS OF CREW/VEHICLE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31110 BASELINE [X]
NASA FMEA #: 05-6BA-2207-2 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31110
ITEM: BLOCKING DIODE (2) 12 AMP, 400V

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)					
	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION, POSSIBLE LOSS OF UNIT CAPABILITY TO ISOLATE THE TWO RPC OUTPUTS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31122
NASA FMEA #: 05-6BA-2208-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31122
ITEM: BLOCKING DIODE (2) 1 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE BLOCKING DIODES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31122A
NASA FMEA #: 05-6BA-2208-2

NASA DATA:
BASELINE [ ]
NEW [X]

SUBSYSTEM: EPD&C
MDAC ID: 31122
ITEM: BLOCKING DIODE (2) 1 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE BLOCKING DIODES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31121
NASA FMEA #: 05-6BA-2209-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31121
ITEM: BLOCKING DIODE (6) 3 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA CONCURS WITH NASA'S EVALUATION.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31120 BASELINE [ ]
NASA FMEA #: 05-6BA-2209-2 NEW [X]

SUBSYSTEM: EPD&C
MDAC ID: 31120
ITEM: BLOCKING DIODE (6) 3 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH THE NASA FMEA EVALUATION.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31111
NASA FMEA #: 05-6BA-2243-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31111
ITEM: CIRCUIT BREAKERS (2), LG SENSORS

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA DOES CONCUR WITH NASA'S EVALUATION.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31112
NASA FMEA #: 05-6BA-2243-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31112
ITEM: CIRCUIT BREAKERS (2), LG SENSORS

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION, FAILURE HAS NO EFFECT ON SUBSYSTEM, CIRCUIT BREAKERS ARE NORMALLY IN A CLOSED POSITION.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31123
NASA FMEA #: 05-6BA-2244-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31123
ITEM: CIRCUIT BREAKER (3 AMP)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE LDG ARM/DN RESET CIRCUIT BREAKER.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31123A
NASA FMEA #: 05-6BA-2244-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31123
ITEM: CIRCUIT BREAKER (3 AMP)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[N /N]	[N]	[N]	[N]	[N]
RECOMMENDATIONS: (If different from NASA)					
	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE LDG ARM/DN RESET CIRCUIT BREAKER.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31126
NASA FMEA #: 05-6BA-2300-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31126
ITEM: GENERAL PURPOSE FUSE, (8), 1 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA DOES CONCUR WITH NASA'S EVALUATION.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31126A BASELINE [X]
NASA FMEA #: 05-6BA-2300-2 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31126
ITEM: GENERAL PURPOSE FUSE, (8), 1 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION AND DELETING FMEA 2300-2 BECAUSE IT IS NOT A CREDIBLE FAILURE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31127
NASA FMEA #: 05-6BA-2301-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31127
ITEM: GENERAL PURPOSE FUSE (1 AMP)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA DOES CONCUR WITH NASA'S EVALUATION.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31127A BASELINE [X]
NASA FMEA #: 05-6BA-2301-2 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31127
ITEM: GENERAL PURPOSE FUSE (1 AMP)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /1R]	[P]	[F]	[P]	[ ]
COMPARE	[/N]	[N]	[N]	[N]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION THAT FMEA 2301-2 BE DELETED BECAUSE ITS FAILURE MODE IS NOT CREDIBLE FOR THIS COMPONENT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31125
NASA FMEA #: 05-6BA-2302-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31125
ITEM: GENERAL PURPOSE FUSE (5 AMP)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:
IOA DOES NOT CONCUR FULLY WITH NASA'S EVALUATION AND IOA RECOMMENDS: CHANGING THE REDUNDANCY SCREENS SINCE IT FAILS REDUNDANCY SCREEN B, AND DOWNGRADING THE CRITICALITY TO 3/1R.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31137
NASA FMEA #: 05-6BA-2303-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31137
ITEM: GENERAL PURPOSE FUSE (2), 5 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /1R]	[P]	[F]	[P]	[X]
COMPARE	[/]	[ ]	[N]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[F]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:
IOA DOES NOT CONCUR FULLY WITH NASA'S EVALUATION OF FMEA 2303-1 AND IOA RECOMMENDS CHANGING THE REDUNDANCY SCREEN B TO CONFORM TO NSTS 22206.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31137A
NASA FMEA #: 05-6BA-2303-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31137
ITEM: GENERAL PURPOSE FUSE (2), 5 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[2 /1R]	[P]	[F]	[P]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]
RECOMMENDATIONS: (If different from NASA)					
	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF FMEA 2303-2 THAT THE FMEA AND CIL REFERENCE BE DELETED BECAUSE IT IS NOT A CREDIBLE FAILURE MODE FOR A FUSE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31130 BASELINE [X]
NASA FMEA #: 05-6BA-2351-1 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31130
ITEM: ISOLATION RESISTORS (18); 5.1K, 1/4W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE ISOLATION RESISTORS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31130A
NASA FMEA #: 05-6BA-2351-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31130
ITEM: ISOLATION RESISTORS (18); 5.1K, 1/4W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA DOES CONCUR FULLY WITH NASA'S EVALUATION OF THE ISOLATION RESISTORS, RECOMMENDS THAT FMEA 2351-2 BE DELETED BECAUSE FAIL MODE IS NOT CREDIBLE FOR THIS TYPE OF RESISTOR.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31132
NASA FMEA #: 05-6BA-2352-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31132
ITEM: RESISTOR (3), 1.2K, 2W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE CURRENT LIMITING RESISTOR.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31136
NASA FMEA #: 05-6BA-2353-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31136
ITEM: RESISTOR (3), 1.2K, 2W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE CURRENT LIMITING RESISTORS IN THE "LDG GR DOWN" STATUS/MONITORING CIRCUITS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31134
NASA FMEA #: 05-6BA-2354-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31134
ITEM: RESISTOR (2), 1.8K, 1/4W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE BLEED-OFF RESISTOR IN A RPC/MDM MONITORING CIRCUIT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31128
NASA FMEA #: 05-6BA-2356-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31128
ITEM: RESISTOR (12), 10.2 OHMS, 2W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA DOES CONCUR WITH NASA'S EVALUATION.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31129 BASELINE [X]
NASA FMEA #: 05-6BA-2356-2 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31129
ITEM: RESISTOR (12), 10.2 OHMS, 2W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE CURRENT LIMITING RESISTORS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31138
NASA FMEA #: 05-6BA-2357-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31138
ITEM: RESISTOR (2), 2.2K, 1/2W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[.]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE ISOLATION/CURRENT LIMITING RESISTORS USED IN RPC OUTPUT/MDM MONITORING CIRCUITS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31133
NASA FMEA #: 05-6BA-2360-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31133
ITEM: RESISTOR (6), 100K, 1/8W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE CURRENT LIMITING RESISTOR.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31135
NASA FMEA #: 05-6BA-2361-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31135
ITEM: RESISTOR (8), 17.4K, 1/4W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE GSE TEST CURRENT LIMITING RESISTORS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31135A
NASA FMEA #: 05-6BA-2361-2

NASA DATA:
BASELINE [ ]
NEW [X]

SUBSYSTEM: EPD&C
MDAC ID: 31135
ITEM: RESISTOR (8), 17.4K, 1/4W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE GSE TEST CURRENT LIMITING RESISTORS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31139
NASA FMEA #: 05-6BA-2362-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31139
ITEM: RESISTOR, 1.2K, 2W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE CURRENT LIMITING RESISTOR FOR THE LANDING STRUT ACTUATOR POSITION INDICATOR.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31139A
NASA FMEA #: 05-6BA-2362-2

NASA DATA:
BASELINE [ ]
NEW [X]

SUBSYSTEM: EPD&C
MDAC ID: 31139
ITEM: RESISTOR, 1.2K, 2W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE CURRENT LIMITING RESISTOR FOR THE LANDING STRUT ACTUATOR POSITION INDICATOR.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31131
NASA FMEA #: 05-6BA-2363-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31131
ITEM: RESISTOR, 7.5K, 2W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE CURRENT LIMITING RESISTOR.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31140 BASELINE [X]
NASA FMEA #: 05-6BA-2400-1 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31140
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA CONCURS WITH NASA'S EVALUATION OF THE TYPE 1 HDC (FAILURE MODE: LOSS OF OUTPUT) THAT CONNECTS MAIN DC BUS POWER TO THE WOW CIRCUITS. FMEA DELETED FROM LDG/DECL TRANSFERRED TO NOSE WHEEL STEERING.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31141 BASELINE [X]
NASA FMEA #: 05-6BA-2400-2 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31141
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE TYPE 1 HDC (FAILURE MODE: INADVERTENT OUTPUT) THAT CONNECTS MAIN DC BUS POWER TO THE WOW CIRCUITS. FMEA TRANSFERRED TO NOSE WHEEL STEERING SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31149
NASA FMEA #: 05-6BA-2401-3

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31149
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE TYPE 1 HDC FOR THE FAILURE MODE: INADVERTENT OUTPUT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31143 BASELINE [X]
NASA FMEA #: 05-6BA-2402-1 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31143
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA DOES CONCUR WITH NASA'S EVALUATION OF FMEA 2402-1.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31143A BASELINE [X]
NASA FMEA #: 05-6BA-2402-2 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31143
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA DOES CONCUR WITH NASA'S EVALUATION OF FMEA 2402-2. NASA INCORPORATED FMEA 2402-2 INTO 2401-1.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31144
NASA FMEA #: 05-6BA-2402-3

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31144
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE TYPE 1 HDC FOR THE FAILURE MODE: INADVERTENT OUTPUT. NASA INCORPORATED FMEA/CIL 2402-3 INTO 2401-3.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31148
NASA FMEA #: 05-6BA-2403-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31148
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF FMEA 2403-1 AND 2403-2, AND IOA RECOMMENDS NASA FMEA 2403-1 AND 2403-2 SHOULD BE COMBINED INTO ONE FMEA TO CONFORM TO NSTS 22206. NASA INCORPORATED 2403-2 INTO 2403-1.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31148A
NASA FMEA #: 05-6BA-2403-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31148
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF FMEA 2403-1 AND 2403-2, AND IOA RECOMMENDS NASA FMEA 2403-1 AND 2403-2 SHOULD BE COMBINED INTO ONE FMEA TO CONFORM TO NSTS 22206. NASA INCORPORATED 2403-2 INTO 2403-1.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31142
NASA FMEA #: 05-6BA-2404-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31142
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF FMEA'S 2404-1 AND 2404-2 FOR THE TYPE 1 HDC (FAILURE MODES: LOSS OF OUTPUT, INADVERTENT OUTPUT) TO POWER THE DOWN COILS OF THE TWO NLG EVENT INDICATORS. IOA RECOMMENDS COMBINING FMEA 2404-1 AND 2404-2 TOGETHER TO CONFORM TO NSTS 22206. NASA INCORPORATED 2404-1 AND 2404-2 INTO 2403-1.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31142A
NASA FMEA #: 05-6BA-2404-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31142
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF FMEA'S 2404-1 AND 2404-2 FOR THE TYPE 1 HDC (FAILURE MODES: LOSS OF OUTPUT, INADVERTENT OUTPUT) TO POWER THE DOWN COILS OF THE TWO NLG EVENT INDICATORS. IOA RECOMMENDS COMBINING FMEA 2404-1 AND 2404-2 TOGETHER TO CONFORM TO NSTS 22206. NASA INCORPORATED 2404-1 AND 2404-2 INTO 2403-1.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31142B BASELINE [X]
NASA FMEA #: 05-6BA-2404-3 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31142
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA RECOMMENDS THAT FMEA 2404-3 BE DELETED BECAUSE IT IS NOT A CREDIBLE FAILURE MODE FOR THE TYPE 1 HDC. NASA INCORPORATED 2403 INTO 2403-1.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31146
NASA FMEA #: 05-6BA-2405-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31146
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE TYPE 1 HDC'S, IOA RECOMMENDS COMBINING FMEA'S 2405-1 AND 2405-2 TOGETHER TO CONFORM TO NSTS 22206.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31146A BASELINE [X]
NASA FMEA #: 05-6BA-2405-2 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31146
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE TYPE 1 HDC'S. IOA RECOMMENDS COMBINING FMEA'S 2405-1 AND 2405-2 TOGETHER TO CONFORM TO NSTS 22206. NASA INCORPORATE 2405-2 INTO 2405-1.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31146B BASELINE [X]
NASA FMEA #: 05-6BA-2405-3 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31146
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES NOT CONCUR WITH NASA'S EVALUATION OF THE TYPE 1 HDC'S AND RECOMMENDS DELETING FMEA 2405-3 BECAUSE ITS FAILURE MODE IS NOT A CREDIBLE FAILURE. NASA INCORPORATED 2405-3 INTO 2405-1.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31145
NASA FMEA #: 05-6BA-2406-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31145
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /1R]	[P]	[P]	[P]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/N]	[N]	[N]	[N]	[ ]
RECOMMENDATIONS: (If different from NASA)	[3 /3]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES NOT CONCUR FULLY WITH NASA'S EVALUATION OF THE TYPE 1 HDC, IOA RECOMMENDS: DOWNGRADING CRITICALITY TO 3/3 AND COMBINING FMEA'S 2406-1 AN 2406-2 TOGETHER TO CONFORM TO NSTS 22206.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31145A
NASA FMEA #: 05-6BA-2406-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31145
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE TYPE 1 HDC, IOA RECOMMENDS: COMBINING FMEA'S 2406-1 AN 2406-2 TOGETHER TO CONFORM TO NSTS 22206.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31145B
NASA FMEA #: 05-6BA-2406-3

