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STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT

01/31/95
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IFA NUMBER> STS-32-B-01

TITLE:Left and Right SRB Upper struts missing EPDM and RTV

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 02/08/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1991-03-27 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044812B PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12699 A PV-4-028141
A PV-6-149831 A PV-6-149832

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R. RUNKLE/EE11
2:

0 DESCRIPTION:

During postflight inspection at KSC, both left and right SRBs were noted as missing some of their EPDM and RTV 3-6077 materials from the upper strut location.

A five inch section of EPDM was missing from the aft side of the right SRB upper strut. A four inch section of EPDM was missing from the aft side of the left SRB. The Q3-6077 high temperature silicone was missing below the lost EPDM on both SRBs. PR-855 silicone foam was also heat affected on both SRB upper strut areas. The right SRB indicated further heat effect damage. In particular, two cables (a bus power and an upper strut firing line) demonstrated heat discoloration on the outer YR-364 tape. Also, five sealant caps along with the PR 1422 were eroded. This damage is attributed to the loss of PR-855 foam (installed directly below the silicone) due to strut movement at, or subsequent to, separation. These heat effects most probably occurred after T+300 seconds when high heat loads are experienced. There was no PR-855 missing at the left strut, hence, no heat effects similar to the right strut were observed. The investigation concluded that this is a descent occurrence, since no mechanical forces are present during ascent to initiate the damage sustained. The heat effects noted occurred subsequent to separation and the sections of missing EPDM were lost at splashdown. There is no corrective action planned at this time; however, design enhancement of the strut closeout is being evaluated.

USBI Tracking Number: PV-4-028141

MSFC PRACA Tracking Number: A12699

This problem has been closed in the MSFC PRACA system for STS-37 and subs, on 03/27/91.

Flight Problem Report was approved at Level II Noon PRCB on 2/8/90 (PRCBD #S044812B).

Status: closed

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IFA NUMBER> STS-32-B-01

TITLE:Left and Right SRB Upper struts missing EPDM and RTV

0 DESCRIPTION: (Continued from previous page).

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IFA NUMBER> STS-32-B-02
TITLE:Left SRB ETA ring fasteners protruding into ETA ring cover for aft IEA

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 02/08/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-04-09 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044812C PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12698 A PV-4-028192
A PV-6-150123 K PR D-BI-035L-0015

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R. RUNKLE/EE11
2:

0 DESCRIPTION:
During postflight inspection of the left SRB ETA ring, six of the Hi-Lok fasteners which connect the web to the cap were found protruding into the ETA ring cover aft IEA middle cover.

Minor sooting was found confined to a small area on the cover. The problem was attributed to the installation of "larger" Hi-Lok fasteners, preventing proper fit of the cover. As a result of an inspection of this same ETA ring following STS-29, several oversized holes were drilled to accomodate 5/16" Hi-Lok fasteners in place of the normally used 1/4" size. Since the length of the larger fasteners was longer, the fasteners protruded and held the cover up approximately 0.1", thus allowing a hot gas path into this area. Build paper on all ETA Rings, including STS-36 (next flight), has been checked to verify proper installation. This condition is peculiar to this one STS-32R ETA ring. The ring will be returned to proper configuration prior to reuse.

USBI Tracking Number: PV-4-028192

MSFC PRACA Tracking Number: A12698

This problem was closed in the MSFC PRACA system for STS-31R and subs on 4/9/90.

Flight Problem Report approved at Level II Noon PRCB on 2/8/90 (PRCBD #S044812C).

Status: Closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-B-03
TITLE:Broken fastener on left SRB Upper Strut Fairing

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 02/16/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044812G PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-4-028268

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R. RUNKLE/EE11

2: T.MULLIN/KSC

0 DESCRIPTION:

During postflight disassembly, the left SRB upper strut fairing (also known as the "milk-can") was found with a broken fastener.

The broken fastener is one of four fasteners used to install the SRB end of the upper strut fairing. All of these fasteners are closed out with TPS, thus, there is no debris potential. The materials evaluation of the fastener attributed the failure to a torsional overload. There have not been any torsional loads identified within the mission environment which could cause this mode of failure. This is the first known occurrence of a fastener in this area failing due to a torsional force. However, previous flights have experienced broken fasteners in this area due to water impact shear loads. A review of the build paper reflected proper installation and torquing of these fasteners. The technician was interviewed and affirmed the noted fastener was properly torqued to 38-45 in-lbs. As corrective action, the OMI procedure for the installation of upper strut fairings will be reviewed for clarification. Also, development of a modified torque wrench which would enhance torque capabilities is being evaluated. This IFA was jointly assigned to KSC and MSFC (SRB) at the Level II L+7 PRCB (Reference KSC IFA No. STS-32-K-04). Since the actions to resolve this anomaly pertain to the Launch and Landing Project Office only, this problem will be tracked in the KSC Level III PRACA system instead of at MSFC,. Consequently, no MSFC PRACA Number exists for this IFA.

Flight Problem Report approved at Level II Noon PRCB on 2/16/90. (PRCBD #S044812G)

Status: Closed

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IFA NUMBER> STS-32-D-01

TITLE:Radar/Navigation Operation during LDEF Rendezvous.

0 MISSION CONSTRAINT:	SUBS	IFA TIME GMT: 013 : 09.36.00
		IFA DATE: 01/12/1990
IFA STATUS: CLOSED	: 07/23/1990	ELAPSED TIME: 003 : 21.01.00
PRACA STATUS: UNKNOWN		HOUSTON TIME: 03.36.00
PRCBD NUMBER: S044815D		PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER	TYPE	TRACKING NUMBER
M INCO-06		

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

0 DESCRIPTION:

The LDEF rendezvous was successfully supported by the KU-Band system; however, a few of the initial range rate measurements were rejected by the navigation filter. It was then decided to inhibit the range rate measurements to the navigation filter. The range and angle data were nominal and were used in the filter. None of the range or angle data was rejected by the navigation filter.

The erroneous range measurements were most likely caused by noisy inputs to the KU-Band range/velocity processor. A noisy input to the range/velocity processor can result in incorrect resolution of the range rate. The noisy inputs were caused by a weak return signal. The cause of the weak return signal is most likely caused by a low radar cross section and is currently under investigation. A weak return signal resulting from a low radar cross section is not an

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indication of a hardware failure. The ambiguous range rates did not affect the relative state vector and the rendezvous was nominal.

The radar passed self test twice before radar OPS and again after radar OPS.

Suspected cause was low reflectability of LDEF and long range to LDEF.

During the STS-32 L+7 SPRCB it was identified that the navigation filter and flight software exhibited unexplained behavior.

After initial target acquisition at approx 148,400' with valid range and range rate, large unexplained excursions occurred in the range rate information and the range data suffered periods of instability. Post-rendezvous analysis determined that the range rate was edited properly by the navigation filter in the flight software; however, the range information was accepted incorrectly. This action caused increased dispersions in the computation of the NCC burn. Post-NCC burn, the covariance matrix took approx. 45 minutes to reconverge. These conditions are currently unexplained.

Flight Problem Report approved at Level II Daily SPRCB on 7/23/90 (PRCBD #S044815D).

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IFA NUMBER> STS-32-D-01
TITLE:Radar/Navigation Operation during LDEF Rendezvous.

0 DESCRIPTION: (Continued from previous page).

Status: Closed

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IFA NUMBER> STS-32-D-02
TITLE:Uplink Error

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 017 : 23.46.00
IFA DATE: 01/17/1990
IFA STATUS: CLOSED : 01/30/1990 ELAPSED TIME: 008 : 11.11.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 17.46.00
PRCBD NUMBER: JSC WA-90-003 PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M INCO-10

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R. MOOLCHAN
2:

0 DESCRIPTION:

INCO uplinked an orbiter state vector built by FIDO that resulted in an erroneous uplinked vector.

Impact: Loss of correct attitude

Resolution: New vector uplinked and desired attitude regained. Post flight closure will be linked to the reports generated by investigation committees.

Per the STS-32 L+7 SPRCB chairman, this IFA will be officially closed with the acceptance of the Investigation Committee's report to Level I

Investigation Committee report was sent to Headquarters on 1/30/90, Letter #NSTS-JSC, WA-90-003. This action officially closes this

IFA.

Status: Closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-D-03
TITLE:Late acquisition of west coast C-band radar data

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 020 : 09.22.00
IFA STATUS: CLOSED : 03/28/1990 IFA DATE: 01/20/1990
PRACA STATUS: UNKNOWN ELAPSED TIME: 010 : 20.47.00
PRCBD NUMBER: S044813A HOUSTON TIME: 03.22.00
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M STDN-07 PHASE: ENTRY/LANDING
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: E. GONZALEZ
2:

0 DESCRIPTION:
The radar data from the west coast was about two minutes late getting routed to the MCC. This is the second flight that this has occurred.
Impact: Delays entry energy, ground track, and navigation evaluation.
Resolution: Delay was due to late acquisition caused by orbiter being off the track predicted by the acquisition data by 0.55 degrees in azimuth (radar beam width is 0.4 degrees). STS-33 late acquisition was caused by late runway redesignation which invalidated the acquisition data without enough time to update it.
Flight Problem Report approved at Level II Noon PRCB on 3/28/90 (PRCBD #S044813A).
Status: Closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-E-01
TITLE:ME-2 MCC Aft region Debond of Narloy-Z/EDNi

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA STATUS: CLOSED : 02/08/1990 IFA DATE:
PRACA STATUS: UNKNOWN ELAPSED TIME: 000 : 00.00.00
PRCBD NUMBER: S044812F HOUSTON TIME: 00.00.00
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-150507 K PR ME2022-0307 PHASE: POST LANDING
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. PRYOR/EE23
2:

0 DESCRIPTION:
During postflight inspection of ME-2 (S/N 2022), a 5/64" diameter MCC debond was located in the aft region between adjacent feedslots and in line with nozzle tube number 664.
This problem is a similar recurrence, but on a smaller scale, to the MCC debond on the STS-29 mission which had propagated to a leak. Postflight leak checks of the STS-32R MCC verified no leak present at the bondline area. The test history for the MCC is 16 starts with 4650 seconds of hot-fire time. No fabrication or assembly MRs have
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been identified indicative of this type problem. The analysis concludes that this failure is consistent with previous bondline failure assessments. The debond initiated at the aft end of the feedslots, resulting most likely from an undetectable flaw or marginal bond in this region. The defect may then propagate as a result of start/shutdown transients (highest strain to bondline). A proof test will screen gross bond deficiencies. Also, post proof ultrasonic inspection will detect debonds. Current data on this type condition indicates that the propagation rate is slow and stable and, that there is a low probability of a massive bondline failure. The MCC will be returned to RKDN/Canoga for rebuild/repair prior to reuse.

SSME UCR Number: A025070

MSFC PRACA Tracking Number: A12724

This problem was closed in the MSFC PRACA system for STS-41 and subs on 08/17/90.

Flight Problem Report approved at Level II Noon PRCB on 2/8/90 (PRCBD #S044812F).

Status: Closed

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IFA NUMBER> STS-32-E-02
TITLE:ME-3 MCC Gouge

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 03/26/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-03-29 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044812U PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12726 A PV-6-150652
A 025073 K PR ME2028-0259

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: E. JACOBS/EE21
2:

0 DESCRIPTION:
During postflight inspection of ME-3 (S/N 2028), a MCC gouge was noted 2" out from the throat area at the 6:00 o'clock position.

The gouge measured approximately 2" long by 0.080" wide by 0.009" deep with some raised metal.

The gouge was caused by the engine horizontal installer during engine removal/installation after STS-28R. Engine 2028 MCC liner will be repaired using a cell plating process to deposit copper in the gouge area. A special inspection of the engines installed on Atlantis for STS-36 has been completed and the MCC's have no anomalies. A NASA/Contractor team has been formed to revise procedures or modify equipemetnt to eliminate, or minimize engine handling damage. In addition, the launch and landing site personnel have been counseled on the importance of hardware inspections.

Since adequate program visibility was attained at the L-2 day FRR, the SSME Project was not required to present this IFA to Level II for approval prior to the STS-36. The problem will require the normal noon PRCB Level II closure prior to the STS-31R FRR.

SSME UCR Number: A025073

MSFC PRACA Tracking Number: A12726

This problem was closed in the MSFC PRACA system for STS-31R and subs on 03/29/90.

Flight Problem Report approved at Level II Noon PRCB on 3/26/90 (PRCBD #S044812U).

Status: Closed

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STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-E-03
TITLE:ME-1 MCC Gouge

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
 IFA DATE:
 IFA STATUS: CLOSED : 03/26/1990 ELAPSED TIME: 000 : 00.00.00
 PRACA STATUS: CLOSED : 1990-06-21 HOUSTON TIME: 00.00.00
 PRCBD NUMBER: S044812V PHASE: POST LANDING

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	A025074	A	A12725
A	PV-6-150653	K	PR ME2024-0067

0 CLOSURE INITIATED BY:
 RESPONSIBLE MANAGERS 1: E. JACOBS/EE21
 2:

0 DESCRIPTION:
 During postflight inspection of ME-1 (S/N 2024), a MCC gouge was noted 6" out from the throat area at the 6:00 o'clock position.

The gouge measured approximately 0.250" long by 0.024" wide by 0.010" deep. The gouge was caused by a "B" nut which is tethered to the upper throat plug. The "B" nut is used to cap the upper throat plug bleed valve. Investigation using an MCC proofload test article and an upper throat plug found that the "B" nut swinging on its tether can inflict gouges of the dimension noted. Engine 2024 MCC liner will be repaired by reducing the stress concentration in the area of the gouge. Corrective actions relative to GSE handling, inspection, and procedures are the same as IFA STS-32-E-2 (ME-3 MCC gouge).

This IFA is likewise not expected to obtain Level II PRCB approval until after the STS-36 mission.

SSME UCR Number: A025074
 MSFC PRACA Tracking Number: A12725

This problem has been closed in the MSFC PRACA system for STS-41 and subs on 06/21/90.

Flight Problem Report approved at Level II Noon PRCB on 3/26/90 (PRCBD #S044812V).

Status: Closed

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STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-G-01
 TITLE:Loss of BDA UHF Voice and S-Band Tracking Data Circuits During Ascent

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 009 : 12.44.00
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IFA STATUS: CLOSED : 04/02/1990 IFA DATE: 01/09/1990
PRACA STATUS: UNKNOWN ELAPSED TIME: 000 : 00.09.00
PRCBD NUMBER: S044812Y HOUSTON TIME: 06.44.00
PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M STDN-01 M STDN-02
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:
0 DESCRIPTION:
BDA UHF voice capability and S-Band tracking data was lost after
2 min:30 sec of good UHF and S-Band tracking data.
Impact: Unable to use UHF for backup orbiter comm for 2 minutes and 2
minutes:35 seconds of critical S-Band tracking data for trajectory
processing was lost. BDA C-BAND tracking data was still available.
Caused lessened confidence in MECO state vector.
Resolution: Problem was at the BDA earth station and was due to a
pilot frequency power increase which introduced excessive noise into
the system. The power increase was an attempted corrective action for
a low level on the pilot frequency, which was later found to be caused
by a dirty jack connector.
Flight Problem Report approved at Level II Noon PRCB on 4/2/90
(PRCBD #S044812Y).
Status: Closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-G-02
TITLE:Loss of TDRS West Service.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 014 : 06.54.00
IFA DATE: 01/13/1990
IFA STATUS: CLOSED : 04/02/1990 ELAPSED TIME: 004 : 18.19.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 12.54.00
PRCBD NUMBER: S044812Z PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M STDN-04
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:
0 DESCRIPTION:
TDRS-WEST AOS did not occur normally due to: 1-Software problem at
GFSC. NCC lost the schedule event. 2-MCC GCMR to change scheduled
support from high to low S-Band frequency not accepted by NCC due to
lost schedule event. 3-Miscommunication between NCC and WSGT on
backup verbal/manual procedures for GCMR/reacquisition.
Impact: Lost comm. with Columbia for approx. 30 min.
Resolution: Cancelled and rescheduled TDRS WEST service in real time.
GSFC software problem fix is planned and a procedural workaround is in
place.
Flight Problem Report approved at Level II Noon PRCB on 4/2/90
(PRCBD #S044812Z).
Status: Closed

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IFA NUMBER> STS-32-G-03
TITLE:TDRS-west K-Band return link failure

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 016 : 12.19.00
IFA DATE: 01/16/1990
IFA STATUS: CLOSED : 04/02/1990 ELAPSED TIME: 006 : 23.44.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 06.19.00
PRCBD NUMBER: S044813 PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M STDN-05

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

0 DESCRIPTION:
Could not lock on to TDRS-west K-Band return link on orbit 111 and 112 even though K-Band forward link was locked solid.