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31145
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES NOT CONCUR WITH NASA'S EVALUATION OF THE TYPE 1 HDC AND RECOMMENDS DELETING FMEA 2406-3 BECAUSE ITS FAILURE MODE IS NOT A CREDIBLE FAILURE. NASA INCORPORATE 2406-3 INTO 2406-1, WHICH IS NOT VIABLE AS 2406-1 HAS 3/1R CRITICALITY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31158
NASA FMEA #: 05-6BA-2407-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31158
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[N /N]	[N]	[N]	[N]	[N]
RECOMMENDATIONS: (If different from NASA)					
	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE TYPE 1 HDC'S.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31158A BASELINE [X]
NASA FMEA #: 05-6BA-2407-2 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31158
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[N /N]	[N]	[N]	[N]	[N]
RECOMMENDATIONS: (If different from NASA)					
	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE TYPE 1 HDC'S.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31158B
NASA FMEA #: 05-6BA-2407-3

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31158
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA DOES NOT CONCUR WITH NASA'S EVALUATION OF THE TYPE 1 HDC'S FOR FMEA 2407-3 AND RECOMMENDS THAT IT BE DELETED BECAUSE IT IS NOT A CREDIBLE FAILURE MODE. NASA INCORPORATE 2407-3 INTO 2407-1

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31156
NASA FMEA #: 05-6BA-2408-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31156
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE TYPE 1 HDC'S.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31157
NASA FMEA #: 05-6BA-2408-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31157
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE TYPE ONE HDC'S FOR THE FAILURE MODE: INADVERTENT OUTPUT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31154 BASELINE [X]
NASA FMEA #: 05-6BA-2409-1 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31154
ITEM: HYBRID DRIVER CONTROLLER (TYPE 3)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /1R]	[P]	[P]	[P]	[ ] *
IOA	[3 /1R]	[P]	[F]	[P]	[X]
COMPARE	[/]	[ ]	[N]	[ ]	[N]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[F]	[ ]	[A] (ADD/DELETE)

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

REMARKS:
IOA DOES NOT CONCUR WITH NASA'S EVALUATION OF THE TYPE 3 HDC'S. IOA RECOMMENDS ADDING THE FMEA TO THE CIL BECAUSE IT FAILS REDUNDANCY SCREEN B.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31159
NASA FMEA #: 05-6BA-2410-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31159
ITEM: HYBRID DRIVER CONTROLLER (TYPE II)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE TYPE 2 HDC'S.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31160
NASA FMEA #: 05-6BA-2410-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31160
ITEM: HYBRID DRIVER CONTROLLER (TYPE II)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA CONCURS WITH NASA'S EVALUATION OF THE TYPE 2 HDC'S.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31152
NASA FMEA #: 05-6BA-2413-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31152
ITEM: HYBRID DRIVER CONTROLLER (TYPE II)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE TYPE 2 HDC'S.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31153
NASA FMEA #: 05-6BA-2413-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31153
ITEM: HYBRID DRIVER CONTROLLER (TYPE II)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA CONCURS WITH NASA'S EVALUATION OF THE TYPE 2 HDC'S FOR THE FAILURE MODE: INADVERTENT OUTPUT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31150
NASA FMEA #: 05-6BA-2415-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31150
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE TYPE 1 HDC'S.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31151
NASA FMEA #: 05-6BA-2415-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31151
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA CONCURS WITH NASA'S EVALUATION OF THE TYPE 1 HDC'S FOR THE FAILURE MODE: INADVERTENT OUTPUT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31168
NASA FMEA #: 05-6BA-2501-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31168
ITEM: LATCHING RELAY (6), LDG GR 'ARM' CONTROL CIRCUITS

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF (FMEA 2501-1) THE LATCHING RELAYS FOR THE LANDING GEAR ARM CONTROL CIRCUITS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31168A BASELINE [X]
NASA FMEA #: 05-6BA-2501-2 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31168
ITEM: LATCHING RELAY (6), LDG GR 'ARM' CONTROL CIRCUITS

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:
FMEA 2501-2 HAS A NONCREDIBLE FAILURE MODE (SHORTS TO GROUND) AND IOA RECOMMENDS THAT THE FMEA AND ITS CIL BE DELETED. NASA INCORPORATED 2501-2 INTO 2501-1.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31169
NASA FMEA #: 05-6BA-2501-3

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31169
ITEM: LATCHING RELAY (6), LDG GR 'ARM' CONTROL CIRCUITS

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA CONCURS WITH NASA'S EVALUATION OF THE LDG GR "ARM" LATCHING RELAYS FOR THE FAILURE MODE: FAILS CLOSED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31170 BASELINE [X]
NASA FMEA #: 05-6BA-2502-1 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31170
ITEM: LATCHING RELAY (6), LDG GR 'DOWN' CONTROL CIRCUITS

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF FMEA 2502-1 FOR THE LDG GR "DOWN" RELAYS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31170A
NASA FMEA #: 05-6BA-2502-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31170
ITEM: LATCHING RELAY (6), LDG GR 'DOWN' CONTROL CIRCUITS

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:
IOA RECOMMENDS THAT FMEA 2502-2 AND ITS CIL BE DELETED, BECAUSE IT HAS A NONCREDIBLE FAILURE MODE: SHORTS TO GROUND. NASA INCORPORATE 2502-2 INTO 2502-1.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31171 BASELINE [X]
NASA FMEA #: 05-6BA-2502-3 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31171
ITEM: LATCHING RELAY (6), LDG GR 'DOWN' CONTROL CIRCUITS

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[3 /1R]	[P]	[P]	[P]	[ ]
COMPARE	[N /]	[ ]	[ ]	[ ]	[N]
RECOMMENDATIONS: (If different from NASA)					
	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF FMEA 2502-3 FOR THE FAILURE MODE: FAILS CLOSED.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31172
NASA FMEA #: 05-6BA-2503-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31172
ITEM: GENERAL PURPOSE RELAY (2)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE GENERAL PURPOSE RELAYS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31172A
NASA FMEA #: 05-6BA-2503-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31172
ITEM: GENERAL PURPOSE RELAY (2)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE GENERAL PURPOSE RELAYS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31172B
NASA FMEA #: 05-6BA-2503-3

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31172
ITEM: GENERAL PURPOSE RELAY (2)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	3 /3	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES NOT CONCUR WITH NASA'S EVALUATION OF THE GENERAL PURPOSE RELAYS. IOA RECOMMENDS DELETING FMEA 2503-3, BECAUSE ITS FAILURE MODE (SHORTS TO GROUND) IS NOT A CREDIBLE FAILURE FOR THESE COMPONENTS. NASA INCORPORATED 2503-3 INTO 2503-1.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31173 BASELINE [X]
NASA FMEA #: 05-6BA-2550-1 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31173
ITEM: REMOTE POWER CONTROLLER (2), 3 AMPS

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA CONCURS WITH NASA'S EVALUATION OF THE RPC'S FOR A LOSS OF OUTPUT FAILURE MODE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31173A
NASA FMEA #: 05-6BA-2550-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31173
ITEM: REMOTE POWER CONTROLLER (2), 3 AMPS

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA DOES NOT CONCUR WITH NASA'S EVALUATION OF THE RPC'S, IOA RECOMMENDS DELETING FMEA 2550-2, BECAUSE ITS FAILURE MODE (SHORTS TO GROUND) IS NOT A CREDIBLE FAILURE FOR THE RPC'S.: NASA INCORPORATED 2550-2 INTO 2550-1.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31174
NASA FMEA #: 05-6BA-2550-3

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31174
ITEM: REMOTE POWER CONTROLLER (2), 3 AMPS

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION FOR THE REDUNDANT SHUTOFF VALVE RPC'S.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31175
NASA FMEA #: 05-6BA-2575-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31175
ITEM: PYRO INITIATOR CONTROLLER (6)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA CONCURS WITH NASA'S EVALUATION FOR THE PIC'S WITH THE FAILURE MODE: LOSS OF OUTPUT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31176 BASELINE [X]
NASA FMEA #: 05-6BA-2575-2 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31176
ITEM: PYRO INITIATOR CONTROLLER (6)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA CONCURS WITH NASA'S EVALUATION FOR THE PIC'S WITH THE FAILURE MODE: INADVERTENT OUTPUT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31177
NASA FMEA #: 05-6BA-2576-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31177
ITEM: PYRO INITIATOR CONTROLLER (2)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /1R]	[P]	[P]	[P]	[X]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE PIC'S.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31178 BASELINE [X]
NASA FMEA #: 05-6BA-2576-2 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31178
ITEM: PYRO INITIATOR CONTROLLER (2)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE PIC'S FOR THE FAILURE MODE: INADVERTENT OUTPUT. NASA TRANSFERRED FMEA TO ANOTHER SUBSYSTEM.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31183
NASA FMEA #: 05-6BA-2578-1

NASA DATA:
BASELINE [ ]
NEW [X]

SUBSYSTEM: EPD&C
MDAC ID: 31183
ITEM: DIODE, 12 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA RECOMMENDS ADDING THE ISOLATION DIODE TO NASA'S CIL. THE DIODE ISOLATES THE K6 & K7 ARM RELAYS FROM THE K8 DOWN RELAYS; DIODE IS ALSO IN THE CIRCUIT SUPPLYING POWER TO THE LDG GEAR CONTROL VALVE AND THE LDG GEAR DUMP CONTROL VALVE. POSSIBLE LOSS OF CREW/VEHICLE BECAUSE OF LOSS OF POWER TO OPERATE THESE VALVES IF THE DIODE FAILS OPEN.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31184
NASA FMEA #: 05-6BA-2578-2

NASA DATA:
BASELINE [ ]
NEW [X]

SUBSYSTEM: EPD&C
MDAC ID: 31184
ITEM: DIODE, 12 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH THE NASA FMEA EVALUATION FOR THE ISOLATION DIODE FAILURE MODE: SHORTS, LOW RESISTANCE.

C-4

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31185
NASA FMEA #: 05-6BA-2580-1

NASA DATA:
BASELINE [ ]
NEW [X]

SUBSYSTEM: EPD&C
MDAC ID: 31185
ITEM: DIODE, 12 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH THE NASA EVALUATION FOR THE TRANSIENT SUPPRESSION DIODE FAILURE MODES: FAILS OPENS, FAILS TO CONDUCT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31185A
NASA FMEA #: 05-6BA-2580-2

NASA DATA:
BASELINE [ ]
NEW [X]

SUBSYSTEM: EPD&C
MDAC ID: 31185
ITEM: DIODE, 12 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH THE NASA EVALUATION FOR THE TRANSIENT SUPPRESSION DIODE FAILURE MODES: FAILS OPENS, FAILS TO CONDUCT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31213
NASA FMEA #: 05-6BB-2096-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31213
ITEM: GENERAL PURPOSE RELAY, NONLATCHING (2)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF FMEA 2096-1 FOR THE GENERAL PURPOSE RELAYS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31213A BASELINE [X]
NASA FMEA #: 05-6BB-2096-2 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31213
ITEM: GENERAL PURPOSE RELAY, NONLATCHING (2)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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 [ ]
INADEQUATE [ ]

REMARKS:
IOA RECOMMENDS THAT FMEA 2096-2 BE DELETED, BECAUSE IT IS A NON-CREDIBLE FAILURE MODE (SHORTS TO GROUND) FOR THE NONLATCHING RELAYS. NASA INCORPORATED FMEA 2096-2 INTO 2096-3.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31214
NASA FMEA #: 05-6BB-2096-3

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31214
ITEM: GENERAL PURPOSE RELAY, NONLATCHING (2)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[2 /1R]	[P]	[F]	[P]	[X] *
IOA	[3 /1R]	[P]	[F]	[P]	[X]
COMPARE	[N /]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)					
	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE GENERAL PURPOSE RELAYS FOR THE FAILURE MODE: FAILS OPEN.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31215
NASA FMEA #: 05-6BB-2101-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31215
ITEM: BLOCKING DIODES (9), 3 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE BLOCKING DIODES IN THE ANTI-SKID FAIL LIGHT/CONTROL CIRCUIT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31211
NASA FMEA #: 05-6BB-2102-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31211
ITEM: BLOCKING DIODE (4), 12 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE BLOCKING DIODES.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31212 BASELINE [ ]
NASA FMEA #: 05-6BB-2102-2 NEW [X]

SUBSYSTEM: EPD&C
MDAC ID: 31212
ITEM: BLOCKING DIODE (4), 12 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /1R]	[P]	[F]	[P]	[X] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/N]	[N]	[N]	[N]	[N]
RECOMMENDATIONS: (If different from NASA)					
	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31222
NASA FMEA #: 05-6BB-2106-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31222
ITEM: TOGGLE SWITCH

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA DOES CONCUR WITH NASA'S EVALUATION FOR THE BRAKE CONTROL CIRCUIT TOGGLE SWITCHES FOR MAINS A, B, AND C

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31222A
NASA FMEA #: 05-6BB-2106-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31222
ITEM: TOGGLE SWITCH

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA RECOMMENDS THAT FMEA 2106-2 BE DELETED, BECAUSE IT IS A NON-CREDIBLE FAILURE MODE (SHORTS TO GROUND) FOR THE TOGGLE SWITCHES. NASA INCORPORATED FMEA 2106-2 INTO 2106-1.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31223
NASA FMEA #: 05-6BB-2106-3

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31223
ITEM: TOGGLE SWITCH

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION FOR THE BRAKE CONTROL TOGGLE SWITCHES FOR MAINS A, B, AND C.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31225
NASA FMEA #: 05-6BB-2106-3

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31225
ITEM: TOGGLE SWITCH, DPST

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES NOT CONCUR WITH NASA'S EVALUATION OF THE "MAIN C" TOGGLE SWITCH AND IOA RECOMMENDS CHANGING THE CRITICALITY TO 3/3

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31220
NASA FMEA #: 05-6BB-2107-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31220
ITEM: TOGGLE SWITCH, DPST

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[3 /1R]	[P]	[P]	[P]	[ ]
COMPARE	[N /]	[ ]	[ ]	[ ]	[N]
RECOMMENDATIONS: (If different from NASA)					
	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF FMEA 2107-1 FOR THE ANTI-SKID CONTROL CIRCUIT TOGGLE SWITCH.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31220A
NASA FMEA #: 05-6BB-2107-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31220
ITEM: TOGGLE SWITCH, DPST

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[3 /1R]	[P]	[P]	[P]	[ ]
COMPARE	[N /]	[ ]	[ ]	[ ]	[N]
RECOMMENDATIONS: (If different from NASA)					
	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA RECOMMENDS THAT FMEA 2107-2 BE DELETED, BECAUSE IT IS A NON-CREDIBLE FAILURE MODE (SHORTS TO GROUND) FOR THE TOGGLE SWITCH. NASA INCORPORATED FMEA 2107-2 INTO 2107-1.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31221
NASA FMEA #: 05-6BB-2107-3

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31221
ITEM: TOGGLE SWITCH, DPST

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /1R]	[P]	[P]	[P]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/N]	[N]	[N]	[N]	[ ]
RECOMMENDATIONS: (If different from NASA)					
	[3 /3]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA DOES NOT CONCUR WITH NASA'S EVALUATION AND RECOMMENDS DOWNGRADING FMEA 2107-3 TO CRITICALITY 3/3.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31203
NASA FMEA #: 05-6BB-2111-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31203
ITEM: ANNUNCIATOR

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)					
	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE ANTI-SKID FAIL LIGHT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31201 BASELINE [X]
NASA FMEA #: 05-6BB-2240-1 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31201
ITEM: GENERAL PURPOSE FUSE (8), 3 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE GENERAL PURPOSE FUSE FOR THE "OPENS" FAILURE MODE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31205 BASELINE [X]
NASA FMEA #: 05-6BB-2241-1 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31205
ITEM: GENERAL PURPOSE FUSE (8), 2 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

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

REMARKS:
IOA DOES NOT CONCUR FULLY WITH NASA'S EVALUATION OF THE GENERAL PURPOSE FUSES. IOA RECOMMENDS: CHANGING THE REDUNANCY SCREENS SINCE IT FAILS REDUNDANCY SCREEN B, AND DOWNGRADING FMEA TO A 3/1R..

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31204
NASA FMEA #: 05-6BB-2242-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31204
ITEM: FUSE, 1 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE FUSE IN THE BRAKE/SKID CONTROL CIRCUITRY.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31202
NASA FMEA #: 05-6BB-2246-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31202
ITEM: FUSE (5 AMP), 2

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[3 /1R]	[P]	[P]	[P]	[ ]
COMPARE	[N /]	[ ]	[ ]	[ ]	[N]
RECOMMENDATIONS: (If different from NASA)					
	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31206
NASA FMEA #: 05-6BB-2247-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31206
ITEM: ISOLATION RESISTOR (3), 5.1K, 1/4 WATT

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE MDM ISOLATION RESISTORS FOR THE BRAKE-SKID POWER/SWITCH SCAN MONITORING CIRCUITS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31200
NASA FMEA #: 05-6BB-2248-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31200
ITEM: ISOLATION RESISTOR, 5.1K, 1/4W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)					
	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE ISOLATION RESISTOR.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31210
NASA FMEA #: 05-6BB-2249-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31210
ITEM: CURRENT LIMITING RESISTOR (4), 1.21K, 2W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /1R]	[P]	[P]	[P]	[ ] *
IOA	[3 /1R]	[P]	[F]	[P]	[X]
COMPARE	[/]	[ ]	[N]	[ ]	[N]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[F]	[ ]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES NOT CONCUR FULLY WITH NASA'S EVALUATION OF THE RPC CONTROL CIRCUIT CURRENT LIMITING RESISTORS. IOA RECOMMENDS (1) CHANGING THE REDUNDANCY SCREENS (2) ADDING FMEA 2249-1 TO THE CIL SINCE IT FAILS REDUNDANCY SCREEN B.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31208
NASA FMEA #: 05-6BB-2249-2

NASA DATA:
BASELINE [ ]
NEW [X]

SUBSYSTEM: EPD&C
MDAC ID: 31208
ITEM: CURRENT LIMITING RESISTOR (4), 1.21K, 2W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH THE NASA FMEA EVALUATION.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31209
NASA FMEA #: 05-6BB-2250-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31209
ITEM: RESISTOR (4), 1.8K, 1/4W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S ANALYSIS OF THE RPC/MDM MONITOR CIRCUIT BLEED-OFF RESISTORS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31207
NASA FMEA #: 05-6BB-2253-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31207
ITEM: ISOLATION RESISTOR (4), 2.2K, 1/2W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE MONITORING CIRCUIT ISOLATION RESISTORS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31226
NASA FMEA #: 05-6BB-2256-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31226
ITEM: REMOTE POWER CONTROLLER (4), 10 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA CONCURS WITH NASA'S EVALUATION OF THE RPC'S THAT CONNECT OR DISCONNECT MAIN DC BUS POWER TO THE ANTI-SKID CONTROL UNITS FOR THE FAILURE MODE: LOSS OF OUTPUT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31227
NASA FMEA #: 05-6BB-2256-2

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31227
ITEM: REMOTE POWER CONTROLLER (4), 10 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE RPC'S FOR THE FAILURE MODE: INADVERTENT OUTPUT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31216 BASELINE [X]
NASA FMEA #: 05-6BB-2262-1 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31216
ITEM: HYBRID DRIVER CONTROLLER (3), TYPE 1

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[2 /1R]	[P]	[F]	[P]	[X] *
IOA	[3 /1R]	[P]	[P]	[P]	[ ]
COMPARE	[N /]	[ ]	[N]	[ ]	[N]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE TYPE 1 HDC'S.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31218 BASELINE [X]
NASA FMEA #: 05-6BB-2262-1 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31218
ITEM: HYBRID DRIVER CONTROLLER (TYPE 3)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE TYPE 3 HDC FOR THE FAILURE MODE: LOSS OF OUTPUT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31217 BASELINE [X]
NASA FMEA #: 05-6BB-2262-2 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31217
ITEM: HYBRID DRIVER CONTROLLER (3), TYPE 1

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE TYPE 1 HDC'S FOR THE FAILURE MODE: INADVERTENT OUTPUT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31219 BASELINE [X]
NASA FMEA #: 05-6BB-2262-2 NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31219
ITEM: HYBRID DRIVER CONTROLLER (TYPE 3)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA DOES CONCUR WITH NASA'S EVALUATION OF THE TYPE 3 HDC FOR THE FAILURE MODE: INADVERTENT OUTPUT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/22/88
ASSESSMENT ID: LDGDEC-31240X
NASA FMEA #: 05-6BB-2270-1

NASA DATA:
BASELINE [ ]
NEW [X]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 31240
ITEM: RESISTOR (1 OHM)(2W) ANTI-SKID VLV COIL CURRENT MEASUREMENT

LEAD ANALYST: P. BYNUM

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /1R]	[P]	[P]	[P]	[X]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [X]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH THE NASA FMEA/CIL EVALUATION

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31102
NASA FMEA #: 06-6BA-2118-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31102
ITEM: PROXIMITY SENSOR BOX (2)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL 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:
IOA CONCURS WITH NASA'S EVALUATION OF THE PROXIMITY SENSOR BOXES FOR THE FAILURE MODE: LOSS OF OUTPUT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31103
NASA FMEA #: 06-6BA-2200-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31103
ITEM: ISOLATION DIODE (3), 1 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE ISOLATION DIODES. LOSS OF DIODE FUNCTION NOT CRITICAL TO MISSION/CREW/VEHICLE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31103A
NASA FMEA #: 06-6BA-2200-2

NASA DATA:
BASELINE [ ]
NEW [X]

SUBSYSTEM: EPD&C
MDAC ID: 31103
ITEM: ISOLATION DIODE (3), 1 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)					
	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION OF THE ISOLATION DIODES. LOSS OF DIODE FUNCTION NOT CRITICAL TO MISSION/CREW/VEHICLE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31104
NASA FMEA #: 06-6BA-2201-1

NASA DATA:
BASELINE [X]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31104
ITEM: ISOLATION DIODE (3), 1 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION, LOSS OF DIODE FUNCTION NOT CRITICAL TO MISSION/CREW/VEHICLE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31104A
NASA FMEA #: 06-6BA-2201-2

NASA DATA:
BASELINE [ ]
NEW [X]

SUBSYSTEM: EPD&C
MDAC ID: 31104
ITEM: ISOLATION DIODE (3), 1 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[3 /3]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[/]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA CONCURS WITH NASA'S EVALUATION, LOSS OF DIODE FUNCTION NOT CRITICAL TO MISSION/CREW/VEHICLE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10210
NASA FMEA #: NONE

NASA DATA:
BASELINE [ ]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10210
ITEM: STEERING DISCONNECT LOCK

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[/]	[ ]	[ ]	[ ]	[ ] *
IOA	[1 /1]	[NA]	[NA]	[NA]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]
RECOMMENDATIONS: (If different from NASA)					
	[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:
NOT CONSIDERED BY THE NASA FMEA/CIL

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10212
NASA FMEA #: NONE

NASA DATA:
BASELINE [ ]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10212
ITEM: NOSE WHEEL RETAINING BOLT

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
ADDITIONAL DATA UNCOVERED AFTER STUDY COMPLETION ELIMINATES THIS IOA EVALUATION REPORT

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10213
NASA FMEA #: NONE

NASA DATA:
BASELINE [ ]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10213
ITEM: AXLE

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:
NOT EVALUATED BY NASA

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10220
NASA FMEA #: NONE

NASA DATA:
BASELINE [ ]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10220
ITEM: TORQUE TUBE ASSEMBLY

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[/]	[ ]	[ ]	[ ]	[ ] *
IOA	[1 /1]	[NA]	[NA]	[NA]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]
RECOMMENDATIONS: (If different from NASA)					
	[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [X]

REMARKS:

THE WORST CASE SCENARIO FOR A BROKEN TORQUE TUBE ASSEMBLY WOULD BE A FAILURE THAT WOULD PREVENT THE NLG FROM LOCKING IN THE EXTENDED POSITION. SIMILAR TO MLG TORQUE TUBE ASSY REF 02-1-010-1.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-10401
NASA FMEA #: NONE

NASA DATA:
BASELINE [ ]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10401
ITEM: NLG EXTEND / RETRACT HYD STRUT ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THERE IS NO NASA FMEA COVERING THIS FAILURE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-10601 BASELINE [ ]
NASA FMEA #: NONE NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 10601
ITEM: NLG DOOR OVER-CENTER BUNGEE

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[/]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[NA]	[NA]	[NA]	[ ]
COMPARE	[N /N]	[N]	[N]	[N]	[ ]
RECOMMENDATIONS: (If different from NASA)					
	[3 /3]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