Impact: No K-Band dump capability or TV thru TDRS-west.

Resolution: Verification testing by GSFC and WSGT uncovered a failure in TDRS west's K-Band single access (KSA) 2 K-Band primary return link circuitry. Planned recovery procedure is to command satellite to back-up circuitry following analysis of failure (estimated time to return to operations is TBD) However, until recovery procedures are implemented, KSA 1 remains available if TDRS-west K-Band services are required. Post-flight troubleshooting is required.

Flight Problem Report approved at Level II Noon PRCB on 4/2/90 (PRCBD #S044813).

Status: Closed

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IFA NUMBER> STS-32-G-04
TITLE:TDRS-west K-Band forward link failure

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 016 : 23.11.00
IFA DATE: 01/16/1990
IFA STATUS: CLOSED : 04/02/1990 ELAPSED TIME: 007 : 10.36.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 17.11.00
PRCBD NUMBER: S044813 PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M STDN-06

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

0 DESCRIPTION:
No forward link on TDRS-W KSA 2 starting 16/21:09Z

Impact: No K-Band forward link capabilities on TDRS-W K-Band KSA 2 antenna.

Resolution: Verification testing underway by GSFC and WSGT. Antenna switch appears stuck in LCP (left hand circular polarization) position. Post-flight troubleshooting is required.

Flight Problem Report approved at Level II Noon PRCB on 4/2/90 (PRCBD #S044813).

Status: Closed

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IFA NUMBER> STS-32-K-01

TITLE:Shim stock protruding from RT wing TPS

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 008 : 09.30.00
IFA DATE: 01/08/1990
IFA STATUS: CLOSED : 04/18/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 03.30.00
PRCBD NUMBER: S044815 PHASE: PRE-LAUNCH

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* *****NONE FOUND***** * *****NONE FOUND*****

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: C. FAIRY
2:

0 DESCRIPTION:

The .030 orange shim that is located four rows of tiles aft of the leading edge panel #14 on the right wing lower surface is not a safety of flight issue. The shim is most likely going to fall out during ascent. The ascent heating predicted to be approximately 600 degrees F. The shim will start to melt between 300 to 400 degrees therefore, the shim will mostly melt flush. In the unlikely event that the shim would still be present after ascent, the shim would melt during the very earliest stage of the entry. There might be a little local filler charring but would pose no safety of flight issue.

Flight Problem Report approved at Level II Noon PRCB on 4/18/90 (PRCBD #S044815).

Status: Closed

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IFA NUMBER> STS-32-K-02

TITLE:ROB Elevon TPS Screed found at KSC

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 01/09/1990
IFA STATUS: CLOSED : 06/06/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044815C PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* *****NONE FOUND***** * *****NONE FOUND*****

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: C. FAIRY
2:

0 DESCRIPTION:

Area had a standard TPS repair performed prior to launch.

RMS exterior survey indicates no significant tile loss on outboard elevon. No entry concerns.

Flight Problem Report approved at Level II Noon PRCB on 6/6/90 (PRCBD #S044815C)

Status: Closed

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IFA NUMBER> STS-32-K-03
TITLE:RT SRB IEA Connector (J24) found damaged

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 04/18/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044814Z PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* *****NONE FOUND***** * *****NONE FOUND*****
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: C. FAIRY
2:

0 DESCRIPTION:
Right SRB IEA connector (J24) found with two bent pins during post-flight disassembly. One pin was bent 90 deg flat and the other pin was bent 180 deg in a hook shape. Due to this physical evidence, the pins are considered to have been bent during mating of the cable to the IEA. These pins are wired spares, therefore, they are not checked out during final functional testing after final mate of cables to the IEA.

Flight Problem was approved at Level II Noon PRCB on 4/18/90 (PRCBD #S044814Z). An action was assigned to the SRB project office at MSFC.

Status: Closed

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IFA NUMBER> STS-32-K-04
TITLE:Broken fastener on left SRB Upper Strut Fairing

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 02/15/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044812G PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* *****NONE FOUND***** * *****NONE FOUND*****
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: C. FAIRY
2:

0 DESCRIPTION:
During postflight disassembly, the left SRB Upper Strut Fairing (also known as "milk-can") was found with a broken fastener. Material processes concluded that the bolt failed due to a torsional load. There are no known loads of this type during the flight environment. If this problem had occurred during water impact, the bolt would have exhibited a shear failure.

Flight Problem Report approved at Level II Noon PRCB on 2/15/90. (PRCBD #S044812G)

Status: Closed

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IFA NUMBER> STS-32-M-01
TITLE:Right SRM safe and arm gasket depression on secondary seal

STS0032.txt

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA STATUS: CLOSED : 03/19/1990 IFA DATE:
PRACA STATUS: CLOSED : 1990-02-08 ELAPSED TIME: 000 : 00.00.00
PRCBD NUMBER: S044812D HOUSTON TIME: 00.00.00
PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12713 A PV-6-149824
D SPR DR4-5/185

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: CARRASQUILLO/EE51
2:

0 DESCRIPTION:

During postflight inspection of the right SRM safe and arm gasket, a small depression was found in the crown of the secondary seal aft face.

The crown of the right SRM S&A gasket secondary seal was depressed inward at the 0 deg location. The depression measured approximately 0.050" circumferentially by 0.026" radially by 0.0025" deep. This gasket had previously flown on STS-26R (RSRM-1); however, no anomaly was detected during the STS-26R postflight inspection since the gasket was not inspected within 1/2 hour after removal from the joint. The gasket was later inspected (per the old "used" gasket inspection requirements, STW7-2790 B) for reuse on the STS-32R mission. An additional inspection of this seal was performed when an igniter seal void was discovered for the STS-28R mission. This supplemental gasket inspection required a three hour compression test in a Plexiglas fixture, with a post-compression touch inspection withn 1/2 hour after removal from the fixture. No defects were found. This procedure was documented in the latest release of STW7-2790, (Rev D) for gaskets to be reused, which meet the definition of a "used" gasket. This gasket did not meet the criteria of a used gasket since after the STS-26R disassembly, it was not touch inspected for approximately 20 hours. The corrective actions are: (1) Review pedigrees of all gaskets installed on flight and test motors. (2) Replace gaskets having no touch inspection within 1/2 hour after 3 days of compression, with gaskets that have such a history. (3) Create new S&A gasket dash numbers to preclude use of gaskets already accepted per the old requirements. (4) Change reuse inspection specification to require every gasket to have a documented 3 day compression with a touch test within 1/2 hour prior to each reuse. Consequently, both S&A gaskets for STS-36 have been replaced with ones having the proper touch inspection after a 3 day Plexiglas compression period.

MSFC PRACA Tracking Number: A12687

This problem was closed in the MSFC PRACA system for STS-31R and subs, on 03/19/90.

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-M-01
TITLE:Right SRM safe and arm gasket depression on secondary seal

0 DESCRIPTION: (Continued from previous page).

Flight Problem Report approved at Level II Noon PRCB on 2/8/90
(PRCBD #S044812D)

Status: Closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-M-02

TITLE:Right SRM Igniter Inner Gasket Primary Seal Blisters

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
 IFA DATE:
 IFA STATUS: CLOSED : 02/08/1990 ELAPSED TIME: 000 : 00.00.00
 PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
 PRCBD NUMBER: S044812E PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
 A PV-6-150112 D SPR DR4-5/187

0 CLOSURE INITIATED BY:
 RESPONSIBLE MANAGERS 1: CARRASQUILLO/EE51
 2:

0 DESCRIPTION:

During the postflight assessment of the right SRM igniter inner gasket, raised areas of rubber were found along both sides of the gasket on the outer primary seals.

This condition is limited to the void and cushion areas (nonsealing surfaces) intermittently around the circumference of the outer primary seals. The largest area found measured approximately 0.20" circumferentially. This condition is possibly caused by air trapped between the rubber and retainer during the molding process. The seal footprint was not affected by this anomaly. A new baseline has been implemented which controls the molding process and the adhesive application. The process requires mold bumping to reduce the possibility of trapping air. Vents in the mold have also been added.

MSFC PRACA Tracking Number: A12713

Closed in the MSFC PRACA for STS-36 and subs on 2/8/90.

Flight Problem Report approved at Level II Noon PRCB on 2/8/90 (PRCBD #S044812E).

Status: Closed

1

STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT

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IFA NUMBER> STS-32-P-01

TITLE:Cracked FEA Ampoule.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 012 : 23.35.00
 IFA DATE: 01/12/1990
 IFA STATUS: CLOSED : 01/28/1990 ELAPSED TIME: 003 : 11.00.00
 PRACA STATUS: UNKNOWN HOUSTON TIME: 17.35.00
 PRCBD NUMBER: S044815ER1 PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
 M PYLD-08

0 CLOSURE INITIATED BY:
 RESPONSIBLE MANAGERS 1: K. JACKSON
 2:

0 DESCRIPTION:

During fluids experiment apparatus (FEA) sample 4 processing, an "ampoule pressure" error message was heard by the crew. The Argon pressure reading was thought to be zero. The heater element was turned off. Upon later examination, the glass ampoule showed a hairline, V-shaped crack at one end.

Impact: FEA operations were terminated. An IFM to vacuum out possible glass fragmentation from the sample #4 module was performed.

STS0032.txt

Sample #4 ampoule was taped up and stowed. FEA operations were resumed with sample #5 on flight day 6.

Resolution: A safety assessment (glass breakage, Indium toxicity) was performed and it was determined that further FEA operations would be possible after the removal of sample #4.

Flight Problem Report approved at Special Level II Daily PRCB on 01/09/91 (PRCBD# S044815E). Revision to FPR approved OSB on 1/28/91 per PRCBD# S044815ER1).

Status: Closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-T-01
TITLE: Intertank TPS missing from the left forward bipod strut attach point.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 01/09/1990
IFA STATUS: CLOSED : 02/06/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-02-16 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044812A PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12722 A T-060

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: C. BRAMON/EE31
2:

0 DESCRIPTION:
Photographic review of the umbilical will camera film identified an unusual TPS pattern (18" X 24") as missing from the left forward bipod strut attach point on the intertank.

Further film analysis revealed four divots (18"-24" dia) and one divot (6" dia) in the +Z axis location near the forward bipod attach points. In order to vent possible voids in the two-tone TPS configuration of the intertank, holes are drilled in the outer TPS surface down to the isochem surface. These holes allow venting of gasses which could be trapped in the areas between the two TPS layers. Failure to vent these areas can cause divots (as those seen) in the TPS during ascent. The most probable cause of these divots is due to localized voids at the isochem interface in conjunction with an inadequate depth of the drilled holes patterned in this location. Measurement of the vent holes on ET-33 (STS-36) and subsequent re-drilling, if necessary, will validate the correct TPS configuration for the next flight. Also, based on the results of these measurements, solutions for following flight effectivities until ET-51 (STS-?, currently unassigned) will be determined. A new TPS configuration will be implemented on ET-51, which eliminates the two-tone configuration.

Closed in the Level III MSFC PRACA, on 2/16/90, for STS-36 and subs.

Flight Problem Report approved at Level II Noon PRCB on 2/6/90. (PRCBD #S044812A).

Status: Closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-V-01
TITLE: FM System #1 Transmitter Failure

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0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 009 : 12.36.00
IFA DATE: 01/09/1990
IFA STATUS: CLOSED : 03/07/1990 ELAPSED TIME: 000 : 00.01.00
PRACA STATUS: CLOSED : 1991-10-31 HOUSTON TIME: 06.36.00
PRCBD NUMBER: S044812K PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-149591 K PR COM-2-10-0136
M INCO-01 P IM/32RF01
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. SUITER
2:

0 DESCRIPTION:
FM transmitter #1 RF power output dropped to '0' watts during powered flight.
Transmitter was R&R'd on 2/1; awaiting retest.
IM Status: Issued on 1/10/90.
Flight Problem Report approved at Level II Noon PRCB on 3/7/90 (PRCBD #S044812K).
Status: Closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-V-02
TITLE:APU-3 Lube oil out pressure high

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 009 : 12.36.00
IFA DATE: 01/09/1990
IFA STATUS: CLOSED : 03/27/1990 ELAPSED TIME: 000 : 00.01.00
PRACA STATUS: CLOSED : 1991-01-30 HOUSTON TIME: 06.36.00
PRCBD NUMBER: S044812W PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-152566 K IPR 35V-0028
K PR-APU-2-10-0191 K 32RF-0238
M MMACS-01 P CAR 32RF02
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MCMILLAN
2:

0 DESCRIPTION:
APU #3 experienced slightly high lube oil out pressure (approx 90 psi, S/B about 55 psi) during ascent. Returned to normal at full operating temperatures.
System flushed, sampled and reserviced during OMI v1078.
CAR Status: Upgraded on 3/6/90. Explained closeout received on 3/22/90 for ov-102 (Flt 10 & 11), OV-103 (Flt 10 & 11) and OV-104 (Flt 7, 8 & 9).
STS-32 KSC IPR: 32RV-0238
KSC CAAR Tracking Number: PV-6-152566
Flight Problem Report approved at Level II Noon PRCB on 3/27/90 (PRCBD #S044812W).
Status: Closed

1

IFA NUMBER> STS-32-V-04

TITLE:R OMS NO-BACK DEVICE MOVED DURING ASCENT.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 009 : 12.36.00
 IFA STATUS: CLOSED : 03/16/1990 IFA DATE: 01/09/1990
 PRACA STATUS: UNKNOWN ELAPSED TIME: 000 : 00.01.00
 PRCBD NUMBER: S044812M HOUSTON TIME: 06.36.00
 PHASE: ASCENT
 0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
 P IM/32RF06
 0 CLOSURE INITIATED BY:
 RESPONSIBLE MANAGERS 1: B. LEVERICH
 2:

0 DESCRIPTION:

The no-back is used during non-powered operation of the OMS actuator and also to prevent back-drive during powered operations. The right yaw actuator (S/N 117 - fifth flight) moved 0.112 degrees (7 bits) during the first fifty (50) seconds of flight STS-32 (OV-102). The no-back than held for the remainder of the ascent portion of the mission. Including the HI-Q region. Subsequent use of S/N 117 has not indicated a problem.

Review of previous flights (STS-28 and 61C) using yaw actuator S/N 117 has been completed. Data from mission 51B and 51F will be reviewed. Mission STS-28 indicated a movement of 0.082 degrees (5 bits) and mission 61C indicated a movement of 0.098 degrees (6 bits). Now mission 32R indicates a movement of 0.112 degrees (7 bits). The movement in each case has only occurred during the highest vibration level of the ascent phase of the missions.

Since the history of yaw actuator, S/N 117, is consistent, there is no reason to believe this device is degrading or will not complete the current mission.

The drift will be monitored during entry to further evaluate the goodness of S/N 117.

Movement during entry was 3 bits/.048 deg. RCN 0D0068 in system to change limit to 0.2 deg. Recommend to fly-as-is.

IM Status: Issued 1/11/90.

Flight Problem Report approved at Level II Noon PRCB on 3/14/90 and signed OSB on 3/16/90 (PRCBD #S044812M).