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

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-11004
NASA FMEA #: NONE

NASA DATA:
BASELINE [ ]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 11004
ITEM: NLG UPLOCK ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
GEAR WILL NOT RELEASE HYDRAULICALLY. THE PYRO BACKUP WILL RELEASE THE GEAR ONE SECOND AFTER THE COMMAND TO DEPLOY IF THE LANDING GEAR HOOK IS NOT OPEN.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-11302 BASELINE [ ]
NASA FMEA #: NONE NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 11302
ITEM: NLG DOOR BUNGEE ASSIST ASSY

LEAD ANALYST: W.WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

[1 /1] [NA] [NA] [NA] [A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
BUNGEE COULD POSSIBLY INADVERTENTLY RELEASE CAUSING THE NLG DOOR TO CRACK OPEN.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20205
NASA FMEA #: NONE

NASA DATA:
BASELINE [ ]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20205
ITEM: AXLE KIT - MLG

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[/]	[ ]	[ ]	[ ]	[ ] *
IOA	[1 /1]	[NA]	[NA]	[NA]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]
RECOMMENDATIONS: (If different from NASA)					
	[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-20214 BASELINE [ ]
NASA FMEA #: NONE NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20214
ITEM: WEIGHT ON WHEELS SENSOR - MLG

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-20215
NASA FMEA #: NONE

NASA DATA:
BASELINE [ ]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20215
ITEM: WEIGHT ON WHEELS SENSOR - MLG

LEAD ANALYST: W. WEISSINGER

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-20401 BASELINE [ ]
NASA FMEA #: NONE NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20401
ITEM: MLG EXTEND / RETRACT HYD STRUT ACT

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
THERE IS NO NASA FMEA COVERING THIS FAILURE.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-20601 BASELINE [ ]
NASA FMEA #: NONE NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 20601
ITEM: DOOR OVER-CENTER BUNGEE

LEAD ANALYST: J. COMPTON

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[/]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[NA]	[NA]	[NA]	[ ]
COMPARE	[N /N]	[N]	[N]	[N]	[ ]
RECOMMENDATIONS: (If different from NASA)					
	[3 /3]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

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

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86 NASA DATA:
ASSESSMENT ID: LDGDEC-21004 BASELINE [ ]
NASA FMEA #: NONE NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 21004
ITEM: MLG UPLOCK ACTUATOR

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
GEAR WILL NOT RELEASE HYDRAULICALLY. THE PYRO BACKUP WILL RELEASE THE GEAR ONE SECOND AFTER THE COMMAND TO DEPLOY IF THE LANDING GEAR HOOK IS NOT OPEN.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30104
NASA FMEA #: NONE

NASA DATA:
BASELINE [ ]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30104
ITEM: BRAKE PEDAL TRANSDUCER

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

	[1 /1]	[NA]	[NA]	[NA]	[A] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
CLOSED LVDT WILL RESULT IN HALF-WHEEL LOCKUP ON LANDING WITH ANTISKID OFF, CAUSING POSSIBLE LOSS OF VEHICLE. ANTISKID WILL PROVIDE PROTECTION IF ON.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/15/86
ASSESSMENT ID: LDGDEC-30127
NASA FMEA #: NONE

NASA DATA:
BASELINE [ ]
NEW [ ]

SUBSYSTEM: LANDING/DECELERATION SYSTEMS
MDAC ID: 30127
ITEM: TRANSDUCERS, SENSORS (INSTRUMENTATION)

LEAD ANALYST: J. COMPTON

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31161 BASELINE [ ]
NASA FMEA #: NONE NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31161
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[/]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /1R]	[P]	[F]	[P]	[X]
COMPARE	[N /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:
IOA RECOMMENDS ADDING THE UNCOVERED TYPE 1 HDC TO NASA'S FMEA/CIL. THE HDC CONNECTS MAIN BUS DC POWER TO THE "WOW2" CIRCUITS WITHIN BRAKE/SKID CONTROL BOX A.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31162 BASELINE [ ]
NASA FMEA #: NONE NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31162
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA RECOMMENDS ADDING THE UNCOVERED TYPE 1 HDC TO NASA'S FMEA LIST. THE HDC CONNECTS MAIN BUS DC POWER TO THE "WOW2" CIRCUITS WITHIN BRAKE/SKID CONTROL BOX A.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31167
NASA FMEA #: NONE

NASA DATA:
BASELINE [ ]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31167
ITEM: HYBRID DRIVER CONTROLLER (TYPE 1)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[/]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[N /N]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[3 /3]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA RECOMMENDS ADDING THE UNCOVERED TYPE 1 HDC'S TO NASA'S FMEA/CIL. THE HDC'S POWER LEFT/RIGHT MAIN GEAR EVENT INDICATORS DS3 AND DS2.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31179
NASA FMEA #: NONE

NASA DATA:
BASELINE [ ]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31179
ITEM: ANNUNCIATOR LIGHT (4)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[/]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[N /N]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)					
	[3 /3]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA RECOMMENDS ADDING THE ANNUNCIATOR LIGHTS TO NASA'S FMEA LIST. THE ANNUNCIATOR LIGHTS PROVIDE VISUAL MONITORING OF THE LANDING GEAR "ARM" AND "DOWN" PUSH BUTTON CIRCUITS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31180
NASA FMEA #: NONE

NASA DATA:
BASELINE [ ]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31180
ITEM: ANNUNCIATOR CONTROL ASSEMBLY (2)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[/]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[N /N]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[3 /3]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA RECOMMENDS ADDING THE ANNUNCIATOR CONTROL ASSEMBLIES TO NASA'S FMEA LIST. THE ANNUNCIATOR ASSEMBLIES PROVIDE POWER TO THE LANDING GEAR "ARM" AND "DOWN" LIGHTS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31182 BASELINE [ ]
NASA FMEA #: NONE NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31182
ITEM: NOSE LANDING GEAR BRAKE UPLOCK RELEASE CIRCUIT NO'S 1 & 2

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[/]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /1R]	[P]	[P]	[P]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]
RECOMMENDATIONS: (If different from NASA)					
	[/]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA HAS DONE AN ANALYSIS OF THE NOSE LANDING GEAR BRAKE UPLOCK RELEASE CIRCUITS 1 & 2 TO PROVIDE CONSISTENT COVERAGE OF THE SHUTTLE LANDING GEAR BRAKE UPLOCK RELEASE CIRCUITRY (SEE NASA FMEA 200200-1). IOA AND NASA HAVE ALREADY COVERED THESE COMPONENTS IN THEIR OWN FMEA ANALYSIS. NASA FMEA 200200-1 IS DELETED, IOA RECOMMENDS THAT THIS FMEA SHOULD NOT BE ADDED TO NASA'S FMEA LIST.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31228
NASA FMEA #: NONE

NASA DATA:
BASELINE [ ]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31228
ITEM: TOGGLE SWITCH (3)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA RECOMMENDS ADDING THE TOGGLE SWITCHES (FAILURE MODE: FAILS CLOSED) TO NASA'S FMEA LIST. THE TOGGLE SWITCHES PROVIDE MANUAL SWITCHING FOR DC POWER TO THE BREAK HYDRAULIC LINE HEATERS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31229
NASA FMEA #: NONE

NASA DATA:
BASELINE [ ]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31229
ITEM: TOGGLE SWITCH (3)

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA RECOMMENDS ADDING THE TOGGLE SWITCHES (FAILURE MODE: FAILS OPEN) TO NASA'S FMEA LIST. THE TOGGLE SWITCHES PROVIDE MANUAL SWITCHING FOR DC POWER TO THE BREAK HYRAULIC LINE HEATERS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31230 BASELINE [ ]
NASA FMEA #: NONE NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31230
ITEM: CURRENT LIMITING RESISTOR (3), 1.21K, 2W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

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

REMARKS:
IOA RECOMMENDS ADDING THE CURRENT LIMITING RESISTORS (FAILURE MODE: ELEMENT OPENS) TO NASA'S FMEA LIST. THE RESISTORS LIMIT CURRENT TO THE RPC CONTROL CIRCUITS IN THE BRAKE HYDRAULIC LINE HEATERS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31231 BASELINE [ ]
NASA FMEA #: NONE NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31231
ITEM: CURRENT LIMITING RESISTOR (3), 1.21K, 2W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA RECOMMENDS ADDING THE CURRENT LIMITING RESISTORS (FAILURE MODE: SHORTS) TO NASA'S FMEA LIST. THE RESISTORS LIMIT CURRENT TO THE RPC CONTROL CIRCUITS IN THE BRAKE HYRAULIC LINE HEATERS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31232
NASA FMEA #: NONE

NASA DATA:
BASELINE [ ]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31232
ITEM: REMOTE POWER CONTROLLER (3), 10 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA RECOMMENDS ADDING THE RPC'S (FAILURE MODE: LOSS OF OUTPUT) TO NASA'S FMEA LIST. THE RPC'S CONNECT OR DISCONNECT DC BUS POWER TO THE HYDRAULIC BRAKE HEATER COILS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87 NASA DATA:
ASSESSMENT ID: LDGDEC-31233 BASELINE [ ]
NASA FMEA #: NONE NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31233
ITEM: REMOTE POWER CONTROLLER (3), 10 AMP

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[/]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[P]	[P]	[P]	[ ]
COMPARE	[N /N]	[N]	[N]	[N]	[ ]
RECOMMENDATIONS: (If different from NASA)					
	[3 /3]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

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

REMARKS:
IOA RECOMMENDS ADDING THE RPC'S (FAILURE MODE: INADVERTENT OUTPUT) TO NASA'S FMEA LIST. THE RPC'S CONNECT OR DISCONNECT DC BUS POWER TO THE HYDRAULIC BRAKE HEATER COILS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31234
NASA FMEA #: NONE

NASA DATA:
BASELINE [ ]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31234
ITEM: ISOLATION RESISTOR (3), 5.1K, 1/4W

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[/]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[N /N]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)	[3 /3]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA RECOMMENDS ADDING THE ISOLATION RESISTORS (FAILURE MODE: ELEMENT OPENS, SHORTS) TO NASA'S FMEA LIST. THE RESISTORS RESTRICT CURRENT BETWEEN HEATER CONTROL CIRCUITS AND MDM MONITORING CIRCUITS.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31235
NASA FMEA #: NONE

NASA DATA:
BASELINE [ ]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31235
ITEM: ANNUNCIATOR CONTROL ASSEMBLY

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[/]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[ ]	[ ]	[ ]	[ ]
COMPARE	[N /N]	[ ]	[ ]	[ ]	[ ]
RECOMMENDATIONS: (If different from NASA)					
	[3 /3]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA RECOMMENDS ADDING THE ANNUNCIATOR CONTROL ASSEMBLY (FAILURE MODE: LOSS OF OUTPUT) TO NASA'S FMEA LIST. THE ASSEMBLY PROVIDES POWER TO THE ANTI-SKID FAIL ANNUNCIATOR LIGHT.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31237
NASA FMEA #: NONE

NASA DATA:
BASELINE [ ]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31237
ITEM: SIGNAL CONDITIONER

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

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

RECOMMENDATIONS: (If different from NASA)

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

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA RECOMMENDS ADDING THE SIGNAL CONDITIONER (FAILURE MODE: LOSS OF OUTPUT, INADVERTENT OUTPUT) TO NASA'S FMEA LIST. THE SIGNAL CONDITIONER PROVIDES VOLTAGE REDUCTION AND MDM-OF1 MONITORING TO BRAKE/SKID CONTROL BOX A.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/23/87
ASSESSMENT ID: LDGDEC-31239
NASA FMEA #: NONE

NASA DATA:
BASELINE [ ]
NEW [ ]

SUBSYSTEM: EPD&C
MDAC ID: 31239
ITEM: SIGNAL CONDITIONER

LEAD ANALYST: G. BEAIRD

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS A	B	C	CIL ITEM
NASA	[/]	[ ]	[ ]	[ ]	[ ] *
IOA	[3 /3]	[P]	[P]	[P]	[ ]
COMPARE	[N /N]	[N]	[N]	[N]	[ ]
RECOMMENDATIONS: (If different from NASA)					
	[3 /3]	[ ]	[ ]	[ ]	[ ] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [ ]
INADEQUATE [ ]

REMARKS:
IOA RECOMMENDS ADDING THE SIGNAL CONDITIONER (FAILURE MODE: LOSS OF OUTPUT, INADVERTENT OUTPUT) TO NASA'S FMEA LIST. THE SIGNAL CONDITIONER PROVIDES VOLTAGE REDUCTION AND MDM-OF2 MONITORING TO BRAKE/SKID CONTROL BOX B.

APPENDIX D

CRITICAL ITEMS

APPENDIX D
POTENTIAL CRITICAL ITEMS

NASA FMEA	MDAC-ID	ITEM	FAILURE MODE
02-1-001-1	20201	SHOCK STRUT STRUCTURE	STRUCTURAL FAILUR
02-1-001-2	20202	SHOCK STRUT PISTON	INTERNAL / EXTERN
02-1-001-2	20203	SHOCK STRUT PISTON	INTERNAL / EXTERN
02-1-002-1	20101	TIRES, MLG TYPE I	RUPTURE
02-1-003-1	20206	LOWER DRAG BRACE STRU	STRUCTURAL FAILUR
02-1-003-1	20207	UPPER DRAG BRACE TRUN	STRUCTURAL FAILUR
02-1-003-1	20219	UPPER DRAG BRACE STRU	STRUCTURAL FAILUR
02-1-003-1	20220	CENTER DRAG BRACE TRU	STRUCTURAL FAILUR
02-1-003-1	20221	LOWER DRAG BRACE TRUN	STRUCTURAL FAILUR
02-1-004-1	20204	TORQUE ARM ASSEMBLY	STRUCTURAL FAILUR
02-1-005-1	20208	LOCK BRACE ASSEMBLY	STRUCTURAL FAILUR
02-1-005-1	20222	LOCK BRACE CENTER TRU	STRUCTURAL FAILUR
02-1-006-1	20216	UPLOCK ROLLER RETAINI	STRUCTURAL FAILUR
02-1-008-1	20209	DOWN LOCK BUNGEE	PHYSICAL BINDING
02-1-008-1	20210	DOWN LOCK BUNGEE	STRUCTURAL FAILUR
02-1-010-1	20217	TORQUE TUBE ASSEMBLY	STRUCTURAL FAILUR
02-1-012-1	20501	DOOR EXTEND / RETRACT	STRUCTURAL FAILUR
02-1-012-1	20701	MLG UPLOCK HOOK ASSEM	STRUCTURAL FAILUR
02-1-012-1	20901	DOOR HOOK ACTUATUON	STRUCTURAL FAILUR
02-1-013-1	20501	DOOR EXTEND / RETRACT	STRUCTURAL FAILUR
02-1-013-1	20701	MLG UPLOCK HOOK ASSEM	STRUCTURAL FAILUR
02-1-013-1	20901	DOOR HOOK ACTUATUON	STRUCTURAL FAILUR
02-1-014-1	20501	DOOR EXTEND / RETRACT	STRUCTURAL FAILUR
02-1-014-1	20701	MLG UPLOCK HOOK ASSEM	STRUCTURAL FAILUR
02-1-014-1	20901	DOOR HOOK ACTUATUON	STRUCTURAL FAILUR
02-1-015-1	21101	MLG PYRO UPLOCK RELEA	INADVERTANT FIRIN
02-1-015-2	21102	MLG PYRO UPLOCK RELEA	FAIL TO FIRE
02-1-017-1	20218	SHOCK STRUT ATTACHING	STRUCTURAL FAILUR
02-1-018-1	20223	SUPPORT BEAM	STRUCTURAL FAILUR
02-1-019-1	20501	DOOR EXTEND / RETRACT	STRUCTURAL FAILUR
02-1-019-1	20701	MLG UPLOCK HOOK ASSEM	STRUCTURAL FAILUR
02-1-019-1	20901	DOOR HOOK ACTUATUON	STRUCTURAL FAILUR
02-1-020-1	20501	DOOR EXTEND / RETRACT	STRUCTURAL FAILUR
02-1-020-1	20701	MLG UPLOCK HOOK ASSEM	STRUCTURAL FAILUR
02-1-020-1	20901	DOOR HOOK ACTUATUON	STRUCTURAL FAILUR
02-1-021-1	20501	DOOR EXTEND / RETRACT	STRUCTURAL FAILUR
02-1-021-1	20701	MLG UPLOCK HOOK ASSEM	STRUCTURAL FAILUR
02-1-021-1	20901	DOOR HOOK ACTUATUON	STRUCTURAL FAILUR
02-1-023-2	30117	SELECTOR VALVE	LEAKAGE
02-1-023-3	30118	SELECTOR VALVE	JAMMED CLOSED
02-1-024-1	30101	ANTI-SKID SELECT SW	SWITCH MALFUNCTIO
02-1-025-1	30106	BRAKE CIRCUIT	OPEN OR SHORT CIR
02-1-025-2	30105	BRAKE CIRCUIT	OPEN OR SHORT CIR
02-1-026-2	30107	SKID CIRCUIT	OPEN OR SHORT CIR
02-1-027-1	30109	ANTI-SKID FAIL CIRCUIT	OPEN OR SHORT CIR
02-1-027-2	30109	ANTI-SKID FAIL CIRCUIT	OPEN OR SHORT CIR

NASA FMEA	MDAC-ID	ITEM	FAILURE MODE
02-1-028-2	30121	BRAKE / SKID CONTROL	JAMMED OPEN
02-1-029-2	30131	BY - PASS VALVE, HYD	FAILS TO OPEN
02-1-030-1	30112	INLET FILTER, HYD MOD	CLOGGED FILTER
02-1-030-1	30130	INLET FILTER, HYD MOD	FILTER CLOGGED
02-1-032-2	30102	BRAKE PEDAL TRANSDUCE	NO TRANSDUCER DEF
02-1-033-2	30111	HYD PRESS REG (SYS 2	FAILS CLOSED
02-1-033-2	30129	HYD PRESS REG (SYS 1)	FAILS CLOSED
02-1-034-1	21301	MLG DOOR BOOSTER BUNG	FAILS TO FUNCTION
02-1-044-1	30125	RUDDER / BRAKE PEDAL	STRUCTURAL FAILUR
02-1-044-1	30126	RUDDER / BRAKE PEDAL	BINDING / JAMMING
02-1-050-1	30123	EXCITER RING - WHEEL	SHORT OR NO INPUT
02-1-051-1	30123	EXCITER RING - WHEEL	SHORT OR NO INPUT
02-1-051-2	30123	EXCITER RING - WHEEL	SHORT OR NO INPUT
02-1-053-1	30123	EXCITER RING - WHEEL	SHORT OR NO INPUT
02-1-066-2	30124	STATORS, ROTORS, CLIP	STRUCTURAL FAILUR
02-1-075-1	10215	SHOCK STRUT	INTERNAL / EXTERN
02-1-075-1	10216	SHOCK STRUT	INTERNAL / EXTERN
02-1-076-1	10211	TORQUE ARM ASSEMBLY	STRUCTURAL FAILUR
02-1-077-1	10202	DRAG BRACE	STRUCTURAL FAILUR
02-1-077-1	10203	DRAG BRACE TRUNION	STRUCTURAL FAILUR
02-1-077-1	10221	DRAG BRACE	STRUCTURAL FAILUR
02-1-077-1	10222	DRAG BRACE TRUNION	STRUCTURAL FAILUR
02-1-077-1	10223	DRAG BRACE TRUNION	STRUCTURAL FAILUR
02-1-077-1	10224	SUPPORT BEAM	STRUCTURAL FAILUR
02-1-078-1	10204	LOCK BRACE ASSEMBLY	STRUCTURAL FAILUR
02-1-079-1	10205	DOWNLOCK BUNGEE	PHYSICAL BINDING
02-1-079-1	10206	DOWNLOCK BUNGEE	STRUCTURAL FAILUR
02-1-080-1	10214	WEIGHT ON WHEELS SENS	ERONEOUS OUTPUT
02-1-082-1	10217	UPLOCK ROLLER RETAINI	STRUCTURAL FAILUR
02-1-082-1	10701	NLG UPLOCK HOOK ASSEM	STRUCTURAL FAILUR
02-1-083-1	10217	UPLOCK ROLLER RETAINI	STRUCTURAL FAILUR
02-1-085-1	10209	STEERING COLLAR ASSEM	STRUCTURAL FAILUR
02-1-097-1	11102	NLG B/U PYRO UPLOCK	FAIL TO FIRE
02-1-097-2	11101	NLG B/U PYRO UPLOCK	INADVERTANT FIRIN
02-1-098-1	10501	NLG DOOR EXTEND / RET	STRUCTURAL FAILUR
02-1-098-1	10901	NLG DOOR HOOK ACT LIN	STRUCTURAL FAILUR
02-1-099-1	10501	NLG DOOR EXTEND / RET	STRUCTURAL FAILUR
02-1-099-1	10901	NLG DOOR HOOK ACT LIN	STRUCTURAL FAILUR
02-1-102-1	11301	NLG DOOR BUNGEE ASSIS	STRUCTURAL FAILUR
02-1-104-1	11202	NLG EXTENSION BOOSTER	FAIL TO FIRE
02-1-104-2	11201	NLG EXTENSION BOOSTER	INADVERTANT FIRIN
02-1-109-1	10201	NOSE LANDING GEAR TRU	STRUCTURAL FAILUR
02-1-110-1	10101	TIRES, NLG TYPE II	RUPTURE
02-6-G08-A01	21005	MLG UPLOCK ACTUATOR	RUPTURE
02-6-G08-A02	21003	MLG UPLOCK ACTUATOR	LEAK EXTERNAL
02-6-G09-A01	20404	MLG EXTEND / RETRACT	RUPTURE
02-6-G09-A02	20402	MLG EXTEND / RETRACT	LEAK, EXTERNAL
02-6-G09-A04	20416	MLG EXTEND / RETRACT	TEMPERATURE TRANS
02-6-G09-B02	20413	MLG EXTEND / RETRACT	SHUTTLE VALVE
02-6-G09-F01	20414	MLG EXTEND / RETRACT	TIMING ORIFICE

NASA FMEA	MDAC-ID	ITEM	FAILURE MODE
02-6-H01-A01	10404	NLG EXTEND / RETRACT	RUPTURE
02-6-H01-A02	10402	NLG EXTEND / RETRACT	LEAK, EXTERNAL
02-6-H01-A04	10416	NLG EXTEND / RETRACT	TEMPERATURE TRANS
02-6-H01-B02	10413	NLG EXTEND / RETRACT	SHUTTLE VALVE
02-6-H01-F01	10414	NLG EXTEND / RETRACT	TIMING ORIFICE
02-6-H03-1	11005	NLG UPLOCK ACTUATOR	RUPTURE
02-6-H03-2	11003	NLG UPLOCK ACTUATOR	LEAK EXTERNAL
05-6BA-200200-1	31166	HYBRID DRIVER CONTROL	INADVERTENT OUTPU
05-6BA-2115-1	31113	PUSHBUTTON SWITCH (2)	FAILS OPEN
05-6BA-2117-1	31117	PUSHBUTTON SWITCH, LD	FAILS OPEN
05-6BA-2118-4	31101	PROXIMITY SENSOR BOX	INADVERTENT OUTPU
05-6BA-2206-1	31107	BLOCKING DIODE (2) 12	ELEMENT OPENS
05-6BA-2207-1	31109	BLOCKING DIODE (2) 12	ELEMENT OPENS
05-6BA-2244-2	31123	CIRCUIT BREAKER (3 AM	FAILS OPEN
05-6BA-2300-1	31126	GENERAL PURPOSE FUSE	OPENS, PREMATURE
05-6BA-2301-1	31127	GENERAL PURPOSE FUSE	OPENS, PREMATURE
05-6BA-2302-1	31125	GENERAL PURPOSE FUSE	OPENS, PREMATURE
05-6BA-2303-1	31137	GENERAL PURPOSE FUSE	OPENS, PREMATURE
05-6BA-2356-1	31128	RESISTOR (12)	ELEMENT OPENS
05-6BA-2401-3	31149	HYBRID DRIVER CONTROL	INADVERTENT OUTPU
05-6BA-2402-3	31144	HYBRID DRIVER CONTROL	INADVERTENT OUTPU
05-6BA-2407-1	31158	HYBRID DRIVER CONTROL	LOSS OF OUTPUT
05-6BA-2407-2	31158	HYBRID DRIVER CONTROL	LOSS OF OUTPUT
05-6BA-2408-1	31156	HYBRID DRIVER CONTROL	LOSS OF OUTPUT
05-6BA-2409-1	31154	HYBRID DRIVER CONTROL	LOSS OF OUTPUT
05-6BA-2410-1	31159	HYBRID DRIVER CONTROL	LOSS OF OUTPUT
05-6BA-2410-2	31160	HYBRID DRIVER CONTROL	INADVERTENT OUTPU
05-6BA-2413-1	31152	HYBRID DRIVER CONTROL	LOSS OF OUTPUT
05-6BA-2413-2	31153	HYBRID DRIVER CONTROL	INADVERTENT OUTPU
05-6BA-2415-1	31150	HYBRID DRIVER CONTROL	LOSS OF OUTPUT
05-6BA-2415-2	31151	HYBRID DRIVER CONTROL	INADVERTENT OUTPU
05-6BA-2501-1	31168	LATCHING RELAY (6)	FAILS OPEN
05-6BA-2502-1	31170	LATCHING RELAY (6)	FAILS OPEN
05-6BA-2502-3	31171	LATCHING RELAY (6)	FAILS CLOSED
05-6BA-2576-1	31177	PYRO INITIATOR CNTRL	LOSS OF OUTPUT
05-6BA-2578-1	31183	DIODE, 12 AMP	ELEMENT OPENS
05-6BB-2096-1	31213	GENERAL PURPOSE RELAY	FAILS OPEN
05-6BB-2096-2	31213	GENERAL PURPOSE RELAY	FAILS OPEN
05-6BB-2096-3	31214	GENERAL PURPOSE RELAY	FAILS CLOSED
05-6BB-2102-2	31212	BLOCKING DIODE (4)	SHORTS
05-6BB-2107-1	31220	TOGGLE SWITCH, DPST	FAILS OPEN
05-6BB-2107-2	31220	TOGGLE SWITCH, DPST	FAILS OPEN
05-6BB-2240-1	31201	GENERAL PURPOSE FUSE	OPENS, PREMATURE
05-6BB-2241-1	31205	GENERAL PURPOSE FUSE	OPENS, PREMATURE
05-6BB-2246-1	31202	FUSE (5 AMP), 2	OPENS, PREMATURE
05-6BB-2249-1	31210	CURRENT LIMITING RESI	ELEMENT OPENS
05-6BB-2262-1	31216	HYBRID DRIVER CONTROL	LOSS OF OUTPUT
05-6BB-2262-2	31217	HYBRID DRIVER CONTROL	INADVERTENT OUTPU
05-6BB-2270-1	31240	RESISTOR (1 OHM)(2W)	OPEN (ELECTRICAL)
NONE	10210	STEERING DISCONNECT	STRUCTURAL FAILUR
NONE	10212	NOSE WHEEL RETAINING	CORROSION, STRUCT