Status: Closed

1

IFA NUMBER> STS-32-V-05

TITLE:TAGS Paper Jammed

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 010 : 08.11.00
 IFA STATUS: CLOSED : 03/30/1990 IFA DATE: 01/10/1990
 PRACA STATUS: UNKNOWN ELAPSED TIME: 000 : 19.36.00
 PRCBD NUMBER: S044813D HOUSTON TIME: 02.11.00
 PHASE: ON-ORBIT
 0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
 K PR COM-2-10-0137 K PR VJCS-2-10-0979
 M INCO-02

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. SUITER
2:

0 DESCRIPTION:
The TAGS jammed several times during the mission. The TAGS is intermittly operational.
TAGS was removed on 2/9, will be sent to JSC. New unit, expected from JSC, is on hold at JSC. Installation of replacement unit is complete.

KSC CAAR Tracking Number: PV-6-152365

Flight Problem Report approved at Level II Noon PRCB on 3/30/90 (PRCBD #S044813D).

Status: Closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-V-06
TITLE:GOX Flow control valve 2 open cycle sluggish

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 009 : 12.36.00
IFA STATUS: CLOSED : 04/12/1990 IFA DATE: 01/09/1990
PRACA STATUS: CLOSED : 1991-04-04 ELAPSED TIME: 000 : 00.01.00
PRCBD NUMBER: S044814M HOUSTON TIME: 06.36.00
PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-149952 K PR-MPS-2-10-0606
P CAR 32RF07

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MCMILLAN
2:

0 DESCRIPTION:
The engine 2 Flight Control valve (FCV) displayed a sluggish opening cycle (was 0.75; should be 0.2 to 0.4 sec) on the first de-energization cycle. All other engine 2 FCV cycles were nominal.

FCV are scheduled for removal and replaced with new reshimmed valves according to the fixed orifice plan (MCR 14759).

CHIT J3188 approved at Level II Noon PRCBD on 1/29/90.

FCV poppets have been pulled and sent to Downey. Signature trace was performed and data was sent to JSC. Blowdown of MPS System may not be required.

Poppet installation complete, leak and functional test complete, valve signature test scheduled for 2/16/90.

CAR Status: Final closeout for all vehicles, all flights issued on 03/01/91. CAR submitted for closure on 03/01/91.

Flight Problem Report approved at Level II Noon PRCB on 4/12/90 (PRCBD #S044814M).

Status: Closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-V-08

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TITLE:Fwd DAP B Select Switch Contact A Fail.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 010 : 13.09.00
IFA DATE: 01/10/1990
IFA STATUS: CLOSED : 04/05/1990 ELAPSED TIME: 001 : 00.34.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 07.09.00
PRCBD NUMBER: S044814J PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	IV-6-020861	K	IPR 35V-0013
M	GNC-01	P	IM/32RF09

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: W. LEVERICH
2:

0 DESCRIPTION:
Contact A closed two seconds earlier than contact B, which caused RM to declare contact A failed and deselect it.
Once RM declares a contact failed it can not be recovered. Contacts B and C on the pushbutton (PB) are still good; therefore, the PB is still useable.
Same contact had same problem on STS-4 and STS-9.
KSC T/S'ing confirmed (7 or 8 tries) by "teasing" switch 1 of 3, 2 of 3 or 3 of 3 contacts can be closed. Condition considered normal/explained.
JSC Engineering confirmed that 'Control Auto' failed on STS-4 and 'Select B' failed on STS-32. Identification of failed contact on STS-9 not documented. Known switch characteristic, Fly-as-is.
Flight Problem Report approved at Level II Noon PRCB on 4/5/90 (PRCBD #S044814J).
Status: closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-V-09
TITLE:GFE - MS-3 Light damaged during crew ingress

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 01/08/1990
IFA STATUS: CLOSED : 03/13/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044812Q PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
P	FIAR BFCE-2-13-F004		

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:

0 DESCRIPTION:
Clamp failed, two guide rods were bent. Clamp assembly repaired and reinstalled prior to launch.
Removed at DFRF and sent to JSC.
Flight Problem Report approved at Level II Noon PRCB on 3/13/90 (PRCBD #S044812Q).
Status: closed

1

STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT

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IFA NUMBER> STS-32-V-10
TITLE:FWD Bulkhead Flood Light Inoperative.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 013 : 13.32.02
 IFA DATE: 01/13/1990
IFA STATUS: CLOSED : 03/07/1990 ELAPSED TIME: 004 : 00.57.02
PRACA STATUS: CLOSED : 1992-06-03 HOUSTON TIME: 07.32.02
PRCBD NUMBER: S044812L PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
 A IV-6-020845 K IPR 35V-0003
 M EECOM-03 P CAR 32RF11

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. SUITER
 2:

0 DESCRIPTION:
Repeat Attempt confirmed. Grd saw RPC trip, suspect short in fwd bulkhead floodlight.
T/S'ing isolated the failure to the Floodlight Electronics Assembly (FEA) which was R&R'd on 2/6 and retest was successful on 2/8.
CAR Status: Issued 2/7/90. CAR submitted for closure on 3/8/91.
Flight Problem Report approved at Level II Noon PRCB on 3/7/90 (PRCBD #S044812L).
Status: Closed

1

STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT

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IFA NUMBER> STS-32-V-12
TITLE:GFE- RMS Master Alarm Tone Generator Intermittent Unknown Annunciation

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 012 : 15.00.00
 IFA DATE: 01/12/1990
IFA STATUS: CLOSED : 03/29/1990 ELAPSED TIME: 003 : 02.25.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 09.00.00
PRCBD NUMBER: S044813E PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
 A PV-6-151632 K PR RMS-2-10-0023
 M PDRS-02

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: M. SUFFREDINI
 2:

0 DESCRIPTION:
Tone annunciated on two occasions with no associated lights or messages. Could not be inhibited by depressing master alarm PBI.
D&C panel removed and sent to SPAR on 2/7.
Flight Problem Report Approved at Level II Noon PRCB on 3/29/90 (PRCBD #S044813E).
Status: Closed

1

STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT

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IFA NUMBER> STS-32-V-13

TITLE:GFE - RMS "CNTL ERR" Message

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 012 : 21.15.00
 IFA DATE: 01/12/1990
 IFA STATUS: CLOSED : 03/29/1990 ELAPSED TIME: 003 : 08.40.00
 PRACA STATUS: UNKNOWN HOUSTON TIME: 15.15.00
 PRCBD NUMBER: S044813F PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	PV-6-152847	K	PR RMS-201-0024
M	PDRS-03		

0 CLOSURE INITIATED BY:
 RESPONSIBLE MANAGERS 1: M. SUFFREDINI
 2:

0 DESCRIPTION:
 "CNTL ERR" message annunciated as wrist was rolled through approx-
 imately 175 degrees. Occurred twice. Suspect bad bit in wrist
 encoder.
 .
 RMS removal completed on 2/6, will be sent to SPAR.
 .
 JSC PRACA Tracking No: RMS3336
 .
 Flight Problem Report approved at Level II Noon PRCB on 3/29/90
 (PRCBD# S044813F).
 .
 Status: closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-V-14
 TITLE:FES Topping Duct B String Heater Fail V63T1802A.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 014 : 19.28.00
 IFA DATE: 01/14/1990
 IFA STATUS: CLOSED : 03/16/1990 ELAPSED TIME: 005 : 06.53.00
 PRACA STATUS: CLOSED : 1991-02-19 HOUSTON TIME: 13.28.00
 PRCBD NUMBER: S044812T PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	IV-6-020789	A	PV-6-152561
K	IPR 32RF-0239	K	IPR 35V-0016
K	PR EPD-2-10-1496	M	EECOM-04
P	CAR 32RF12		

0 CLOSURE INITIATED BY:
 RESPONSIBLE MANAGERS 1: D. DILLMAN
 2:

0 DESCRIPTION:
 After activation of FES top duct hrt. B aft duct temp did not
 increase.
 .
 T/S'ing at KSC indicates heater is good but did find a blown fuse.
 Troubleshooting found RPC #34 bad in MPCA-2; R&R completed and
 retest continuing.
 .
 CAR Status: Upgraded on 2/9/90. Explained analysis with action
 required received on 3/29/90. Explained closeout for all vehicles,
 all flights issued on 1/25/91. RI submitted CAR for closure on
 1/25/91.
 .
 KSC CAAR Tracking Numbers: IV-6-020789 (IPR 32RV-0239); PV-6-152561
 .
 Flight Problem Report approved at Level II Noon PRCB on 3/16/90
 (PRCBD #S044812T).

Status: Closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-V-15
TITLE:IMU 1 RM Failed (Transient Y-Axis Accel Bias).

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 015 : 01.42.00
IFA DATE: 01/14/1990
IFA STATUS: CLOSED : 04/11/1990 ELAPSED TIME: 005 : 13.07.00
PRACA STATUS: CLOSED : 1991-07-22 HOUSTON TIME: 19.42.00
PRCBD NUMBER: S044814U PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	IV-6-020860	A	PV-6-150847
K	IPR 35RV-0012	K	PR GNC-2-10-0058
M	GNC-02	P	CAR 32RF13

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: B. SWAN
2:

0 DESCRIPTION:
Multiple Y-AXIS velocity transients. IMU manually reselected.
IMU was removed and sent to JSC on 2/1. Will not install S/N 25 until required for hanger calibration.
IMU installation completed.
CAR Status: TBD
KSC CAAR Tracking Numbers: IV-6-020860; PV-6-150847
Flight Problem Report approved at Level II Noon PRCB on 4/11/90 (PRCBD# S044814U).
Status: Closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-V-16
TITLE:HYD SYS 1 and 2 unloader valve anomalous operation

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 008 : 17.00.00
IFA DATE: 01/08/1990
IFA STATUS: CLOSED : 04/11/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1991-06-07 HOUSTON TIME: 11.00.00
PRCBD NUMBER: S044814P PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
M	MMACS-04		

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. THELEN
2:

0 DESCRIPTION:
Approximately one hour prior to circ pump 2 deactivation, there was a significant increase in unloader valve 2 cycling. Approximately 45 minutes after circ pump 2 deactivation all bootstrap fluid pressure was lost (GN2 pressure remains steady at 1760 psia).
The SYS #2 unloader valve was R&R'd at KSC prior to this flight due to an STS-28 IFA (STS-28-23).

STS0032.txt

Prior to this flight, it was known that all three unloader valves were seeing out-of-spec leakage. The out of spec leaks were waived (WK1547) for one flight only, STS-32, with the understanding that accumulator pressures would be closely monitored during prelaunch. It is believed contamination in the unloader valve pilot area is causing the leakage.

HYD SYS 1 Circ-pump unloader valve leaks excessively once the accumulator pressure (V58P0167A) falls below approx. 2300 psia. This is an internal hydraulic leak with hydraulic fluid on the high pressure accumulator side of the unloader valve leaking to the low pressure return side.

Minor impact to cryo usage. At the current rate, software will run the SYS 1 circ-pump for 2 minutes every 6 1/2 hrs to maintain accumulator pressure above 1960 psia.

Trouble-shooting completed as part of normal OMRSD testing during OMI V1010. Sys #1 Unloader valve failed test and will be R&R'd; spare is available at KSC. Sys #2 and 3 data was acceptable.

Detected a damaged roscon fitting in the accumulator port. System #1 valve being sent to NSLD for repair. Replacement Sys #1 valve installation is complete, retest showed decay above spec. Second retest also failed, under evaluation/plan to re-run test in vertical. Test reran in vertical at the pad and data was within spec, problem to be closed.

CAR Numbers: 32RF16 and 32RF29.

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 38
IFA NUMBER> STS-32-V-16
TITLE:HYD SYS 1 and 2 unloader valve anomalous operation

0 DESCRIPTION: (Continued from previous page).
CAR Status: Explained closeout on CAR 32RF16 received on 3/17/90 for STS-35 (OV-102, Flt #10), STS-31R (OV-103, Flt #10), and STS-38 (OV-104, Flt #7). Explained closeout for program on CAR 32RF29 was received on 3/22/90. CAR 32RF29 is closed. Explained closeout for all vehicles/flights for CAR 32RF16 was issued on 3/7/91. CAR 32RF16 was submitted for closure on 3/15/91.

Flight Problem Report approved at Level II Noon PRCB on 4/11/90 (PRCBD# S044814P).

Status: Closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-V-17
TITLE:WSB 2 and 3 Regulator pressure decaying slowly

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 011 : 10.04.00
IFA DATE: 01/11/1990
IFA STATUS: CLOSED : 04/16/1990 ELAPSED TIME: 001 : 21.29.00
PRACA STATUS: CLOSED : 1990-05-22 HOUSTON TIME: 04.04.00
PRCBD NUMBER: S044814Y PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR HYD-2-10-0368 K PR HYD-2-10-0369
M MMACS-05 P CAR 32RF17
0 CLOSURE INITIATED BY:

RESPONSIBLE MANAGERS 1: D. THELEN
2:

0 DESCRIPTION:

GN2 regulator pressure on water spray boilers 2 and 3 have indicated decay rates of approximately 0.11 psi/hr over a 16 hr period. Allowable spec leakage rate is 0.06 psi/hr.

It is believed that the pressure decays are due to the GN2 relief valves not being fully seated and not due to water leaks.

Decay rate has decreased to zero.

CHIT J3190 to offload water and cycle relief valves 3 to 4 times was approved at the 2/1/90 PRCB.

GN2 24-hour decay check on system 2 indicated no leaks. Decay check on system 3 was .06 psi/hr which is just within the OMRSD spec, troubleshooting continuing.

KSC changed out poppet seal material on valves #2 and 3. Trouble-shooting shows system now in spec. SPC plans to close IPR's.

One spare WSB is available at KSC.

CAR Status: Explained closeout for the program was received on 5/11/90. This CAR is closed.

KSC IPR Numbers: 35V-0022 and 35V-0023.

KSC CAAR Tracking Numbers: PV-1-004581 and PV-1-004582.

Flight Problem Report approved at Level II Noon PRCB on 4/16/90 (PRCBD# S044814Y).

Status: Closed

1

STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT

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IFA NUMBER> STS-32-V-18
TITLE:Multiple S-Band Dropouts

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 04/11/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1991-11-07 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044814L PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 35V-0017 K PR COM-2-10-0151
M INCO-08 P CAR 32RF18

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. SUITER
2:

0 DESCRIPTION:

Intermittent long-duration forward link dropouts throughout the mission. Suspect lower right antenna RF path. CHIT J3197 approved at 1/30/90 PRCB.

Special tests, per CHIT, in work and have been able to recreate dropouts; suspect PA.

Thermo couples installed on COAX connectors between antenna switch and antenna show 140+ deg F, upper left path has 10 db loss. Trouble-

shooting (COAX inspection/TDR) complete.

Higher than normal insertion loss (approx. 6DB) detected between 576 bulkhead and lower RH antenna. Coax W559 to be removed for further trouble-shooting (RH PSA and MPCA 2 removal complete to provide access).

Lower RH antenna and Coax W559 have been R&R'd. Six hours of high power testing failed to repeat problem on upper left antenna.

Insertion and return loss retest completed. More troubleshooting in work on upper and lower antennas. More momentary dropout of frame sync/phase lock during long duration testing, with signal level near threshold. Insertion loss checks completed. IPR ready for upgrade and closure.

CAR Status: IM upgraded on 6/13/90.

Flight Problem Report approved at Level II Noon PRCB on 4/11/90 (PRCBD# S044814L).

Status: Closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-V-19
TITLE:Smoke Detector 3A transient alarm and associated lights

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 017 : 16.08.36
IFA STATUS: CLOSED : 03/13/1990 IFA DATE: 01/17/1990
PRACA STATUS: CLOSED : 1993-11-15 ELAPSED TIME: 008 : 03.33.36
PRCBD NUMBER: S044812N HOUSTON TIME: 10.08.36
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-151202 K PR ECL-2-10-0560
M EECOM-07 P CAR 32RF20

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:

0 DESCRIPTION:
Smoke detector 3A alarm reset itself after approximately 10 seconds.
Master alarm manually reset. Alarm 3A and 3B selftest OK.

R&R of detector complete; retest scheduled for 2/14.

CAR Status: Opened 1/25/90. Explained closeout for all vehicles, all flights with action required issued on 01/09/91.

Flight Problem Report approved at Level II Noon PRCB on 3/13/90 (PRCBD #S044812N).