NASA FMEA	MDAC-ID	ITEM	FAILURE MODE
NONE	10213	AXLE	CORROSION, STRUCT
NONE	10220	TORQUE TUBE ASSEMBLY	STRUCTURAL FAILUR
NONE	10401	NLG EXTEND / RETRACT	BROKEN ROD / LINK
NONE	10601	NLG DOOR OVER-CENTER	STRUCTURAL FAILUR
NONE	11004	NLG UPLOCK ACTUATOR	BROKEN ROD / LINK
NONE	11302	NLG DOOR BUNGEE ASSIS	STRUCTURAL FAILUR
NONE	20205	AXLE KIT - MLG	STRUCTURAL FAILUR
NONE	20214	WEIGHT ON WHEELS SENS	SHORTED OPEN
NONE	20215	WEIGHT ON WHEELS SENS	SHORTED CLOSED
NONE	20401	MLG EXTEND / RETRACT	BROKEN ROD / LINK
NONE	20601	DOOR OVER-CENTER BUNG	STRUCTURAL FAILUR
NONE	21004	MLG UPLOCK ACTUATOR	BROKEN ROD / LINK
NONE	30104	BRAKE PEDAL TRANSDUCE	SHORT / CLOSED
NONE	30127	TRANSDUCERS, SENSORS	FAILURE - NO DATA
NONE	31161	HYBRID DRIVER CONTROL	LOSS OF OUTPUT

APPENDIX E
DETAILED ANALYSIS

This appendix contains the IOA analysis worksheets supplementing previous results reported in STSEOS Working Paper 1.0-WP-VA86001-25, Analysis of the Landing/Deceleration Subsystem, (19 January 1987). Prior results were obtained independently and documented before starting the FMEA/CIL assessment activity. Supplemental analysis was performed to address failure modes not previously considered by the IOA. Each sheet identifies the hardware item being analyzed, parent assembly and function performed. For each failure mode possible causes are identified, and hardware and functional criticality for each mission phase are determined as described in NSTS 22206, Instructions for Preparation of FMEA and CIL, 10 October 1986. Failure mode effects are described at the bottom of each sheet and worst case criticality is identified at the top.

LEGEND FOR IOA ANALYSIS 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 Screen A:

1 = Is Checked Out PreFlight
2 = Is Capable of Check Out PreFlight
3 = Not Capable of Check Out PreFlight
NA = Not Applicable

Redundancy Screens B and C:

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

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/22/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LANDING/DECELERATION SYSTEMS FLIGHT: 2/1R
MDAC ID: 31240 ABORT: 2/1R

ITEM: RESISTOR (1 OHM)(2W) ANTI-SKID VLV COIL CURRENT MEASUREMENT
FAILURE MODE: OPEN (ELECTRICAL)

LEAD ANALYST: P. BYNUM SUBSYS LEAD: SCHMECKPEPER

BREAKDOWN HIERARCHY:
1) BRAKE AND ANTI-SKID
2) FWD LCA-1,2,3
3) RESISTOR (1 OHM)(2W) CURRENT SENSORS (4)
4)
5)
6)
7)
8)
9)

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	2/1R
ONORBIT:	/NA	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	2/1R		

REDUNDANCY SCREENS: A [P] B [P] C [P]

LOCATION: 40V51A2
PART NUMBER:

CAUSES: MECHANICAL SHOCK, STRUCTURAL FAILURE, THERMAL SHOCK, VIBRATION

EFFECTS/RATIONALE:
POSSIBLE LOSS OF ANTI-SKID PROTECTION DUE TO LOCKED WHEEL/BRAKE.

REFERENCES:

APPENDIX F

NASA FMEA TO IOA WORKSHEET CROSS REFERENCE/RECOMMENDATIONS

This section provides a cross reference between the NASA FMEA and corresponding IOA analysis worksheet(s) included in Appendix E. The Appendix F identifies: NASA FMEA Number, IOA Assessment Number, NASA criticality and redundancy screen data, and IOA recommendations.

Appendix F Legend

Code	Definition
1.	IOA recommends downgrading the criticality.
2.	IOA recommends upgrading the criticality.
3.	IOA recommends changing the effects field.
4.	IOA concurs with NASA's evaluation of the FMEA.
5.	IOA generated a non-credible failure mode.
6.	IOA recommends that the FMEA be deleted because it is not a credible failure for that particular component or components.
7.	IOA recommends changing NASA's redundancy screen fields to conform to NSTS 22206
8.	IOA recommends generating a new FMEA for an uncovered component and/or failure mode.
9.	IOA recommends combining FMEA's together that are criticality 3, to conform to NSTS 22206.
10.	NASA's FMEA/CIL revaluation deleted this failure mode as a non-credible failure.
11.	IOA recommends deletion of this item from the CIL.
12.	IOA recommends the addition of this item to the CIL listing.
13.	NASA transferred the FMEA/CIL to another subsystem.

APPENDIX F

NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA				IOA RECOMMENDATIONS *				
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A	B	C	CRIT HW/F	SCREENS A	B	C	OTHER (SEE LEGEND CODE)	ISSUE
02-1-001-1	LDGDEC-20201	1/1	NA	NA	NA	/				3.12	
02-1-001-2	LDGDEC-20202	3/3	NA	NA	NA	1/1	NA	NA	NA	8.12	X
	LDGDEC-20203	3/3	NA	NA	NA	3/1R	NA	NA	NA	2	X
02-1-002-1	LDGDEC-20101	1/1	NA	NA	NA	1/1	NA	NA	NA	4	
02-1-003-1	LDGDEC-20206	1/1	NA	NA	NA	1/1	NA	NA	NA	8	X
	LDGDEC-20207	1/1	NA	NA	NA	1/1	NA	NA	NA	8.12	X
	LDGDEC-20219	1/1	NA	NA	NA	1/1	NA	NA	NA	8.12	X
	LDGDEC-20220	1/1	NA	NA	NA	1/1	NA	NA	NA	9.12	X
	LDGDEC-20221	1/1	NA	NA	NA	1/1	NA	NA	NA	6.12	X
02-1-004-1	LDGDEC-20204	1/1	NA	NA	NA	/				4	
02-1-005-1	LDGDEC-20208	1/1	NA	NA	NA	/				4	
	LDGDEC-20222	1/1	NA	NA	NA	1/1	NA	NA	NA	8.12	X
02-1-006-1	LDGDEC-20216	1/1	NA	NA	NA	/				4	
02-1-007-1	LDGDEC-20211	3/3	NA	NA	NA	/				4	
02-1-008-1	LDGDEC-20209	3/1R	P	NA	P	1/1	NA	NA	NA	2.8.12	X
	LDGDEC-20210	3/1R	P	NA	P	1/1	NA	NA	NA	2.8.12	X
02-1-009-1	LDGDEC-20212	3/3	NA	NA	NA	/				4	
	LDGDEC-20213	3/3	NA	NA	NA	/				4	
02-1-010-1	LDGDEC-20217	1/1	NA	NA	NA	/				4	
02-1-012-1	LDGDEC-20501	1/1	NA	NA	NA	/				4	
	LDGDEC-20701	1/1	NA	NA	NA	/				4	
	LDGDEC-20901	1/1	NA	NA	NA	/				4	
02-1-013-1	LDGDEC-20501A	1/1	NA	NA	NA	/				4	
	LDGDEC-20701A	1/1	NA	NA	NA	/				4	
	LDGDEC-20901A	1/1	NA	NA	NA	/				4	
02-1-014-1	LDGDEC-20501B	1/1	NA	NA	NA	/				4	
	LDGDEC-20701B	1/1	NA	NA	NA	/				4	
	LDGDEC-20901B	1/1	NA	NA	NA	/				4	
02-1-015-1	LDGDEC-21101	1/1	NA	NA	NA	/				4.13	
02-1-015-2	LDGDEC-21102	2/1R	NA	NA	NA	2/1R	N	N	N	2.13	
02-1-017-1	LDGDEC-20213	1/1	NA	NA	NA	/				4	
02-1-018-1	LDGDEC-20223	1/1	NA	NA	NA	/				4	
02-1-019-1	LDGDEC-20501C	1/1	NA	NA	NA	/				4	
	LDGDEC-20701C	1/1	NA	NA	NA	/				4	
	LDGDEC-20901C	1/1	NA	NA	NA	/				4	
02-1-020-1	LDGDEC-20501D	1/1	NA	NA	NA	/				4	
	LDGDEC-20701D	1/1	NA	NA	NA	/				4	
	LDGDEC-20901D	1/1	NA	NA	NA	/				4	
02-1-021-1	LDGDEC-20501E	1/1	NA	NA	NA	/				4	
	LDGDEC-20701E	1/1	NA	NA	NA	/				4	
	LDGDEC-20901E	1/1	NA	NA	NA	/				4	
02-1-022-1	LDGDEC-30114	3/1R	P	P	P	/				4	
02-1-022-2	LDGDEC-30113	2/1R	P	P	P	3/1R	P	P	P	1.11	
02-1-023-1	LDGDEC-30119	3/1R	P	P	P	3/3	NA	NA	NA	1	
02-1-023-2	LDGDEC-30117	1/1	NA	NA	NA	/				4	