Status: Closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-V-20
TITLE:GFE - RMS Brake Slip Annunciation

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 009 : 18.13.00
IFA STATUS: CLOSED : 03/29/1990 IFA DATE: 01/09/1990
ELAPSED TIME: 000 : 05.38.00

STS0032.txt

PRACA STATUS: UNKNOWN
PRCBD NUMBER: S044813G

HOUSTON TIME: 12.13.00
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M PDRS-01

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: M. SUFFREDINI
2:

0 DESCRIPTION:

Three PDRS slip fault messages have been generated thus far. These occurred once during RMS checkout and twice during RMS powerdowns. All incidents occurred when the RMS was deselected. Since the RMS was in different configurations all three times and different joints were indicated to have slipped, it does not appear that the fault messages are tied to RMS configuration.

The annunciators are the result of known timing problems between the GPC and MCIU when power is removed from the arm (Ref. STS-32 CHIT 006).

Program note or software fix required. No KSC action required.

Flight Problem Report approved at Level II Noon PRCB on 3/29/90 (PRCBD #S044813G).

Status: Closed

1

STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT

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IFA NUMBER> STS-32-V-21
TITLE:Waste Water Dump Line/Nozzle Blockage

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 018 : 04.35.00
IFA DATE: 01/17/1990
IFA STATUS: CLOSED : 04/03/1990 ELAPSED TIME: 008 : 16.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 22.35.00
PRCBD NUMBER: S044814 PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A IF-6-021034 A PV-6-152156
K IPR 35V-0021 K PR ECL-2-10-0564
M EECOM-8&9 P FIAR PFCE-2-11-F002
P IM/32RF21

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:

0 DESCRIPTION:

During FD-10 post sleep, free fluid disposal, no suction through wand. Later a waste tank dump was also unsuccessful. T/S determined no icing in waste dump line and suspect blockage in waste water dump line or nozzle.

Inspection at Dryden found charred material around urine dump nozzle face; more than usual. Sample taken for analysis. Orifice is clear.

Sample taken from orifice indicated some potassium amongst the charred material, everything else was normal. "Mucky junk" was flushed from dump line. Trouble-shooting confirmed dump line clogged, line removal completed. Replacement line/nozzle installation complete, leak checks complete. Heater/Insulation installation complete.

IM Status: Issued 1/18/90.

JSC/GFE Tracking Number: FIAR BFCE-2-11-F002

KSC CAAR Tracking Number: IV-6-021034; PV-6-152156

Flight Problem Report approved at Level II Noon PRCB on 4/3/90 (PRCBD #S044814).

Status: Closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-V-22
TITLE:BFC GPC Errors - I/O Term B

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 020 : 06.16.00
IFA DATE: 01/20/1990
IFA STATUS: CLOSED : 04/05/1990 ELAPSED TIME: 010 : 17.41.00
PRACA STATUS: CLOSED : 1990-07-24 HOUSTON TIME: 12.16.00
PRCBD NUMBER: S044814K PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	PR DIG-2-10-0108	K	PR DIG-2-10-0109
M	DPS-01	P	CAR 32RF22

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: B. SWAN
2:

0 DESCRIPTION:
The general purpose computer (GPC) in which the backup flight system (BFS) software was resident registered numerous GPC error code 41's (illegal engage/IO term B). The error was the result of the BFS detecting no IO terminate B discrete when the engage discrettes are not present. The error was logged approximately 43 times before the GPC was halted. As a result, the BFS was moved from GPC 5 to GPC 2 and reinitialized. The GPC set was restrung and GPC 5 was powered off for the remainder of the mission.

was able to recreate problem at KSC; however, when BOB's were installed the problem went away. BFC's 1 and 2 have been swapped; system is cooking in an attempt to recreate the problem. BOB's have been removed.

Further troubleshooting non-productive, BFC #1 and IOP #5 to be R&R'd. BFC S/N 14 and IOP S/N 21 to be installed. BFC and IOP R&R complete.

Failure Analysis inconclusive to data (3/6/90).

Additional troubleshooting in work; BOB installation complete, IOP 5 "off-nominal receiver" checks completed, but did not create toggling condition. Hi-Pot of cables (2 wires) between IOP 5 and BFC completed, no discrepancies noted. Retest per OMI V1059 completed.

KSC CAAR Tracking Numbers: IV-6-020880 (IPR 35V-0015); PV-6-152924 and PV-6-152922

CAR Status: Upgraded on 3/9/90. Explained closeout with action required for all vehicles/all flights was received on 3/27/90. CAR 32RF22-010 (IOP) was closed on 6/7/90 and ammended on 7/9/90.

Flight Problem Report approved at Level II Noon PRCB on 4/5/90 (PRCBD #S044814K).

Status: Closed

IFA NUMBER> STS-32-V-23
TITLE:WSB #3 Controller A over cooling

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 020 : 09.15.00
IFA STATUS: CLOSED : 04/11/1990 IFA DATE: 01/20/1990
PRACA STATUS: CLOSED : 1991-02-14 ELAPSED TIME: 010 : 20.40.00
PRCBD NUMBER: S044814Q HOUSTON TIME: 03.15.00
PHASE: ENTRY/LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 35V-0033 K PR HYD-2-10-0366
M MMACS-07 P CAR 32RF24

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. THELEN
2:

0 DESCRIPTION:
WSB 3 went to the heat exchanger mode early and dumped excessive water while operating on controller A. Switched to B controller and operated nominally.

· Troubleshooting confirmed controller A failure. R&R completed, less retest.

· CAR Status: Explained closeout received on 3/14/90 for STS-35 (OV-102, Flt #10), STS-31R (OV-103, Flt #10), and STS-38 (OV-104, Flt #7).

· KSC CAAR Tracking Numbers: PV-6-153641

· Flight Problem Report approved at Level II Noon PRCB on 4/11/90 (PRCBD# S044814Q).

· Status: Closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-V-24
TITLE:KU-Band Antenna Feed Heater erratic

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA STATUS: CLOSED : 03/15/1990 IFA DATE: 01/19/1990
PRACA STATUS: CLOSED : 1990-08-23 ELAPSED TIME: 000 : 00.00.00
PRCBD NUMBER: S044812P HOUSTON TIME: 00.00.00
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 35R-0032 K PR COM-2-10-0139
P CAR 32RF25

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. SUITER
2:

0 DESCRIPTION:
KU-Band antenna feed temperature (V74T2963A) dropped below the temp lower limit of 0 deg F. Temps as low as 31 deg F were seen.

· KU-Band DA was R&R'd on 2/7.

· Car Status: Explained problem rational with action required for all flights (2/13/90).

· KSC CAAR Tracking Numbers: IV-6-021090; PV-6-152115

Flight Problem Report approved at Level II Noon PRCB on 3/15/90 (PRCBD #S044812P).

Status: closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95 PAGE 47

IFA NUMBER> STS-32-V-25
TITLE:MPS LH2 Fill & Drain Outboard Relief valve Leak (PV11)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA STATUS: CLOSED : 04/20/1990 IFA DATE: 01/22/1990
PRACA STATUS: CLOSED : 1991-10-31 ELAPSED TIME: 000 : 00.00.00
PRCBD NUMBER: S044815B HOUSTON TIME: 00.00.00
PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-150512 K PR MPS-2-10-0607
P CAR 32RF26

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MCMILLAN
2:

0 DESCRIPTION:
MPS Relief valve (PV11) blowing leak discovered during postlanding inspection. Leak was heard and felt at the 6:30 position in the valve. Helium tank decrease confirmed the leak.

PV11 has been R&R'd; Leak check revealed PV05 also leaking (IPR 35V-0038).

CAR Status: Explained closeout received on 4/2/90 for OV-103/all flights and OV-104/all flights. CAR was closed on 5/2/90 with a closeout for all vehicles/all flights.

Flight Problem Report approved at Level II Noon PRCB on 4/20/90 (PRCBD# S044815B).

Status: closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95 PAGE 48

IFA NUMBER> STS-32-V-26
TITLE:FWD ET SEP Assembly Centering Mechanism RH Stop Bolt Compressed

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA STATUS: CLOSED : 04/18/1990 IFA DATE: 01/23/1990
PRACA STATUS: CLOSED : 1990-04-02 ELAPSED TIME: 000 : 00.00.00
PRCBD NUMBER: S044815A HOUSTON TIME: 00.00.00
PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-150641 K PR PYR-2-10-0075
P CAR 32RF27

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. GUTHERY
2:

0 DESCRIPTION:
FWD right hand ET SEP centering stop mechanism bolt bent (slightly mushroomed). Scratches on bearing plate indicate movement.

Assembly has been pulled and is at Downey for analysis.

Same problem occurred on STS-34 (ref. IFA STS-34-21).

Preliminary indications are that this is normal for the expected load on the bolt.

Flight Problem Report approved at Level II Noon PRCB on 4/18/90 (PRCBD# S044815A).

Status: Closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-V-27
TITLE:PLT Seat will not Drive Down

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 01/20/1990
IFA STATUS: CLOSED : 03/29/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-06-28 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044813B PHASE: ENTRY/LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-153287 K IPR 35V-0006
K PR FCS-2-10-0266 P CAR 32RF28

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:

0 DESCRIPTION:
PLT Seat would drive up but not down. Forward and back drive capability not tested. Going to try to duplicate problem in 1-G trainer at JSC. Standard T/S'ing.

Ground tests shows seat is operating nominally; under engineering evaluation.

Limit position switch R&R completed.

CAR Status: Explained problem closeout received on 3/29/90 for STS-35 (OV-102,Flt #10) and STS-38 (OV-104, Flt #7). No impact statement issued for STS-31 (OV-103,Flt #10). CAR closed on 5/30/90.

KSC CAAR Tracking Numbers: PV-6-153287

Flight Problem Report approved at Level II Noon PRCB on 3/29/90 (PRCBD #S044813B).

Status: Closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-V-28
TITLE:GFE - Hand-held Mike Degraded

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 03/30/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044813C PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* *****NONE FOUND***** * *****NONE FOUND*****

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. SUITER
2:

0 DESCRIPTION:

Crew noticed ground consistantly said that voice was "ratty" when one of the three hand held mikes was used. This mike was stowed for remainder of the flight.

Shipped to JSC in locker MA16G.

Flight Problem Report approved at Level II Noon PRCB on 3/30/90 (PRCBD #S044813C).

Status: Closed

1

STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-V-29

TITLE:GFE - Orbiter Gas Sampler System Assembly on 50-1 Access Door (port side) failed to operate.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:

IFA STATUS: CLOSED : 04/13/1990 ELAPSED TIME: 000 : 00.00.00

PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00

PRCBD NUMBER: S044814N PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-151163 P FIAR B-FCE-028-F004

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:

0 DESCRIPTION:

The pyrotechnics in all three bottles failed to fire. Suspect battery or electronics problem.

KSC T/S'ing/Bench checks with pyro simulations show system functions, evaluation of closeout photos show correct (firing) plug installed.

Assembly shipped to JSC on 2/1.

Flight Problem Report approved at Level II Noon PRCB on 4/13/90 (PRCBD# S044814N).

Status: Closed

1

STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-V-3A

TITLE:INST: R OMS He Press 2.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 009 : 13.15.00
IFA DATE: 01/09/1990

IFA STATUS: CLOSED : 04/11/1990 ELAPSED TIME: 000 : 00.40.00

PRACA STATUS: CLOSED : 1991-11-19 HOUSTON TIME: 07.15.00

PRCBD NUMBER: S044814V PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A IV-6-021082 K IPR 35V-0030
M PROP-01 P CAR 32RF03

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:

R OMS He press 2 (V43P5122C) failed off-scale low during OMS-2 burn.

Measurement returned to normal after OMS-2 completion and continues to

operate nominally.

KSC to check-out; probably fly-as-is.
IPR/PR will be dispositioned as deferred UA.

CAR Status: No impact statement for STS-36R issued on 2/14/90. No impact statement for STS-35 and explained rationale with action assigned was issued on 5/18/90.

Flight Problem Report approved at Level II Noon PRCB on 4/11/90 (PRCBD# S044814V).

Status: Closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-V-3B
TITLE:APU-3 EGT 2 Erratic

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 009 : 12.32.00
IFA DATE: 01/09/1990
IFA STATUS: CLOSED : 04/11/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 06.32.00
PRCBD NUMBER: S044814V PHASE: PRE-LAUNCH

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-151201 K PR-APU-2-10-0188
M MMACS-02 P IM/32RF04

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:
APU 3 EGT #2 measurement (V46T0340A) became erratic shortly after APU start.

Failed off-scale high on landing. Transducer R&R'd on 2/7, awaiting retest.

IM Status: Closed on 1/19/90.

Flight Problem Report approved at Level II Noon PRCB on 4/11/90 (PRCBD #S044814V).

Status: Closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-V-3C
TITLE:FCL 2 Evap Out Temp Thermocouple Slow Response (Loose).

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 009 : 12.44.00
IFA DATE: 01/09/1990
IFA STATUS: CLOSED : 04/11/1990 ELAPSED TIME: 000 : 00.09.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 06.44.00
PRCBD NUMBER: S044814V PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR ECL-2-10-0558 M EECOM-01
P IM/32RF05

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:

STS0032.txt

During ascent Freon Coolant Loop (FCL) 2 Evap Out Temp Transducer (V63T1407A) was slower in response than FCL 1. This signature was compared to STS-26 data in which A transducer did debond and the signatures are similar.

Monitor Evap Out Temp closely during FES transitions, possible rebonding required during vehicle turnaround.

KSC T/S'ing found sensor was debonded; transducer R&R complete.

IM Status: Issued 1/11/90.

Flight Problem Report approved at Level II Noon PRCB on 4/11/90 (PRCBD #S044814V).

Status: Closed

1

STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT

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IFA NUMBER> STS-32-V-3D
TITLE:APU 2 GGT/INJ Temp Miscompare

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 010 : 12.26.00
IFA STATUS: CLOSED : 04/11/1990 IFA DATE: 01/10/1990
PRACA STATUS: CLOSED : 1991-01-24 ELAPSED TIME: 000 : 23.51.00
PRCBD NUMBER: S044814V HOUSTON TIME: 06.26.00
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A IV-6-020872 A PV-6-153861
K IPR 35RV-0014 K PR APU-2-10-0194
M MMACS-03 P IM/32RF10

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:
APU 2 injector temp measurement (V46T0274A) indicates approximately 50 deg above the gas generator bed temp (V46T0222A) during heater cycling. This is approximately 40 deg above the normal temperature difference.

No mission impact. No impact to APU operations.

Indications may be due to either a high bias on the injector temp measurement or a low bias in the gas generator bed temp measurement/circuitry which controls heater cycle points.

Troubleshooting could not reproduce problem. will use breakout box to further T/S.

Transducer appears to be in spec but offset. Injector thermal reference junction (TRJ) R&R and retest is complete.

IM Status: Issued 1/12/90.

KSC CAAR Tracking Numbers: IV-6-020872; PV-6-153861

Flight Problem Report approved at Level II Noon PRCB on 4/11/90 (PRCBD# S044814V)

Status: Closed

1

IFA NUMBER> STS-32-V-3E
TITLE:RT OMS FU TK Press Xducer Erratic (V43P5321C).

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 014 : 07.10.00
IFA STATUS: CLOSED : 04/11/1990 IFA DATE: 01/14/1990
PRACA STATUS: CLOSED : 1992-03-26 ELAPSED TIME: 004 : 18.35.00
PRCBD NUMBER: S044814V HOUSTON TIME: 01.10.00
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	IV-6-021083	K	IPR 35V-0031
M	PROP-03	P	CAR 32RF14

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:
Transducer measurement was erratic between 242 and 252 PSI for approx.
1 1/2 hours.

No KSC action required; Fly-as-is.

IPR/PR will be dispositioned as deferred UA.

CAR Status: No impact statement for STS-36R issued on 2/14/90. No
impact statement for STS-35 and explained rationale with action
assigned was issued on 5/18/90.

Flight Problem Report approved at Level II Noon PRCB on 4/11/90
(PRCBD# S044814V).