IDENTIFIERS		NASA				IOA RECOMMENDATIONS				
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A	B	C	CRIT HW/F	SCREENS A	B	C	OTHER (SEE LEGEND CODE.	ISSUE
02-1-023-3	LDGDEC-30118	1/1	NA	NA	NA	3/1R	P	P	P	1	
02-1-024-1	LDGDEC-30101	3/1R	P	P	P	3/3	NA	NA	NA	1	
02-1-025-1	LDGDEC-30106	3/1R	P	P	P	/				4	
02-1-025-2	LDGDEC-30105	2/1R	P	P	P	1/1	NA	NA	NA	2	X
02-1-026-1	LDGDEC-30108	3/1R	P	P	P	3/3	NA	NA	NA	1	
02-1-026-2	LDGDEC-30107	2/1R	P	P	P	3/3	NA	NA	NA	11	
02-1-027-1	LDGDEC-30109	2/1R	P	P	P	3/3	NA	NA	NA	1.11	
02-1-027-2	LDGDEC-30109A	2/1R	P	P	P	3/3	NA	NA	NA	1.11	
02-1-028-1	LDGDEC-30122	3/1R	P	P	P	/				4	
02-1-028-2	LDGDEC-30121	1/1	NA	NA	NA	/				4	
02-1-028-3	LDGDEC-30120	3/1R	P	P	P	/				4	
02-1-029-1	LDGDEC-30115	3/3	NA	NA	NA	/				4	
02-1-029-2	LDGDEC-30116	3/3	NA	NA	NA	2/1R	P	F	P	8.12	X
	LDGDEC-30131	3/3	NA	NA	NA	2/1R	P	P	P	2.3.8.12	X
02-1-030-1	LDGDEC-30112	3/1R	P	P	P	2/1R	P	P	P	2.8.12	X
	LDGDEC-30130	3/1R				2/1R	P	F	P	2.3.8.12	X
02-1-032-1	LDGDEC-30103	3/1R	P	P	P	/				4	
02-1-032-2	LDGDEC-30102	2/1R	P	P	P	/				4	
02-1-033-1	LDGDEC-30110	3/1R	P	P	P	/				4	
02-1-033-2	LDGDEC-30111	3/1R	P	P	P	2/1R	P	P	P	2.8.12	X
	LDGDEC-30129	3/1R	P	P	P	2/1R	P	F	P	2.3	X
02-1-034-1	LDGDEC-21301	1/1	NA	NA	NA	/				4	
02-1-044-1	LDGDEC-30125	1/1	NA	NA	NA	/				4	
	LDGDEC-30126	1/1	NA	NA	NA	/				4	
02-1-050-1	LDGDEC-30123	2/1R	P	P	P	3/3	NA	NA	NA	1.11	
02-1-051-1	LDGDEC-30123A	2/1R	P	P	P	3/3	NA	NA	NA	1.11	
02-1-051-2	LDGDEC-30123B	2/1R	P	P	P	3/3	NA	NA	NA	1.11	
02-1-053-1	LDGDEC-30123C	2/1R	P	P	P	3/3	NA	NA	NA	1.11	
02-1-066-2	LDGDEC-30124	3/1R	P	P	P	1/1	P	P	P	8.12	X
02-1-075-1	LDGDEC-10215	1/1	NA	NA	NA	/				4	
	LDGDEC-10216	1/1	NA	NA	NA	3/1R	NA	NA	NA	8.12	
02-1-076-1	LDGDEC-10211	3/1R	P	P	P	1/1	NA	NA	NA	2	X
02-1-077-1	LDGDEC-10202	1/1	NA	NA	NA	1/1	NA	NA	NA	8.12	X
	LDGDEC-10203	1/1	NA	NA	NA	1/1	NA	NA	NA	8.12	X
	LDGDEC-10221	1/1	NA	NA	NA	/				8.12	X
	LDGDEC-10222	1/1	NA	NA	NA	1/1	NA	NA	AN	8.12	X
	LDGDEC-10223	1/1	NA	NA	NA	1/1	NA	NA	AN	8.12	X
	LDGDEC-10224	1/1	NA	NA	NA	1/1	NA	NA	AN	8.12	X
02-1-078-1	LDGDEC-10204	1/1	NA	NA	NA	/				4	
02-1-079-1	LDGDEC-10205	3/1R	P	NA	P	1/1	NA	NA	NA	8.12	X
	LDGDEC-10206	3/1R	P	NA	P	1/1	NA	NA	NA	8.12	X
02-1-080-1	LDGDEC-10214	3/1R	P	NA	P	3/3	P	P	P	1	
	LDGDEC-10218	3/1R	P	NA	P	3/3	P	P	P	1	
	LDGDEC-10219	3/1R	P	NA	P	3/3	P	P	P	1	
02-1-081-1	LDGDEC-10207	3/3	NA	NA	NA	/				4	
	LDGDEC-10208	3/3	NA	NA	NA	/				4	
02-1-082-1	LDGDEC-10217	1/1	NA	NA	NA	/				4	
	LDGDEC-10701	1/1	NA	NA	NA	/				4	
02-1-083-1	LDGDEC-10217A	1/1	NA	NA	NA	1/1	NA	NA	NA	8.12	
02-1-085-1	LDGDEC-10209	3/1R	P	P	P	/				4	

IDENTIFIERS		NASA				IOA RECOMMENDATIONS *					
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A	B	C	CRIT HW/F	SCREENS A	B	C	OTHER (SEE LEGEND CODE)	ISSUE
02-1-097-1	LDGDEC-11102	2/1R	NA	NA	NA	1/1	NA	NA	NA	2.13	
02-1-097-2	LDGDEC-11101	1/1	NA	NA	NA	/				13	
02-1-098-1	LDGDEC-10501	1/1	NA	NA	NA	/				4	
	LDGDEC-10901	1/1	NA	NA	NA	/				4	
02-1-099-1	LDGDEC-10501A	1/1	NA	NA	NA	/				8	
	LDGDEC-10901A	1/1	NA	NA	NA	1/1	NA	NA	NA	3.12	
02-1-102-1	LDGDEC-11301	1/1	NA	NA	NA	/				4	
02-1-104-1	LDGDEC-11202	1/1	NA	NA	NA	/				4.13	
02-1-104-2	LDGDEC-11201	1/1	NA	NA	NA	/				4.13	
02-1-109-1	LDGDEC-10201	1/1	NA	NA	NA	1/1	NA	NA	NA	8.12	X
02-1-110-1	LDGDEC-10101	1/1	NA	NA	NA	/				4	
02-6-G08-A01	LDGDEC-21005	2/1R	P	P	P	/		F		3	
02-6-G08-A02	LDGDEC-21003	2/1R	P	P	P	/		F		3.4	
02-6-G08-A03	LDGDEC-21006	3/3	NA	NA	NA	/				4	
02-6-G09-A01	LDGDEC-20404	1/1	NA	NA	NA	/				4	
02-6-G09-A02	LDGDEC-20402	3/3	NA	NA	NA	2/1R	P	F	P	2.8.12	X
02-6-G09-A03	LDGDEC-20403	3/3	NA	NA	NA	/				4	
02-6-G09-A04	LDGDEC-20416	2/1R	P	P	P	2/1R	P	F	P	3	
02-6-G09-B01	LDGDEC-20412	3/3	NA	NA	NA	/				4	
02-6-G09-B02	LDGDEC-20413	1/1	NA	NA	NA	/				4	
02-6-G09-C01	LDGDEC-20411	3/3	NA	NA	NA	/				4	
02-6-G09-D01	LDGDEC-20409	3/3	NA	NA	NA	/				4	
02-6-G09-D02	LDGDEC-20410	3/3	NA	NA	NA	/				4	
02-6-G09-E01	LDGDEC-20408	3/3	NA	NA	NA	/				4	
02-6-G09-E02	LDGDEC-20408A	3/3	NA	NA	NA	/				4	
02-6-G09-F01	LDGDEC-20414	1/1	NA	NA	NA	/				4	
02-6-G09-G01	LDGDEC-20406	3/3	NA	NA	NA	/				4	
02-6-G09-H01	LDGDEC-20415	3/3	NA	NA	NA	/				4	
02-6-G09-H02	LDGDEC-20415A	3/3	NA	NA	NA	/				4	
02-6-G09-J01	LDGDEC-20407	3/3	NA	NA	NA	/				4	
02-6-G09-J02	LDGDEC-20407A	3/3	NA	NA	NA	/				4	
02-6-G09-K01	LDGDEC-20405	3/3	NA	NA	NA	/				4	
02-6-G12-1	LDGDEC-30128	3/1R	P	P	P	/				4	
02-6-H01-A01	LDGDEC-10404	1/1	NA	NA	NA	/				4	
02-6-H01-A02	LDGDEC-10402	3/3	NA	NA	NA	2/1R	P	F	P	2	
02-6-H01-A03	LDGDEC-10403	3/3	NA	NA	NA	/				4	
02-6-H01-A04	LDGDEC-10416	2/1R	P	P	P	2/1R	P	F	P	3	
02-6-H01-B01	LDGDEC-10412	3/3	NA	NA	NA	/				4	
02-6-H01-B02	LDGDEC-10413	1/1	NA	NA	NA	/				4	
02-6-H01-C01	LDGDEC-10411	3/3	NA	NA	NA	/				4	
02-6-H01-D01	LDGDEC-10409	3/3	NA	NA	NA	/				4	
02-6-H01-D02	LDGDEC-10410	3/3	NA	NA	NA	/				4	
02-6-H01-E01	LDGDEC-10408	3/3	NA	NA	NA	/				4	
02-6-H01-E02	LDGDEC-10408A	3/3	NA	NA	NA	/				4	
02-6-H01-F01	LDGDEC-10414	1/1	NA	NA	NA	/				4	
02-6-H01-G01	LDGDEC-10406	3/3	NA	NA	NA	/				4	
02-6-H01-H01	LDGDEC-10415	3/3	NA	NA	NA	/				4	
02-6-H01-H02	LDGDEC-10415A	3/3	NA	NA	NA	/				4	
02-6-H01-J01	LDGDEC-10407	3/3	NA	NA	NA	/				4	
02-6-H01-J02	LDGDEC-10407A	3/3	NA	NA	NA	/				4	

IDENTIFIERS		NASA				IDA RECOMMENDATIONS *				
NASA FMEA NUMBER	IDA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A	B	C	CRIT HW/F	SCREENS A	B	C	OTHER (SEE LEGEND CODE)	ISSUE
02-6-H01-K01	LDGDEC-10405	3/3	NA	NA	NA	/				4	
02-6-H03-1	LDGDEC-11005	2/1R	P	P	P	2/1R	P	P	P	3	
02-6-H03-2	LDGDEC-11003	2/1R	NA	NA	NA	2/1R	P	P	P	9,12	
02-6-H03-3	LDGDEC-11006	3/3	NA	NA	NA	/				4	
05-68A-2401-1	LDGDEC-31147	3/1R	P	P	P	/				4	
05-68A-2401-2	LDGDEC-31147A	3/1R	P	P	P	/				4	
05-2106-1	LDGDEC-31224	3/1R	P	P	P	/	P	P	P	4	
05-2409-2	LDGDEC-31155	3/3				/				4	
05-6BA-200200-1	LDGDEC-31163	3/1R	P	P	P	/				6.10	
	LDGDEC-31164	3/1R	P	P	P	/				6.10	
	LDGDEC-31165	3/1R	P	P	P	/				6.10	
	LDGDEC-31166	3/1R	P	P	P	/		F		6.10	
	LDGDEC-31181	3/1R	P	P	P	/				6.10	
05-6BA-2113-1	LDGDEC-31119	3/3				/				4	
05-6BA-2115-1	LDGDEC-31113	2/1R	P	P	P	/				4	
05-6BA-2115-2	LDGDEC-31114A	/				/				5.10	
05-6BA-2115-3	LDGDEC-31114	1/1				3/3				5.11	X
05-6BA-2116-1	LDGDEC-31115	3/3				/				4	
05-6BA-2116-2	LDGDEC-31115A	3/3				/				5.10	
05-6BA-2116-3	LDGDEC-31115B	2/1R	P	P	P	3/3				1.9,11	X
05-6BA-2117-1	LDGDEC-31117	2/1R	P	P	P	3/1R	P	P	P	1,7	X
05-6BA-2117-2	LDGDEC-31118A	3/1R	NA	NA	NA	/				6.10	
05-6BA-2117-3	LDGDEC-31118	2/1R	P	P	P	3/3				1.11	X
05-6BA-2118-4	LDGDEC-31101	2/1R	P	P	P	/				4	
05-6BA-2204-1	LDGDEC-31100	3/3				/				4	
05-6BA-2204-2	LDGDEC-31100A	3/3				/				4	
05-6BA-2205-1	LDGDEC-31105	3/3				/				4	
05-6BA-2205-2	LDGDEC-31105A	3/1R	P	P	P	3/3				1.11	X
05-6BA-2206-1	LDGDEC-31107	3/1R	P	P	P	/				4	
05-6BA-2206-2	LDGDEC-31108	3/3				/				4	
05-6BA-2207-1	LDGDEC-31109	3/1R	P	P	P	/				4	
05-6BA-2207-2	LDGDEC-31110	3/3				/				4	
05-6BA-2208-1	LDGDEC-31122	3/3				/				4	
05-6BA-2208-2	LDGDEC-31122A	3/3				/				4	
05-6BA-2209-1	LDGDEC-31121	3/1R	P	P	P	/				4	
05-6BA-2209-2	LDGDEC-31120	3/3				/				4	
05-6BA-2243-1	LDGDEC-31111	3/1R	P	P	P	/				4	
05-6BA-2243-2	LDGDEC-31112	3/3				/				4	
05-6BA-2244-1	LDGDEC-31123	3/3				/				4	
05-6BA-2244-2	LDGDEC-31123A	2/1R	P	P	P	/				4	
05-6BA-2300-1	LDGDEC-31126	3/1R	P	P	P	/				4	
05-6BA-2300-2	LDGDEC-31126A	3/3				/				5.10	
05-6BA-2301-1	LDGDEC-31127	3/1R	P	P	P	/				4	
05-6BA-2301-2	LDGDEC-31127A	3/3				/				5.10	
05-6BA-2302-1	LDGDEC-31125	2/1R	P	P	P	3/1R	P	P	P	1,7	X
05-6BA-2303-1	LDGDEC-31137	2/1R	P	P	P	/		F		7	X
05-6BA-2303-2	LDGDEC-31137A	3/3				/				6.10	
05-6BA-2351-1	LDGDEC-31130	3/3				/				4	
05-6BA-2351-2	LDGDEC-31130A	3/3				/				6.10	
05-6BA-2352-1	LDGDEC-31132	3/3				/				4	