Status: closed

IFA NUMBER> STS-32-V-3F
TITLE:Supply H2O Tank B Qty Transducer Dropouts

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 017 : 01.22.00
IFA STATUS: CLOSED : 04/11/1990 IFA DATE: 01/16/1990
PRACA STATUS: CLOSED : 1990-02-12 ELAPSED TIME: 007 : 12.47.00
PRCBD NUMBER: S044814V HOUSTON TIME: 19.22.00
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	PR ECL-2-10-0561	M	EECOM-06
P	IM/32RF19		

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:
Numerous off scale low transients. Also seen on STS-28.

CHIT J3214 approved on 2/12/90.

Qty transducer R&R by SPC completed and retest is complete.

IM Status: Issued 1/18/90.

Flight Problem Report approved at Level II Noon PRCB on 4/11/90
(PRCBD #S044814V).

Status: closed

1 STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-32-V-3G
TITLE:APU-2 EGT #2 Erratic

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 01/20/1990
IFA STATUS: CLOSED : 04/11/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044814V PHASE: ENTRY/LANDING

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	PV-6-151201	K	PR APU-2-10-0188
M	MMACS-06	P	IM/32RF23

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:
APU-2 EGT #2 failed during entry. KSC to R&R; spare available at KSC.
Transducer was R&R'd on 2/7, awaiting retest.
IM Status: Closed 1/24/90.
Flight Problem Report Approved at Level II Noon PRCB on 4/11/90
(PRCBD #S044814V).
Status: Closed

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IFA NUMBER> STS-32-V-7A
TITLE:Humidity Sep B Water Bypass

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 011 : 09.11.00
IFA DATE: 01/11/1989
IFA STATUS: CLOSED : 04/13/1990 ELAPSED TIME: 001 : 20.36.00
PRACA STATUS: CLOSED : 1990-05-10 HOUSTON TIME: 03.11.00
PRCBD NUMBER: S044814W PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	PR ECL-2-10-0559	M	EECOM-02
P	CAR 32RF08		

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:

0 DESCRIPTION:
Free water exiting from HUM SEP B was observed. Crew switched the
HUM SEP A. Free water cleanup IFM procedure initiated.
HUM SEP to be left off for ferry flight; exception required.
CHIT J3201 approved at 1/30/90 PRCB.
HUM SEP package removed on 1/31 and system inspection performed on
2/3. Some "white residue" found on heat exchanger outlet. Inspection
of HUM SEP at vendor continues.
Troubleshooting/Borescope inspection per CHIT is complete.
Installation of replacement HUM SEP complete and retest is complete.
CAR Status: Opened on 1/24/90.

STS0032.txt

Flight Problem Report approved at Level II Noon PRCB on 4/13/90
(PRCBD #S044814W).

Status: Closed

1

STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT

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IFA NUMBER> STS-32-V-7B

TITLE:Humidity Sep A "Trickle" Bypass.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA STATUS: CLOSED : 04/13/1990 IFA DATE: 01/15/1990
PRACA STATUS: CLOSED : 1990-04-18 ELAPSED TIME: 000 : 00.00.00
PRCBD NUMBER: S044814W HOUSTON TIME: 00.00.00
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	PR-ECL-2-10-0559	M	EECOM-05
P	CAR 32RF15		

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:

0 DESCRIPTION:

Separator currently operating nominally. MER CHIT #32 has been written concerning recommendations for Humidity Separator work arounds.

CHIT J-3201 approved at 1/30/90 PRCB.

HUM SEP package removed on 1/31 and system inspection performed on 2/3. Inspection of HUP SEP at vendor continues.

Trouble-shooting/Borescope inspection per CHIT is complete. Installation of replacement HUM SEP complete and retest is complete.

CAR status: Closed on 4/12/90, action transferred to CAR 32RF08-010.

Flight Problem Report approved at Level II Noon PRCB on 4/13/90
(PRCBD #S044814W).

Status: Closed

1

STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT

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IFA NUMBER> STS-32-V-11A

TITLE:GFE - CCTV 'A' Spot

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 012 : 17.56.00
IFA STATUS: CLOSED : 04/13/1990 IFA DATE: 01/12/1990
PRACA STATUS: UNKNOWN ELAPSED TIME: 003 : 05.21.00
PRCBD NUMBER: S044814T HOUSTON TIME: 11.56.00
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
M	INCO-03		

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:

0 DESCRIPTION:

CCTV 'A' has a spot near the center of the field of view. Consistant with burned spot on the image tube.

No KSC action required; Fly-as-is.

Flight Problem Report approved at Level II Noon PRCB on 4/13/90 (PRCBD #S044814T).

Status: Closed

1

STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT

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IFA NUMBER> STS-32-V-11B

TITLE:GFE - RMS Elbow Camera Color wheel Failed

0 MISSION CONSTRAINT:	SUBS	IFA TIME GMT: 014 : 00.46.00
		IFA DATE: 01/13/1990
IFA STATUS: CLOSED	: 04/13/1990	ELAPSED TIME: 004 : 12.11.00
PRACA STATUS: UNKNOWN		HOUSTON TIME: 18.46.00
PRCBD NUMBER: S044814T		PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	PV-6-153335	K	PR VJCS-2-10-0980
M	INCO-04	P	FIAR B-FCE-029-F016

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:

0 DESCRIPTION:
Manifested itself as a line across picture. This is the line between color filters on the wheel.

Removed and sent to Boeing at JSC on 1/31.

KSC CAAR Tracking Numbers: PV-6-153335

Flight Problem Report approved at Level II Noon PRCB on 4/13/90 (PRCBD# S044814T).

Status: Closed

1

STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT

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IFA NUMBER> STS-32-V-11C

TITLE:GFE - CCTV C Poor Picture

0 MISSION CONSTRAINT:	SUBS	IFA TIME GMT: 014 : 01.20.00
		IFA DATE: 01/13/1990
IFA STATUS: CLOSED	: 04/13/1990	ELAPSED TIME: 004 : 12.45.00
PRACA STATUS: UNKNOWN		HOUSTON TIME: 19.20.00
PRCBD NUMBER: S044814T		PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	PV-6-615335	K	PR VJCS-2-10-0980
M	INCO-05	P	FIAR B-FCE-029-F015

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:

0 DESCRIPTION:
Picture is good in sunlight and degrades in darkness.

Removed and sent to Boeing at JSC on 1/31.

KSC CAAR Tracking Number: PV-6-153335

Flight Problem Report approved at Level II Noon PRCB on 4/13/90. (PRCBD #S044814T).

Status: closed

1

STS-032 (OV-102,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT

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IFA NUMBER> STS-32-V-11D
TITLE:GFE - CCTV D Spot

0 MISSION CONSTRAINT:	SUBS	IFA TIME GMT: 014 : 11.35.00
IFA STATUS: CLOSED	: 04/13/1990	IFA DATE: 01/14/1990
PRACA STATUS: UNKNOWN		ELAPSED TIME: 004 : 23.00.00
PRCBD NUMBER: S044814T		HOUSTON TIME: 05.35.00
0 TYPE TRACKING NUMBER	TYPE	PHASE: ON-ORBIT
M INCO-07		TRACKING NUMBER

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:

0 DESCRIPTION:
Small spot on the RHT CNTR of picture.

No KSC action required; Fly-as-is.

Flight Problem Report approved at Level II Noon PRCB on 4/13/90
(PRCBD #S044814T).

Status: closed

-JFDP012: NORMAL TERMINATION OF PROCESSING

1
1
1

STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-B-01
TITLE:Right SRB Missing Epon Shim Material from HDP #3.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 11/22/1989
IFA STATUS: CLOSED : 12/18/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44808B PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-146414 A 12648
K PR D-BI-034R-0011
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: W. MANN/EE11
2:

0 DESCRIPTION:
The loss of epon shim is associated with the broaching which occurred on HDP 3 (IFA No. STS-33-B-2). The dislodged epon shim (approximately 34 sq in) resulted from contact with the holddown stud. This piece of shim was clearly identified in the liftoff film. Based on the fact that the shim did not rebound and that there was no shim material found on the MLP, it was concluded the shim either shattered upon impact or was thrown clear on the north side of the MLP. A RI evaluation of this type anomaly concluded that the probability of shim material ricocheting and impacting the vehicle is extremely remote as the primary forces acting on the shim particles are gravity, plume impingement, and aspiration. There is no corrective action required.

CAAR Tracking Numbers: PV-6-146414

MSFC PRACA Tracking Number: A12648

USBI Tracking Number: PV-4-027959

This problem was closed in the MSFC PRACA System for STS-32R and subs on 12/15/89.

Flight Problem Report approved at Lv. II Noon PRCB on 12/18/89.
(PRCBD# S44808B)

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

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STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-B-02
TITLE:Right SRB HDP #3 Stud Hang-Up and Broaching.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 11/22/1989
IFA STATUS: CLOSED : 12/18/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1991-10-11 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44808C PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12653 A PV-4-027921
A PV-6-145989 A PV-6-146417

STS0033.txt

K PR D-BI-034R-0005

K PR D-BI-034R-0009

K PR D-BI-034R-0020

0 CLOSURE INITIATED BY:

RESPONSIBLE MANAGERS 1: W. MANN/EE11

2:

0 DESCRIPTION:

The right SRB holddown stud at HDP 3 hung up during liftoff, resulting in broaching and thread impressions on the bore inside diameter (ID).

This problem is similar to the IFA occurrence on HDP 2 from STS-34 (IFA No. STS-34-B-1). The STS-33R stud hang up resulted in broaching on the aft end of the bore ID. Thread impressions were also visible on the forward end of the bore ID.

The analytical predicted stud ejection velocity based on qualification tests is 15-24 ft/sec. All test data indicate that skewed firing of the frangible nut NSIS can decrease the ejection velocity by 60%. Postflight analysis of the frangible nuts indicated that skewed timing occurred on STS-33R. The frangible link in the Debris Containment System (DCS) becomes a major factor once the ejection velocities are reduced to approximately 11 ft/sec. Frangible nut recontact and stud bending moment also contribute to the probability of stud hangup. The analysis concluded that the worst case (4 posts) has minimal effects on post/tower clearance and vehicle controllability. One, two, or three stud hangups result in load conditions within design limits. The corrective action implemented for STS-32R per FEC-10267 removes the attach link and rubber shock isolator from the current HDP DCS configuration. Further corrective actions may be implemented depending on the results from STS-32R mission.

CAAR Tracking Numbers: PV-6-145989; PV-6-146417
(PR D-BI-034R-0009); PV-6-146677 (PR D-BI-034R-0020).

MSFC PRACA Tracking Number: A12653

USBI Tracking Number: PV-4-027921

This problem remains open in the MSFC PRACA system as a CRIT 3

1

STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT

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IFA NUMBER> STS-33-B-02

TITLE:Right SRB HDP #3 Stud Hang-Up and Broaching.

0 DESCRIPTION: (Continued from previous page).

failure.

Flight Problem Report approved at the Level II Noon PRCB on 12/18/89.
(PRCBD #S44808C)

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Noon PRCB.

1

STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT

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IFA NUMBER> STS-33-B-03

TITLE:Left SRB ETA Ring AFT IEA End Cover and Cables Sooted.

STS0033.txt

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA STATUS: CLOSED : 12/18/1989 IFA DATE: 11/22/1989
PRACA STATUS: CLOSED : 1989-12-15 ELAPSED TIME: 000 : 00.00.00
PRCBD NUMBER: S44808D HOUSTON TIME: 00.00.00
PHASE: ENTRY/LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12646 A PV-6-1446583
A PV-6-146589 K D-BI-034L-0019
K PR D-BI-034L-0022 K V-4-027970

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: W. MANN/EE11
2:

0 DESCRIPTION:

The left SRB ETA ring aft IEA end cover experienced hot gas flow (aft to forward) through its interior from the tunnel side, resulting in sooting and varying degrees of heat exposure to 16 operational flight (O.F.) reusable cables.

The direction of hot gas flow entering the end cover indicates this condition occurred during descent or reentry. The RTV-133 material was missing at the area of soot entry and exit.

All cables functioned properly during the mission. The gasses entered at the aft side of the end cover, traveled across the wire bundles, and exited through the opposite or forward side of the end cover. There was not adequate heat present to damage the cables nor to impair the cable functions. The corrective action consists of an engineering change (FEC-10266) effective for STS-32R, STS-36, STS-31R, and STS-35. ECP-2670 will make this revision to the closeout procedures permanent. This change will clarify the TPS closeout, thereby, assuring proper closeout and preventing recurrence.

CAAR Tracking Numbers: PV-6-146583; PV-6-146589 (PR# D-BI-034L-0019).

MSFC PRACA Tracking Number: A12646

USBI Tracking Number: PV-4-027970

This problem was closed in the MSFC PRACA system for STS-32R and subs on 12/15/89.

Flight Problem Report approved at Lv. II Noon PRCB on 12/18/89. (PRCBD# S44808D).

Status: closed

1 STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-B-03
TITLE:Left SRB ETA Ring AFT IEA End Cover and Cables Sooted.

0 - CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-B-04
TITLE:Right SRB (Rock) TVC Fuel Isolation Valve (FIV) With Loose Mount Fastener.

STS0033.txt

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 07/27/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-11-08 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044809J PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12683 A BX-0570A
A PV-4-027962

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R. RUNKLE/EE13
2:

0 DESCRIPTION:
Added as an IFA on 6/14/90 by Lv. II PRCB approval.

Postflight inspection of the right SRB rock TVC revealed a loose isolation mount fastener (backed out 3/16") on the FIV, S/N 0060.

The FIV mount assemblies require a lock washer (MS-35338-139) with each fastener to meet the designed flight configuration. Both isolation mount fasteners on S/N 0060 FIV had flat washers (NAS-1587-4C). An inspection of 42 other flight units identified one additional FIV isolation mount with a flat washer. The two improperly configured mount assemblies for STS-33R had off-nominal processing steps; however, the installation point of the flat washers cannot be determined. As corrective action, a visual inspection has been added to verify that the proper lock washers are installed on SRB flight hardware. Although the mount assemblies are considered crit 3 hardware, failure of the isolation mount during ascent could result in a crit 1 failure (fuel system leakage).

USBI Tracking Number: BX-0570A

MSFC PRACA Tracking Number: A12683

This problem remains open in the MSFC PRACA system as a CRIT 3 failure. Deferred for STS-41, -38, and -35. This problem was closed in the MSFC PRACA system for STS-38 and subs on 11/08/90.

Flight Problem Report approved OSB on 7/27/90 (PRCBD #S044809J).

Status: Closed

1 STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-B-04
TITLE:Right SRB (Rock) TVC Fuel Isolation Valve (FIV) with Loose Mount Fastener.

0 - CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-D-01
TITLE:Loss of MITS LAN.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 326 : 11.31.00
IFA DATE: 11/22/1989
IFA STATUS: CLOSED : 02/16/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 05.31.00
PRCBD NUMBER: S044808T PHASE: PRE-LAUNCH

STS0033.txt

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
D DR 121392 M MCC-01

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: G. EGAN
2:

0 DESCRIPTION:
Experienced several 892 and 893 channel errors and the Host 4/MOC locked up. Selected over to the DSC and no support was lost. Errors are indicative of an interface problem between Host 4 and its MITS Com server (MCS).

Ascent configuration had the MOC in Host 2 with the DSC in Host 4.

Impact: Since initial investigation could not isolate the problem, the MCS interface was taken down on both the MOC and DSC. This results in no MITS workstation access to the MOC/DSC; however, access to the NRT Host remains.

Resolution: Additional troubleshooting was performed but could not isolate the problem.

Decision made by entry team to configure MOC/DSC the same as ascent config and accept impact of no MITS connection to MOC/DSC.

Flight Problem Report approved at Level II Noon PRCB on 2/16/90 (PRCBD #S044808T).

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-D-02
TITLE:Invalid Ranging at BDA.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 327 : 00.30.00
IFA DATE: 11/22/1989
IFA STATUS: CLOSED : 02/16/1990 ELAPSED TIME: 000 : 00.06.30
PRACA STATUS: UNKNOWN HOUSTON TIME: 18.30.00
PRCBD NUMBER: S044808U PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M STDN-01

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: P. BARSTEN
2:

0 DESCRIPTION:
No valid ranging received from BDA during ascent pass (MET 6:30 - 11:00).

Impact: Impact was minimal with degraded ground Kalman Filter with only one range source (BDQC).

Resolution: BDA to perform checkout on the ground ranging equipment.

No further impact to flight. Post mission investigation will be conducted.

Flight Problem Report approved at Level II Noon PRCB on 2/16/90 (PRCBD #S044808U).

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-I-01
TITLE:SSME #3 Nozzle "Bluing"

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA STATUS: CLOSED : 11/08/1990 IFA DATE:
PRACA STATUS: UNKNOWN ELAPSED TIME: 000 : 00.00.00
PRCBD NUMBER: S044808MR2 HOUSTON TIME: 00.00.00
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER PHASE: POST LANDING
* *****NONE FOUND***** * *****NONE FOUND*****

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: B. ANDREWS/RI-DNY
2:

0 DESCRIPTION:
Post-flight visual inspection of ME#3 nozzle revealed discoloration or "Bluing" on front face of aft manifold. Discoloration centered about lower centerline (+/-1.5 ft), low reentry heating region.

Nozzle structure is uninsulated in this region (INCONEL 718). No discoloration was evident on SSME #2 nozzle. Discoloration in this region not observed in previous flight experience.

Nozzle discoloration can not be explained by predicted heating environment. Time/cause of discoloration not yet understood. Worst case reoccurrence would impact nozzle reuse.

Flight Problem Report approved at Level II Noon PRCB on 2/8/90 (PRCBD #S044808M).

Per Mr. Lenior at the STS-36 FRR, this IFA was reopened (PRCBD# S044808MR1). Further data is requested from other flights using new main engine nozzles.

Flight Problem Report approved at Lv. II PRCB on 11/8/90 (PRCBD #S044808MR2).

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II PRCB.

1 STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-K-01
TITLE:Jam Nut Loose in LH Upper Strut Housing.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA STATUS: CLOSED : 04/17/1990 IFA DATE: 11/26/1989
PRACA STATUS: UNKNOWN ELAPSED TIME: 000 : 00.00.00
PRCBD NUMBER: S044809E HOUSTON TIME: 00.00.00
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER PHASE: POST LANDING
A PV-6-145963 K PR D-BI-034L-0001

0 CLOSURE INITIATED BY:

STS0033.txt

RESPONSIBLE MANAGERS 1: C. FAIRY
2:

0 DESCRIPTION:

SRB cable X13W23J2 connector has jam nut loose in strut housing and connector is able to move freely. Safety wire is installed properly.

CAAR Tracking Numbers: PV-6-145963

Flight Problem Report approved at Level II Noon PRCB on 4/17/90 (PRCBD #S044809E).

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Noon PRCB.

1

STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-K-02

TITLE:RH SRB Connector on FWD Assembly for Range Safety Ground Check-out Not Properly Mated.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 11/29/1989
IFA STATUS: CLOSED : 04/17/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044809H PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR D-BI-034R-0012

0 CLOSURE INITIATED BY:

RESPONSIBLE MANAGERS 1: C. FAIRY
2:

0 DESCRIPTION:

SRB cable X21W403 P2 connector was not properly mated to the FWD COAX feed thru connector at the feed thru plate. The connector was engaged only 3/4 of a turn. Full engagement is 3 1/2 turns. Connector was properly safety wired. The connector insert showed signs of moisture and contained K5NA debris. This cable is not used inflight but is used during range safety ground checkout.

Flight Problem Report approved at Level II Noon PRCB on 4/17/90 (PRCBD #S044809H)

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Noon PRCB.

1

STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-K-03

TITLE:RH SRB AFT IEA Mounting Bracket Ground Straps (4) Missing Washers.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 11/30/1989
IFA STATUS: CLOSED : 04/17/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044809F PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-146585 K PR D-BI-034R-0014

0 CLOSURE INITIATED BY:

RESPONSIBLE MANAGERS 1: C. FAIRY

2:

0 DESCRIPTION:

Two ground straps between RH SRB aft IEA bracket to SRM were loose; the two on the aft side were loose, the two on FWD side were tight. At all four locations a CSK washer was not installed. All four bolts were torqued properly (125-150 lbs). The two aft bolts had run out of threads (bottomed out). The LH Brackets had washers installed.

CAAR Tracking Numbers: PV-6-146585

Flight Problem Report approved at Level II Noon PRCB on 4/17/90 (PRCBD #S044809F)

Status: closed

1

STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-K-04

TITLE:The Tailcone RH Stinger Support Clip is Cracked.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 12/12/1989
IFA STATUS: CLOSED : 04/17/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044809G PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-147687

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: C. FAIRY
2:

0 DESCRIPTION:

Post-Ferry Flight the RH stinger support clip (P/N 281-10036-42) at station Xo 1706 has a 2" crack.

Flight Problem Report approved at Level II Noon PRCB on 4/17/90 (PRCBD #S044809G)

Status: closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Noon PRCB.

1

STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-01

TITLE:APU 1 Lube Oil Out Pressure High.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 327 : 00.29.00
IFA DATE: 11/22/1989
IFA STATUS: CLOSED : 03/13/1990 ELAPSED TIME: 000 : 00.05.30
PRACA STATUS: UNKNOWN HOUSTON TIME: 18.29.00
PRCBD NUMBER: S44808W PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-146154 K PR APU-3-10-0190
M MMACS-01 P IM/33RF01

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MCMILLAN
2:

0 DESCRIPTION:

APU 1 experienced higher than normal lube oil out pressures during ascent. Pressure peaked at approximately 85 PSI which is

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approximately 25 PSI higher than normal. Pressure returned to normal just prior to MECO.

Suspect small amount of hydrazine in gearbox due to overpressurization during turnaround servicing. A wax substance (pentaerythritol) is formed when hydrazine is mixed with lube oil which goes back into solution at 175-200 deg. F.

Prelaunch waivers, WK1477 - APU Gearbox Delta Pressure and WK1495 - APU Gearbox Blanket Pressure, were approved on 11/16 and 11/21 respectively.

Oil flush & drain and filter changout per OMRSD OMI V1078 is complete. Filters removed and servicing is complete.

IM Status: No impact for STS-32

Flight Problem Report approved at Lv. II noon PRCB on 3/13/90 (PRCBD# S44808W).

Status: Closed.

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Noon PRCB.

1

STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-02
TITLE:Cabin Leak Through WCS.

0 MISSION CONSTRAINT:	SUBS	IFA TIME GMT: 327 : 12.30.00
		IFA DATE: 11/23/1989
IFA STATUS: CLOSED	: 01/22/1990	ELAPSED TIME: 000 : 12.06.30
PRACA STATUS: CLOSED	: 1991-01-16	HOUSTON TIME: 06.30.00
PRCBD NUMBER: S44808F		PHASE: ON-ORBIT
0 TYPE	TRACKING NUMBER	TYPE TRACKING NUMBER
A	PV-6-147381	K PR ECL-3-10-0640
M	EEDCOM-1&2	P CAR 33RF02

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:

0 DESCRIPTION:

Cabin pressure decreased to 14.28 PSIA before leak was isolated to coincide with WCS usage. Leak was verified when commode slide valve was opened and no discernible air flow noted, and air transport of fecal matter lost. Crew performed IFM to manually move vacuum ball valve from vacuum position to FAN SEP position. Full operation of WCS was restored.

JSC/Hamilton Standard personnel to inspect at Dryden. Relief valve retest required per OMRSD V45DB010.

Bldg 45 CHIT (J3162) approved at 11/29/89 Noon PRCB to allow inspection of WCS on OV-103 at Dryden and on OV-102 and OV-104 at KSC.

Inspection at Dryden found a broken pin on linkage between handle and valve. Analysis determined wrong roll pin was installed (not per print). WCS was R&R'd on 12/10.

CHIT J3162R1 was approved on 12/20/89 to inspect OV-102 and OV-104

WCS's at KSC.

CAR Status: Explained Closeout for OV-102, FLT's 9-11; OV-103, FLT's 10-12; and OV-104, FLT's 6-8. Explained closeout for all flights, all vehicles issued on 12/21/90. CAR closed also on 12/21/90.

Flight Problem Report approved at Level II Noon PRCB on 1/22/90 (PRCBD #S44808F)

Status: closed

1 STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-02
TITLE:Cabin Leak Through WCS.

0 - CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-03
TITLE:TAGS Jam Indications.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 328 : 00.17.00
IFA DATE: 11/23/1989
IFA STATUS: CLOSED : 02/14/1990 ELAPSED TIME: 000 : 23.53.30
PRACA STATUS: UNKNOWN HOUSTON TIME: 18.17.00
PRCBD NUMBER: S044808P PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-146270 K PR COM-3-10-0147
M INCO-01

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. SUITER
2:

0 DESCRIPTION:
TAGS activated and 10 pages were advanced without problems. Crew reported all pages were black. At 01:25, 3 pages were advanced resulting in a jam. Malfunction procedure 2.8A was performed and was successful in clearing the jam. An additional paper advance resulted in another paper jam. Malfunction procedure was reperformed but this time unsuccessfully. The TAGS is hard failed and has been turned off.

Another IFM procedure was performed. During this procedure, a paper advance was attempted with the paper advance door opened, and no paper motion was observed and the jam lights remained on. The TAGS has been powered down for the remainder of the mission and the teleprinter will be used.

Possible sensor (S3 or S4) problem. KSC to remove and send TAGS to JSC Bldg. 44 Bond (Scheduled for 12/11).

TAGS removed on 12/10/90 and returned to JSC.

Flight Problem Report approved at Level II Noon PRCB on 2/14/90. (PRCBD #S044808P)

Status: closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-05
TITLE:CDR AMI MACH Velocity Indicator Out of Spec.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 330 : 00.39.00
IFA DATE: 11/25/1989
IFA STATUS: CLOSED : 03/14/1990 ELAPSED TIME: 003 : 00.15.30
PRACA STATUS: CLOSED : 1990-06-20 HOUSTON TIME: 18.39.00
PRCBD NUMBER: S044808Z PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	IV-6-019858	K	IPR 31RV-0004
M	GNC-02	P	CAR 33RF04

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: W. LEVERICH
2:

0 DESCRIPTION:
During FCS checkout the CDR AMI MACH velocity indicator read 20,500 FPS, S/B 20,000 FPS. Normal OMI testing to be performed at KSC, preferably prior to software download.

This problem was also reported on STS-26, (22,250 FPS) and STS-29 (22,050 FPS). The STS-26 IFA is STS-26R-20, there was no IFA assigned for STS-29. The previous problems were closed via UA (UA-3-A0007).

No Spare available at KSC.

Test to date has not repeated the anomaly. DDU #1 and #2 swapped for the next flight. Problem did not reoccur on STS-31 with the DDU's swapped.

UA deferral approved.

CAR Status: No impact statement for OV-102 (STS-32,Flt #9), OV-103 (STS-31,Flt #10) and OV-104 (STS-36, Flt #6) was issued on 2/15/90. No impact statement for OV-102 (STS-35,Flt #10) was issued on 5/4/90. Explained closeout was issued on 5/14/90. CAR was closed on 5/18/90.

Flight Problem Report Approved at Level II Noon PRCB on 3/14/90 (PRCBD #S044808Z).

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-06
TITLE:KU-BAND Failed Self-test.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 330 : 06.10.00
IFA DATE: 11/23/1989
IFA STATUS: CLOSED : 02/14/1990 ELAPSED TIME: 003 : 05.46.30
PRACA STATUS: CLOSED : 1992-06-30 HOUSTON TIME: 12.10.00
PRCBD NUMBER: S044808Q PHASE: ON-ORBIT

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0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	IV-6-019815	A	PV-6-152840
K	IPR 31RV-0003	K	PR COM-3-10-0149
K	PR UA-3-10-0060	M	INCO-03
P	CAR 33RF05		

0 CLOSURE INITIATED BY:
 RESPONSIBLE MANAGERS 1: D. SUITER
 2:

0 DESCRIPTION:
 KU-BAND failed self test 2 times during activation. KU-BAND operating properly. KU-BAND failed S/T a third time just prior to KU-BAND stowage.

S/T #1 Results: The transmitter did not turn on when expected, a 14 second delay was seen before the RF power measurement was available to the S/T. An 11 second delay in the operate bit going high was seen. (The operate bit turns on the transmitter.)

S/T #2 Results: A voltage spike was seen on the measured RF power signal line approximately 0.5 seconds prior to the actual transmitter turn on. If this voltage spike was sampled as the RF power measurement, its amplitude is sufficient to pass the S/T threshold. This spike was seen at the vendor during testing on this DA. A review of the resolution for the spike seen at the vendor will occur the week of 11/27/89.

S/T #3 Results: The S/T failed in the active mode. Failure of S/T in the active mode, Task 7.1, is a result of an idiosyncrasy during the active mode test phase. The RF pulse is changed from 4.15 microseconds to 0.0122 microseconds at the transition from detection to track. At this transition, the track flag is sampled and the flag may be high or low. If the track flag is low a failure is reported. This condition does not affect the communications mode or the passive radar mode (the active mode of the radar is not used). This idiosyncrasy is not an indication of a KU-BAND hardware failure. All other S/T data was nominal, no anomalous data similar to the first two self tests was seen.

This KU-BAND deploy assembly (DA), serial number 106, has not previously flown.

Flight data indicates the system was powered down, by the crew, approx. 2.5 minutes after being powered up originally. Crew

1 STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-06
 TITLE:KU-BAND Failed Self-test.

0 DESCRIPTION: (Continued from previous page).
 procedures to be reviewed to determine why.

KSC to perform normal check-out.

Test to date good/EA#1 reported good. DA changed and passed self-test. Standard system test in-work.

UA closure approved; PR #UA-3-10-0060 (PV-6-152840)

CAR Status: No impact to STS-32. Explained closeout for all flights issued on 3/21/91. CAR submitted for closure on 3/27/91.

CAAR Tracking Number: IV-6-019815

Flight Problem Report approved at Level II Noon PRCB on 2/14/90
(PRCBD #S044808Q)

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Noon PRCB.

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STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-07

TITLE:Hyd Sys 1 & 2 Accumulator Ascent Pressure Locked Up Low.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 11/22/1989
IFA STATUS: CLOSED : 01/23/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-12-19 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44808G PHASE: ASCENT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	PV-6-147295	A	PV-6-147296
K	PR HYD-3-10-0322	K	PR HYD-3-10-0323
P	CAR 33RF08		

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. THELEN
2:

0 DESCRIPTION:

During STS-26, STS-29 (IFA #26) and STS-33, priority valves 1 and 2 experienced low reseats at APU shutdown. The valves are required to lockup at 2600 PSID (referenced to reservoir pressure). After STS-33 ascent, priority valve one locked up at 2420 PSIA, and valve two locked up at 2340 PSIA. Lock ups have been repeatable during the last two flights of OV-103 and show no sign of degradation. Also, during KSC special testing, two out of six lockups were below spec. There is no immediate system concern at this time, which is why these valves were allowed to fly as is for STS-33. However, the valves are out-of-spec. It is believed that the valves were set low during ATP or have changed with time. These valves had never flown prior to STS-26.

It is being recommended, by the Hydraulic community, to R&R priority valves 1 and 2.

No spares are available at KSC.

Replacement valves scheduled for delivery to KSC on 12/19/89.

Priority valve R&R complete on 12/26/89.

CAAR Tracking Numbers: PV-6-147295 and PV-6-147296.

CAR Status: Closed on 12/8/89. Tracking transferred to CAR 29RF26-010.

Flight Problem Report approved at Level II Noon PRCB on 1/23/90
(PRCBD #S44808G)

Status: Closed

1

STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-07

TITLE:Hyd Sys 1 & 2 Accumulator Ascent Pressure Locked Up Low.