IDENTIFIERS		NASA				IDA RECOMMENDATIONS				
NASA FMEA NUMBER	IDA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A	B	C	CRIT HW/F	SCREENS A	B	C	OTHER (SEE LEGEND CODE)	ISSUE
05-6BA-2353-1	LDGDEC-31136	3/3				/				4	
05-6BA-2354-1	LDGDEC-31134	3/3				/				4	
05-6BA-2356-1	LDGDEC-31128	3/1R	P	P	P	/				4	
05-6BA-2356-2	LDGDEC-31129	3/3				/				4	
05-6BA-2357-1	LDGDEC-31132	3/3				/				4	
05-6BA-2360-1	LDGDEC-31133	3/3				/				4	
05-6BA-2361-1	LDGDEC-31135	3/3				/				4	
05-6BA-2361-2	LDGDEC-31135A	3/3				/				4	
05-6BA-2362-1	LDGDEC-31139	3/3				/				4	
05-6BA-2362-2	LDGDEC-31139A	3/3				/				4	
05-6BA-2363-1	LDGDEC-31131	3/3				/				4	
05-6BA-2400-1	LDGDEC-31140	3/1R	P	P	P	/				4.13	
05-6BA-2400-2	LDGDEC-31141	3/3				/				4.13	
05-6BA-2401-3	LDGDEC-31149	2/1R	P	P	P	/				4	
05-6BA-2402-1	LDGDEC-31143	3/1R	P	P	P	/				4	
05-6BA-2402-2	LDGDEC-31143A	3/1R	P	P	P	/				4	
05-6BA-2402-3	LDGDEC-31144	2/1R	P	P	P	/				4	
05-6BA-2403-1	LDGDEC-31148	3/3				/				4.9	
05-6BA-2403-2	LDGDEC-31148A	3/3				/				4.9	
05-6BA-2404-1	LDGDEC-31142	3/3				/				4.9	
05-6BA-2404-2	LDGDEC-31142A	3/3				/				4.9	
05-6BA-2404-3	LDGDEC-31142B	3/3				/				6	X
05-6BA-2405-1	LDGDEC-31146	3/3				/				4.9	
05-6BA-2405-2	LDGDEC-31146A	3/3				/				4.9	
05-6BA-2405-3	LDGDEC-31146B	3/3				/				6	X
05-6BA-2406-1	LDGDEC-31145	3/1R	P	P	P	3/3				1.9	X
05-6BA-2406-2	LDGDEC-31145A	3/3				/				4.9	
05-6BA-2406-3	LDGDEC-31145B	3/3				/				6	X
05-6BA-2407-1	LDGDEC-31158	2/1R	P	P	P	/				4	
05-6BA-2407-2	LDGDEC-31158A	2/1R	P	P	P	/				4	
05-6BA-2407-3	LDGDEC-31158B	3/3				/				6	X
05-6BA-2408-1	LDGDEC-31156	3/1R	P	F	P	/				4	
05-6BA-2408-2	LDGDEC-31157	3/3				/				4	
05-6BA-2409-1	LDGDEC-31154	3/1R	P	P	P	/		F		7.12	X
05-6BA-2410-1	LDGDEC-31159	3/1R	P	F	P	/				4	
05-6BA-2410-2	LDGDEC-31160	3/1R	P	F	P	/				4	
05-6BA-2412-1	LDGDEC-31152	2/1R	P	F	P	/				4	
05-6BA-2413-2	LDGDEC-31153	3/1R	P	F	P	/				4	
05-6BA-2415-1	LDGDEC-31150	2/1R	P	F	P	/				4	
05-6BA-2415-2	LDGDEC-31151	3/1R	P	F	P	/				4	
05-6BA-2501-1	LDGDEC-31168	2/1R	P	P	P	/				4	
05-6BA-2501-2	LDGDEC-31168A	2/1R	P	P	P	/				6	X
05-6BA-2501-3	LDGDEC-31169	3/1R	P	P	P	/				4	
05-6BA-2502-1	LDGDEC-31170	2/1R	P	F	P	/				4	
05-6BA-2502-2	LDGDEC-31170A	2/1R	P	P	P	/				6	X
05-6BA-2502-3	LDGDEC-31171	2/1R	P	P	P	/				4	
05-6BA-2503-1	LDGDEC-31172	3/1R	P	P	P	/				4	
05-6BA-2503-2	LDGDEC-31172A	3/3				/				4	
05-6BA-2503-3	LDGDEC-31172B	3/3				/				6	X
05-6BA-2550-1	LDGDEC-31173	3/1R	P	P	P	/				4	

IDENTIFIERS		NASA				IOA RECOMMENDATIONS *					
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A	B	C	CRIT HW/F	SCREENS A	B	C	OTHER (SEE LEGEND CODE)	ISSUE
05-6BA-2550-2	LDGDEC-31173A	3/1R	P	P	P	/				6	X
05-6BA-2550-3	LDGDEC-31174	3/3				/				4	
05-6BA-2575-1	LDGDEC-31175	3/1R	P	P	P	/				4	
05-6BA-2575-2	LDGDEC-31176	3/1R	P	P	P	/				4	
05-6BA-2576-1	LDGDEC-31177	2/1R	P	P	P	/				4	
05-6BA-2576-2	LDGDEC-31178	3/1R	P	P	P	/				4,13	
05-6BA-2578-1	LDGDEC-31183	3/1R	P	P	P	2/1R	P	F	P	2,12	X
05-6BA-2578-2	LDGDEC-31184	3/3				/				4	
05-6BA-2580-1	LDGDEC-31185	3/3				/				4	
05-6BA-2580-2	LDGDEC-31185A	3/3				/				4	
05-6BB-2096-1	LDGDEC-31213	2/1R	P	F	P	/				4	
05-6BB-2096-2	LDGDEC-31213A	3/1R	P	F	P	/				6	X
05-6BB-2096-3	LDGDEC-31214	2/1R	P	F	P	/				4	
05-6BB-2101-1	LDGDEC-31215	3/3				/				4	
05-6BB-2102-1	LDGDEC-31211	3/1R	P	F	P	/				4	
05-6BB-2102-2	LDGDEC-31212	3/1R	P	F	P	/				4	
05-6BB-2106-1	LDGDEC-31222	3/1R	P	P	P	/				4	
05-6BB-2106-2	LDGDEC-31222A	3/1R	P	P	P	/				6	X
05-6BB-2106-3	LDGDEC-31223	3/3				/				4	
	LDGDEC-31225	3/1R	P	P	P	3/3				1	X
05-6BB-2107-1	LDGDEC-31220	2/1R	P	P	P	/				4	
05-6BB-2107-2	LDGDEC-31220A	2/1R	P	P	P	/				6	X
05-6BB-2107-3	LDGDEC-31221	3/1R	P	P	P	3/3				1	X
05-6BB-2111-1	LDGDEC-31203	3/3				/				4	
05-6BB-2240-1	LDGDEC-31201	3/1R	P	F	P	/				4	
05-6BB-2241-1	LDGDEC-31205	2/1R	P	P	P	3/1R	P	F	P	1,7	X
05-6BB-2242-1	LDGDEC-31204	3/3				/				4	
05-6BB-2246-1	LDGDEC-31202	2/1R	P	P	P	/				4	
05-6BB-2247-1	LDGDEC-31206	3/3				/				4	
05-6BB-2248-1	LDGDEC-31200	3/3				/				4	
05-6BB-2249-1	LDGDEC-31210	3/1R	P	P	P	/		F		7,12	X
05-6BB-2249-2	LDGDEC-31208	3/3				/				4	
05-6BB-2250-1	LDGDEC-31209	3/3				/				4	
05-6BB-2253-1	LDGDEC-31207	3/3				/				4	
05-6BB-2256-1	LDGDEC-31226	3/1R	P	P	P	/				4	
05-6BB-2256-2	LDGDEC-31227	3/3				/				4	
05-6BB-2262-1	LDGDEC-31216	2/1R	P	F	P	/				4	
	LDGDEC-31218	3/1R	P	P	P	/				4	
05-6BB-2262-2	LDGDEC-31217	3/1R	P	F	P	/				4	
	LDGDEC-31219	3/3				/				4	
05-6BB-2270-1	LDGDEC-31240X	2/1R	P	P	P	/				4	
06-6BA-2118-1	LDGDEC-31102	3/1R	P	P	P	/				4	
06-6BA-2200-1	LDGDEC-31103	3/3				/				4	
06-6BA-2200-2	LDGDEC-31103A	3/3				/				4	
06-6BA-2201-1	LDGDEC-31104	3/3				/				4	
06-6BA-2201-2	LDGDEC-31104A	3/3				/				4	
NONE	LDGDEC-10210	/				1/1	NA	NA	NA	8,12	X
	LDGDEC-10212	/				1/1	NA	NA	NA	5	
	LDGDEC-10213	/				1/1	NA	NA	NA	8,12	X
	LDGDEC-10220	/				1/1	NA	NA	NA	8,12	X

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *				
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C	CRIT HW/F	SCREENS A B C	OTHER (SEE LEGEND CODE)	ISSUE
NONE	LDGDEC-10401	/		3/3	NA NA NA	8	
	LDGDEC-10601	/		3/3	NA NA NA	4	
	LDGDEC-11004	/		2/1R	P F P	8.12	
	LDGDEC-11302	/		1/1	NA NA NA	8.12	
	LDGDEC-20205	/		1/1	NA NA NA	4.9	X
	LDGDEC-20214	/		3/3	NA NA NA		
	LDGDEC-20215	/		3/3	NA NA NA		
	LDGDEC-20401	/		3/3	NA NA NA	8	
	LDGDEC-20601	/		3/3	NA NA NA		
	LDGDEC-21004	/		2/1R	P F P	8.12	X
	LDGDEC-30104	/		1/1	NA NA NA	8.12	X
	LDGDEC-30127	/		3/3	NA NA NA	5	
	LDGDEC-31161	/		3/1R	P F P	8.12	X
	LDGDEC-31162	/		3/3		8	X
	LDGDEC-31167	/		3/3		8	X
	LDGDEC-31179	/		3/3		8	X
	LDGDEC-31180	/		3/3		8	X
	LDGDEC-31182	/		/		6.10	
	LDGDEC-31228	/		3/3		9	X
	LDGDEC-31229	/		3/1R	P P P	8	X
	LDGDEC-31230	/		3/1R	P P P	8	X
	LDGDEC-31231	/		3/3		8	X
	LDGDEC-31232	/		3/1R	P P P	8	X
	LDGDEC-31233	/		3/3		8	X
	LDGDEC-31234	/		3/3		8	X
	LDGDEC-31235	/		3/3		9	X
	LDGDEC-31237	/		3/3		8	X
	LDGDEC-31239	/		3/3		9	X

MCDONNELL DOUGLAS ASTRONAUTICS COMPANY –
ENGINEERING SERVICES
16055 SPACE CENTER BLVD, HOUSTON, TEXAS 77062

Independent Orbiter Assessment
Assessment of the Landing/Deceleration 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 Landing / Deceleration (LDG/DEC) hardware, generating draft failure modes and potential critical items. To preserve independence, this analysis was accomplished without reliance upon the results contained within the NASA FMEA/CIL documentation. The IOA results were then compared to the NASA FMEA/CIL baseline with proposed Post 51-L updates included. A resolution of each discrepancy from the comparison is provided through additional analysis as required. This report documents the results of that comparison for the Orbiter LDG/DEC hardware.

The IOA product for the LDG/DEC analysis consisted of 259 failure mode worksheets that resulted in 124 potential critical items being identified. Comparison was made to the NASA baseline (as of 19 November 1986) which consisted of 267 FMEA's and 120 CIL items. The comparison determined if there were any results which had been found by the IOA but were not in the NASA baseline. This comparison produced agreement on all but 75 FMEA's which caused differences in 51 CIL items. Figure 1 presents a comparison of the proposed Post 51-L NASA baseline, with the IOA recommended baseline, and any issues.

The issues arose due to differences between the NASA and IOA FMEA/CIL preparation instructions. NASA had used an older ground rules document which has since been superseded by the NSTS 22206 used by the IOA. After comparison, there were no discrepancies found that were not already identified by NASA, and the remaining issues may be attributed to differences in ground rules.

NASA
FORMAL
REPORT

FFNo 665 Aug 65

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Independent Orbiter Assessment

...ting NASA Organization: JSC VA

...orming Organization (if different) McDonnell - Douglas

...ontract/Grant/Interagency/Project Number(s) NAS9-17650 CR-185570

Document Number(s) Various Document Date: Various

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