0 - CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-08
TITLE:Cryo O2 Tank 1 Check Valve Sticky.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 327 : 01.36.00
IFA DATE: 11/23/1989
IFA STATUS: CLOSED : 02/02/1990 ELAPSED TIME: 000 : 01.12.30
PRACA STATUS: CLOSED : 1990-02-01 HOUSTON TIME: 19.36.00
PRCBD NUMBER: S044808K PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
P CAR 33RF09

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:

0 DESCRIPTION:
PRSD O2 tank 1 check valve stuck twice during the mission (1:12:40 MET and 3:09:50 MET). O2 tank 1 was not in use at the time. When a 20 PSID pressure difference across the check valve built up, the check valve opened and returned to nominal operation. The nominal cracking pressure is 3-5 PSID. This check valve experienced a large closing force (180 PSID) after high O2 flow due to a WCS leak that was stopped (12:20 MET). Stopping the high O2 flow caused cryo to be trapped in the manifold. Environmental heat leak pressurized the cryo until the manifold relief valve opened (EECOM-01). Sticking check valves have been observed on previous flights when large closing forces occurred. The valve is now operating nominally.

This anomaly is being added to document the fact that the valve operated out-of-spec. No KSC action is required, valve will be flown as is.

CAR Status: No impact for STS-32; open for others. Closed on 1/18/90.

Flight Problem Report approved at Level II Noon PRCB on 2/2/90 (PRCBD #S044808K)

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-09
TITLE:MSBLS-3 BITE (AGC).

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 331 : 21.21.00
IFA DATE: 11/27/1989
IFA STATUS: CLOSED : 03/14/1990 ELAPSED TIME: 004 : 20.57.30
PRACA STATUS: CLOSED : 1993-01-04 HOUSTON TIME: 15.21.00
PRCBD NUMBER: S044809 PHASE: ENTRY/LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 31RV-0006 M GNC-03
P CAR 33RF11

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: W. LEVERICH
2:

0 DESCRIPTION:
MLS 3 indicated a BITE during D/O prep. MLS 3 had passed the self test during FCS checkout with no anomalies. At approximately 4500 feet, the BITE cleared and MLS 3 locked on and was in agreement with MLS 1 and 2 in azimuth and elevation.

MLS data was not used during entry because there is no MLS ground station at Edwards runway 04.

JSC Mission Operations reviewing data.

CHIT J3166 approved on 12/14/89.

Trouble-shooting was unable to recreate the problem. R&R of MSBLS Decoder is complete.

CAR Status: Explained closeout for all flights and all vehicles received on 4/10/90.

Flight Problem Report approved at Lv. II Noon PRCB on 3/14/90 (PRCBD# S044809).

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-10
TITLE:FWD ATTACH Point Sys A & SYS B Connectors Broken.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 11/30/1989
IFA STATUS: CLOSED : 03/21/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1991-01-18 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044809D PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR PYRO-3-09-0117 P CAR 33RF12

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. GUTHERY
2:

0 DESCRIPTION:
During inspection at Dryden it was found that the TANG's on the pyro connectors (SYS A & B) were clocked incorrectly, 30 deg. aft instead of straight up. The LH (Looking FWD) tang on connector 20V77W11J13 was broken and the RH bulkhead connector 20V77W12J12 was backed off (untorqued).

Suspect cause is improper strain relief alignment.

Similar condition noted and corrected on OV-102. Procedures to be changed to correctly align strain relief. Closeout photo's will be taken, PCIN R76690.

CAR Status: No impact for STS-32, open for others. Received explained problem closeout on 1/18/90 for OV-102 (Flts 10 & 11; STS-35 & 40), OV-103 (Flts 10 & 11; STS-31 & 41), and OV-104 (Flts 6 & 7; STS-36 & 38). Explained closeout for OV-102 (flt# 12,

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STS-42), OV-103 (flt# 12, STS-39) and OV-104 (flt# 8 and 9, STS-37 and -44) and final closeout for OV-102 (flts 13-100), OV-103 (flts 13-100), OV-104 (flts 10-100) and OV-105 (all flts) was issued on 11/21/90.

MCR 16193 was issued to eliminate the physical interference between the electrical connector and the centering mechanism spring assembly by authorizing the replacement of the existing connectors with one smaller size; this new 90 degree pyro type connector will have the plug and receptacle position reversed in order to reduce interference and increase the maintainability of electrical wire harness removal.

The changes authorized by MCR 16193 will be implemented on OV-102 flt# 13, OV-103 flt# 13, OV-104 flt# 10 and OV-105 flt# 1.

Flight Problem Report approved at Lv. II Noon PRCB on 3/21/90 (PRCBD# S044809D).

Status: Closed

1 STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-10
TITLE:FWD ATTACH Point Sys A & SYS B Connectors Broken.

0 - CLOSURE RATIONALE:
Flight Problem Report approved at a Level II Noon PRCB.

1 STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-11
TITLE:-Y Star Tracker Door Thermal Blanket Detached.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 11/29/1989
IFA STATUS: CLOSED : 03/12/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-03-28 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044809A PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 31RV-0005 K PR TCS-3-10-1144
P IM/33RF13

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. GUTHERY
2:

0 DESCRIPTION:
Thermal blanket was found totally detached from the -Y star tracker door. Blanket was found in the star tracker cavity. Top of blanket has a small tear which possibly indicates the blanket was detached when the door was closed. No fastener damage was observed.

MCR 16260 approved to delete blankets from the doors. will be taken to the STS-31 delta LSFR on 12/13/89.

IM Status: No impact to STS-32.

Blankets have been removed and TEMPE labels have been installed.

Flight Problem Report approved at Lv. II Noon PRCB on 3/12/90 (PRCBD# S044809A).

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at a Level II Noon PRCB.

1 STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-12
TITLE:+X COAS Line of Sight Variations.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 11/25/1989
IFA STATUS: CLOSED : 02/13/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-02-14 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044808N PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR STR-3-10-0452 M GNC-01
P IM/33RF14

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: M. SUFFREDINI
2:

0 DESCRIPTION:

The crew reported that the +X crew optical alignment sight (COAS), used to perform DTO #790 (IMU reference recovery techniques), has experienced differences in its line of sight from FD2 to FD3. This problem is most probably due to mounting interference between the COAS adaptor plate and panel 01.

Additional data will be available on FD4.

A similar problem occurred on STS-29 and is documented in STS-29 IFA #15.

OV-103 had a modification to the COAS mount at the forward (+X) position due to the STS-29 problem. A COAS mount guide pin hole was redrilled to allow the COAS in the +X position to have a more flat and secure mounting. The STS-29 COAS did not mount properly causing errors of approximately 0.5. The modification was performed and the flight hardware (COAS & mount) was fit checked by Bill Shepherd/CB. Shepherd reported the fit was good and solid. The mount fit flat to the orbiter and was tight.

It must be noted that the errors on STS-29 were in the area of 0.5, whereas STS-33's errors in the +X position were 0.272 Deg. (Max) RSS. An acceptable error would be 0.12.

Additional data review in work. JSC Chit (J3174R1) approved on 1/4/90 for misalignment inspection.

Review of IMU attitude errors confirm they do no account for total shift. SODB spec for COAS reinstallation is 20 ARC SEL/AXIS.

Holes will be drilled, no GRD optical align.

IM Status: Closed on 12/8/89.

Flight Problem Report approved at Level II Noon PRCB on 2/13/90 (PRCBD #S044808N)

1 STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-12

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TITLE:+X COAS Line of Sight Variations.

0 DESCRIPTION: (Continued from previous page).

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at a Level II Noon PRCB.

1

STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-13

TITLE:FES B Outlet Temp. Oscillation.

0 MISSION CONSTRAINT:

SUBS

IFA TIME GMT: 331 : 19.45.00

IFA DATE: 11/27/1989

IFA STATUS: CLOSED : 02/08/1990

ELAPSED TIME: 004 : 19.21.30

PRACA STATUS: CLOSED : 1989-12-19

HOUSTON TIME: 13.45.00

PRCBD NUMBER: S044808L

PHASE: ENTRY/LANDING

0 TYPE TRACKING NUMBER

TYPE

TRACKING NUMBER

M EECOM-04

P CAR 33RF15

0 CLOSURE INITIATED BY:

RESPONSIBLE MANAGERS 1: D. DILLMAN

2:

0 DESCRIPTION:

FES shutdown occurred during entry preps when the FES was reconfigured to PRI B GPC. The outlet temp. cycled during startup and caused auto shutdown. A restart at a higher inlet temp. was successful.

This same condition occurred during STS-29 entry preps.

JSC/HCM Standard/Downey evaluating.

CAR Status: Closed on 12/5/89. Tracking transferred to CAR 29RF13-010.

Flight Problem Report approved at Level II Noon PRCB on 2/8/90 (PRCBD #S044808L)

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Noon PRCB.

1

STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-15

TITLE:GFE-16mm Arriflex Camera Inoperative.

0 MISSION CONSTRAINT:

SUBS

IFA TIME GMT: 328 : 10.55.00

IFA DATE: 11/24/1989

IFA STATUS: CLOSED : 01/24/1990

ELAPSED TIME: 001 : 10.31.30

PRACA STATUS: UNKNOWN

HOUSTON TIME: 04.55.00

PRCBD NUMBER: S44808J

PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER

TYPE

TRACKING NUMBER

M MMACS-03

0 CLOSURE INITIATED BY:

RESPONSIBLE MANAGERS 1: D. DILLMAN

2:

0 DESCRIPTION:

IFM procedures didn't recover camera. Removed battery pack and

STS0033.txt

used orbiter power, camera was recovered.

Flight Problem Report approved at Level II Noon PRCB on 1/24/90.
(PRCBD #S44808J)

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Noon PRCB.

1

STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-16

TITLE:APU 1 and APU 3 Bypass Line A Temps. Erratic.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00

IFA DATE:

IFA STATUS: CLOSED : 03/13/1990 ELAPSED TIME: 000 : 00.00.00

PRACA STATUS: CLOSED : 1990-01-05 HOUSTON TIME: 00.00.00

PRCBD NUMBER: S044808Y PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER

K PR APU-3-10-0193 K PR APU-3-10-0194

P CAR 33RF16

0 CLOSURE INITIATED BY:

RESPONSIBLE MANAGERS 1: S. MCMILLIAN

2:

0 DESCRIPTION:

Heaters controlled by "A" thermostats on APU-1 and APU-3 bypass lines were erratic indicating changing thermostat set points. Thermostats are mounted on bypass lines which experienced vibrations loosening thermostat mounting.

CHIT in work to remove and replace "A and B" thermostats on APU-1 and APU-3.

APU-3 thermostats R&R will be deferred until after STS-31 (APU will be R&R'd after STS-31). APU #1 switch 17A and 17B R&R is complete. Retest complete and good.

CAAR Tracking Number: PV-6-148321, PV-6-148322, PV-6-148327
(PR APU-3-10-0195).

CAR Status: Closed on 12/18/89. Transferred to CAR 34RF11-010.

Flight Problem Report approved at Lv. II Noon PRCB on 3/13/90
(PRCBD# S044808Y).

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Noon PRCB.

1

STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 34

IFA NUMBER> STS-33-V-17

TITLE:HYD System #2 Water Spray Boiler GN2 Pressure Decay

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00

IFA DATE:

IFA STATUS: CLOSED : 01/23/1990 ELAPSED TIME: 000 : 00.00.00

PRACA STATUS: CLOSED : 1990-02-22 HOUSTON TIME: 00.00.00

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PRCBD NUMBER: S44808H PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
P CAR 33RF17

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. THELEN
2:

0 DESCRIPTION:

The Hyd. Sys. 2 water spray boiler (WSB) exhibited GN2 leakage during on-orbit operations. The GN2 tank press decayed approximately 0.36 psi/hr. The allowable leak rate is 0.3 psi/hr.

Repeat of problem seen on STS-26 flight of this vehicle on Sys 1 (IFA STS-26-19). OMI V0017 H2O spray boiler leak and functional test confirmed leak rate in spec. Fly-as-is.

CAR Status: Recieved explained closeout for the program on 2/5/90. CAR was closed on 2/1/90.

Flight Problem Report approved at Level II Noon PRCB on 1/23/90. (PRCBD #S44808H)

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Noon PRCB.

1

STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-4A

TITLE:Operational Instrumentation: RCS FIU Press Transducer Failed.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 330 : 00.59.00
IFA DATE: 11/25/1989
IFA STATUS: CLOSED : 03/16/1990 ELAPSED TIME: 003 : 00.35.30
PRACA STATUS: CLOSED : 1990-02-15 HOUSTON TIME: 18.59.00
PRCBD NUMBER: S044809C PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR FRC-3-10-0196 M PROP-01
P IM/33RF03

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:

RCS FIU PC transducer failed during FCS C/O. Indications are that the jet fired properly. The jet was deselected by RCS RM due to low PC indications. This jet is not required for the rest of the mission.

Repair will require FWD pod removal. Since this jet is mainly used during proximity missions only and since STS-31 (HST) is not a rendezvous mission, the Orbiter and GFE Project Office is leaning towards not repairing the transducer prior to STS-31 (next scheduled flight of this FWD pod).

Bldg. 45 CHIT (J3163A) approved on 12/14/89.

Inspection, per CHIT, showed restriction in sensor tube. Contamination has been cleared and retest was successful.

IM Status: No impact to STS-32

Flight Problem Report approved at Lv. II Noon PRCB on 3/16/90 (PRCBD# S044809C).

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-4B
TITLE:Operational Instrumentation: APU-1 EGT #1 Failed.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 331 : 23.51.00
IFA DATE: 11/27/1989
IFA STATUS: CLOSED : 03/16/1990 ELAPSED TIME: 004 : 23.27.30
PRACA STATUS: UNKNOWN HOUSTON TIME: 17.51.00
PRCBD NUMBER: S044809C PHASE: ENTRY/LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-146152 K PR APU-3-10-0191
M MMACS-05 P IM/33RF06

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:
During entry APU-1 EGT #1 became erratic and subsequently failed low.

Transducer R&R and retest complete.

IM Status: Closed on 12/7/89.

Flight Problem Report Approved at Lv. II Noon PRCB on 3/16/90
(PRCBD# S044809C).

Status: Closed.

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-4C
TITLE:Operational Instrumentation: APU-3 EGT #2 Failed.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 331 : 23.06.00
IFA DATE: 11/27/1989
IFA STATUS: CLOSED : 03/16/1990 ELAPSED TIME: 004 : 22.42.30
PRACA STATUS: UNKNOWN HOUSTON TIME: 17.06.00
PRCBD NUMBER: S044809C PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-146152 K PR APU-3-10-0191
M MMACS-06 P IM/33RF07

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:
During entry APU-3 EGT #2 became erratic and subsequently failed low.

Transducer R&R and retest complete.

IM Status: Closed on 12/7/89.

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Flight Problem Report Approved at Lv II Noon PRCB on 3/16/90
(PRCBD# S044809C).

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Noon PRCB.

1

STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-4D

TITLE:Operational Instrumentation: RH OMS Oxidizer Quantity OFF-scale High.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 11/22/1989
IFA STATUS: CLOSED : 03/16/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044809C PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
P IM/33RF10

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:

RH OMS oxidizer quantity was off-scale high during OMS 1, but operated nominally during OMS 2. Repeated for about 10 sec. during deorbit burn.

KSC to perform standard flow test. Fly-as-is and repair when pod is pulled for other work.

IM Status: No impact to STS-32

Flight Problem Report Approved at Lv. II Noon PRCB on 3/16/90
(PRCBD# S044809C).

Status: Closed

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STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-33-V-14A

TITLE:Galley Failed to Dispense Hot or Cold Water.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 330 : 08.36.00
IFA DATE: 11/25/1989
IFA STATUS: CLOSED : 03/13/1990 ELAPSED TIME: 003 : 08.12.30
PRACA STATUS: UNKNOWN HOUSTON TIME: 02.36.00
PRCBD NUMBER: S044809B PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR FCS-3-10-0353 M EECOM-03

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:

0 DESCRIPTION:

Galley failed to dispense hot and cold water through the rehydration station. Malfunction procedure worked and function restored. JSC galley system tester to be sent to KSC with JSC personnel to troubleshoot.

CHIT J3169A approved on 12/18/89.

JSC T/S complete; Galley disconnect/removal complete.

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Flight Problem Report approved at Lv. II Noon PRCB on 3/13/90
(PRCBD# S044809B)

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at a Level II Noon PRCB.

1

STS-033 (OV-103,FLT #9) OFFICIAL INFLIGHT ANOMALY REPORT

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IFA NUMBER> STS-33-V-14B

TITLE:Rehydration Station Slide Stickey.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 03/13/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044809B PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR FCS-3-10-0353

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:

0 DESCRIPTION:
worked OK when crew lubricated with 'Chapstick'. CHIT J3169A
to have JSC/GFE personnel clean and lubricate as required was
approved.

CHIT J3169A approved on 12/18/89.

Galley disconnect/removal complete.

Flight Problem Report approved at Lv. II Noon PRCB on 3/13/90
(PRCBD# S044809B).

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Noon PRCB.

-JFDP012: NORMAL TERMINATION OF PROCESSING

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1
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STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 1

IFA NUMBER> STS-34-B-01
TITLE:Right SRB HDP#2 broached and shoe lifted from MLP during liftoff.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 10/18/1989
IFA STATUS: CLOSED : 11/17/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1992-01-31 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44804A PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12552 A PV-6-142926
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: W. MANN/EE11
2:

0 DESCRIPTION:

The holddown stud at HDP #2 hung up during liftoff resulting in broaching of the right SRB aft skirt HDP #2. The shoe also lifted from the MLP post during this time.

Measurements of the broached condition at HDP #2 indicated a maximum depth of 0.18 inches. Also, the impression of hold down stud threads in the bore were evident. HDPs #1, 3, 4, 6, 7 and 8 also show hold down stud thread impressions but are considered within the experience base of this type anomaly.

Stud hangups have been noted on 5 previous flights (STS-2, STS-4, STS-51I, STS-51J, and STS-61A). Major broaching has been recorded on three flights and minor broaching and thread impressions have been observed on 46 HDPs from ten earlier flights. The stud preload was within design limits prior to liftoff. The frangible nut has a raised inner web on one side of the fractured face with ductile, tensile evidence indicating this web separated before its pyrotechnic detonated. There was a pyrotechnic burn groove with embedded booster cartridge metal on the holddown stud adjacent to the raised inner web of the frangible nut. These findings support the conclusion that the most significant contributor to the stud hangup was skewed firing of the pyrotechnics. A MSFC analysis indicates that vehicle liftoff will be unaffected with eight hangups, provided the frangible nuts are separated properly. A RI analysis conducted in conjunction with MSFC concluded that one or two stud hangups will not adversely affect vehicle liftoff dynamics or clearances between the vehicle and facility. The RI evaluation also concluded that the spherical bearing/shoe assembly will not break free and become a debris source. Recommendations for corrective action, if any, will be reviewed by the SRB Program Office upon investigation completion. However, at this time no corrective action is warranted.

MSFC PRACA Tracking Number: A12552.

This problem remains open in the MSFC PRACA system as a CRIT 3 failure.

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STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-B-01
TITLE:Right SRB HDP#2 broached and shoe lifted from MLP during liftoff.

0 DESCRIPTION: (Continued from previous page).
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Flight Problem Report approved at Level II Noon Board on 11/17/89.
(PRCBD #S44804A)

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Noon PRCB.

1

STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-B-02

TITLE:Right SRB forward segment missing TPS from forward section of systems
tunnel cover.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00

IFA DATE:

IFA STATUS: CLOSED : 11/09/1989

ELAPSED TIME: 000 : 00.00.00

PRACA STATUS: CLOSED : 1990-02-14

HOUSTON TIME: 00.00.00

PRCBD NUMBER: S44804B

PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER

A A12553

A PV-6-142928

0 CLOSURE INITIATED BY:

RESPONSIBLE MANAGERS 1: W. MANN/EE11

2:

0 DESCRIPTION:

A piece of MSA-1, 6" wide by 24" long was missing from the forward
section of a systems tunnel cover on the right SRB forward skirt.

The systems tunnel cover missing the MSA-1 material was identified as
the second cover from the top of the forward skirt. A clean substrate
was observed, indicating no evidence of heat effects. The cover will
not be hydrolazed but will be removed by hand and sent to M&P for
further examination and analysis.

A port-a-pull strength test was performed with acceptable results of
50 psi (30 psi minimum). The hypalon paint covering the remaining
MSA-1 was peeled in the direction of water impact. As a result of
these forementioned observations, the loss of MSA-1 is attributed
to water impact.

This problem was closed in the MSFC PRACA system for STS-36 and subs
on 2/14/90.

Flight Problem Report approved at Level II Noon PRCB on 11/9/89.
(PRCBD #S44804B)

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Noon PRCB.

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STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-B-03

TITLE:Left SRB Drogue Parachute Reefing line cutter failure

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00

IFA DATE: 10/18/1989

IFA STATUS: CLOSED : 11/17/1989

ELAPSED TIME: 000 : 00.00.00

PRACA STATUS: CLOSED : 1990-02-14

HOUSTON TIME: 00.00.00

PRCBD NUMBER: S44804D

PHASE: ENTRY/LANDING

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0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12562 A PV-6-143117

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R. RUNKLE/EE11
2:

0 DESCRIPTION:
The twelve second reefing line cutter (located at gore #60) on the left SRB drogue parachute failed to actuate.

The redundant cutter at gore 60 fired properly, resulting in normal disreefing of the drogue parachute. Failure is attributed to an undersized washer which was shifted off center. This caused interference between the firing pin and primer, which prevented a clean strike on the primer. The primer was subsequently vindicated by a successful firing. Test firings demonstrated that the cutter performs properly with a washer undersized by 0.020". X-ray standards were developed to verify capability of detecting washer undersized by 0.005". Criteria was established which will screen any washers which could cause a cutter to misfire. Evaluation of x-rays for the cutters on STS-33R, STS-32R, STS-36, and STS-31R has been completed with no washers failing this criteria. The same evaluation will be conducted on all future hardware to verify washer integrity.

MSFC PRACA Tracking Number: A12562.

This problem was closed in the MSFC PRACA system for STS-36 and subs on 2/14/89.

Flight Problem Report approved at Level II Noon PRCB on 11/17/89. (PRCBD # S44804D)

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-B-04
TITLE:Right SRB Aft BSM Venting of Confined Detonating Fuse (CDF).

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 10/18/1989
IFA STATUS: CLOSED : 11/17/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-01-10 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44804E PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12609

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. COOK/EE11
2:

0 DESCRIPTION:
During separation of the right SRB, a CDF assembly in the aft BSM ignition system vented through its fiberglass braid.

The cord was frayed and there was soot at the venting location approximately 5" from connector X02D07 on the manifold. There was also soot noted on the adjacent CDF and on the interior of the BSM support cover. The CDF assembly transfers a detonation from the CDF manifold to the CDF initiators installed in the BSMs. This CDF

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assembly functioned properly, detonating the CDF initiator, but vented some of its combustion products through a small hole in its braid. Venting is an after-effect of the CDF assembly detonation. Test data shows that a CDF assembly will always transfer detonation prior to rupturing. A review of closeout photos verified nominal installation with no visible abraided areas. A teardown analysis of the assembly confirmed proper configuration and revealed no material defects. The worst case effect of venting is sooting of adjacent components. There are no critical components near enough to the CDF assemblies to be damaged. Venting through the cord is a criticality 3 failure mode since it has no effect on system performance, and there are no critical components near enough to be damaged. There is no corrective action required.

This problem was closed in the MSFC PRACA system for STS-36 and subs on 1/10/90.

Flight Problem Report approved at Level II noon PRCB on 11/17/89.
(PRCBD# S44804E)

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Noon PRCB.

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STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-D-01

TITLE:UNABLE TO COMMAND ORBITER-NETWORK OUTPUT MUX (NOM) CONFIGURATION PLAN

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 290 : 09.48.00
IFA DATE: 10/18/1989
IFA STATUS: CLOSED : 02/16/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 03.48.00
PRCBD NUMBER: S044805N PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
D DR 117024 M MCC-01
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R. MARRIOTT
2:

0 DESCRIPTION:

Command capability with the orbiter was lost during an OMI command sequence (first countdown). Following orbiter command to high frequency, MCC could not command orbiter to PA stand by. Master reset of prime NOM restored command capability. OMI sequence delayed approximately 40 minutes. DR 117024 open to investigate and resolve NOM problem.

Diagnostic testing of the NOM did not reveal a hard failure. Several circuits were identified that could have caused the problem. However, no component or hard failure was identified. No subsequent NOM failure occurred during or since the STS-34 flight. Therefore, this problem is considered an unexplained anomaly in the NOM.

Resolution: The amount of time needed to recover command capability was excessive. As a result of a complete review of the command system fault isolation process, several procedural problems were identified as the major factor that delayed the system recovery. The procedural changes have been identified and will be implemented prior to the next flight.

Flight Problem Report approved at Level II Noon PRCB on 2/16/90.

(PRCBD #S044805N)

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Noon PRCB.

1

STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT

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IFA NUMBER> STS-34-E-01

TITLE:ME-3 Main Injector Heat Shield Retaining Ring sections missing

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
 IFA DATE: 11/27/1989
 IFA STATUS: CLOSED : 01/31/1990 ELAPSED TIME: 000 : 00.00.00
 PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
 PRCBD NUMBER: S044805M PHASE: POST LANDING

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	A025048	A	A025059
A	PV-6-145972	A	PV-6-148464
K	PR ME2029-0148	K	PR ME2107-0028

0 CLOSURE INITIATED BY:

RESPONSIBLE MANAGERS 1: D. PRYOR/EE21
2:

0 DESCRIPTION:

Postflight inspection of ME-3 (S/N 2029) after STS-34, revealed three pieces from the main injector heat shield reinforcement ring were missing.

Two of the three pieces were found during normal inspections. A search for the missing piece is continuing. The engine has been removed from flight status until the piece can be located or there is confidence that the piece is no longer in the engine. Similarly, postflight inspection on one of the STS-33R engines (S/N 2107) discovered one piece of its ring section broken off. This piece was found and removed from the engine. This ring configuration is unique to three flight engines (S/Ns 2011, 2029, and 2107). For these engines, a U-channel capture-type feature was installed in the high flow areas. The channel is retained by welding clips to the lip of the powerhead. At the time, this change was all that was necessary since the only failure was in the high flow area. Incorporating the latest configuration would require complete disassembly of the main injector. All other flight engines have incorporated ECP 620 which changes the reinforcement ring bonding to an EB weld and eliminates the flow induced vibration by incorporation of retainer clips. These clips make a continuous ring within the injector and protect the reinforcement ring from the hot gas flow environment. To date, no failures have occurred with the new configuration. Analysis concludes the failure mechanism is an initial debond of the ring-to-heat shield joint, propagated to failure by flow induced high cycle fatigue (HCF). During flight, a piece broken from the ring will be moved by flow forces into the main injector, where it will be retained until MECO. The presence of the piece in the hot gas side of the main injector element will not affect engine performance since each main injector element has multiple gas flow passages which prevent hot gas starvation due to particle blockage. Inspection of the main injector is conducted after every flight. If a piece of the reinforcement ring is found missing, a search to recover the piece is initiated. This is considered an out-of-drawing configuration and would require engineering disposition to allow the engine to be

1

STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT

01/31/95

IFA NUMBER> STS-34-E-01
 TITLE:ME-3 Main Injector Heat Shield Retaining Ring sections missing

0 DESCRIPTION: (Continued from previous page).
 reflown. The engines with this "problem" ring configuration will not
 be reflown until STS-31R.

CAAR Tracking Numbers: PV-6-145972; PV-6-148464

MSFC UCR/FAR Numbers: A025048; A025059

This problem was closed in the MSFC PRACA system for STS-31R and subs
 on 3/24/90.

Flight Problem Report was approved at Level II Noon PRCB on 1/31/90.
 (PRCBD #S044805M).

Status: Closed

- CLOSURE RATIONALE:
 Flight Problem Report approved at Level II Noon PRCB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-K-01
 TITLE:Facility Measurement GLHT4199A, LH2 Hi-point bleed temp

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
 IFA STATUS: CLOSED : 04/17/1990 IFA DATE: 10/18/1989
 PRACA STATUS: UNKNOWN ELAPSED TIME: 000 : 00.00.00
 PRCBD NUMBER: S044805Q HOUSTON TIME: 00.00.00
 PHASE: PRE-LAUNCH
 0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
 * *****NONE FOUND***** * *****NONE FOUND*****

0 CLOSURE INITIATED BY:
 RESPONSIBLE MANAGERS 1: C. FAIRY
 2:

0 DESCRIPTION:
 Showed negative bias and was scaled improperly (about 1.8 degree delta
 corresponded to actual delta of about 20 degrees). Failure of this
 measurement in one manner or another is very common. Only backup
 measurement for LCC 6.2.1-09.

Flight Problem Report approved at Level II Noon PRCB on 4/17/90
 (PRCBD# S044805Q)

Status: Closed

- CLOSURE RATIONALE:
 Flight Problem Report approved at Level II noon PRCB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-K-02
 TITLE:GH2 Vent Line GUCP damaged.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
 IFA STATUS: CLOSED : 06/06/1990 IFA DATE: 10/18/1989
 PRACA STATUS: UNKNOWN ELAPSED TIME: 000 : 00.00.00
 HOUSTON TIME: 00.00.00

STS0034.txt

PRCBD NUMBER: S044805U PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* *****NONE FOUND***** * *****NONE FOUND*****

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: C. FAIRY
2:

0 DESCRIPTION:
Possible due to excessive slack of the GH2 vent line lanyard during retraction. 7" QD was damaged.

This problem also reoccurred on STS-33R launch. Excessive slack in the GH2 vent arm retract lanyard allowed the cable to wrap around the GUCP swivel housing breaking an electrical connector.

Flight Problem Report approved at Level II Noon PRCB on 6/6/90 (PRCBD #S044805U).

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-K-03
TITLE:Connectors on SRB's not proper

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 04/17/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044805P PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-143265 A PV-6-143267
A PV-6-143269 K D-BI-032L-0012
K D-BI-032L-0013 K D-BI-032L-0014

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: C. FAIRY
2:

0 DESCRIPTION:
Postflight inspection found 5 connectors on upper strut crossover improperly wired; firing line not lockwired; two connectors on IEA's - 1 torqued but not lockwired, 1 lockwired but not torqued.

Connector P1 of cable X31W2R not safety wired. Connects to J24 of left FWD IEA. Connector P1 of cable X31W5R did not have any torque when the technician started to disconnect the cable. The cable is connected to J26 on the right IEA. Connector was properly safety wired but was only hand tight.

During demate of a non-used flight instrumentation cable from the left SRB systems tunnel aft skirt interface it was noted the safety wire was loose on X21W403, the range safety test cable. As the instrumentation cable was demated the 403 cable popped off the aft skirt interface. The safety wire was still attached to the connector on the 403 cable.

CAAR Tracking Numbers: PV-6-143265; PV-6-143267; PV-6-143269
(PR D-BI-032L-0014)

Flight Problem Report approved at Level II Noon PRCB on 4/17/90 (PRCBD# S044805P).

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-M-01
TITLE:Left SRM Rock Actuator Bracket damage.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 11/21/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44804F PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-142791 D SPR DR4-5/175
K PR D-BI-032L-0002
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: B. NEIGHBORS/EE51
2:

0 DESCRIPTION:
The left SRM 45 degree rock actuator bracket was damaged at the aft exit cone.

Part of the actuator bracket remained on the exit cone shell, part on the compliance ring, and part remained with the actuator. The part of the bracket remaining on the actuator had a section of the aft exit cone shell (approximately 16" by 6") still attached. The aft exit cone, which contains two parts of the bracket, was shipped to Thiokol/Wasatch for further failure analysis.

It was concluded that water impact loads on this motor were higher than the strength of the bracket. The calm sea state condition may have contributed to the greater water impact loads. In addition, a delay in one of the main chutes may have resulted in a higher horizontal-drift velocity. The actuation system is incapable of producing a load large enough to fail the bracket. Visual examination of the actuator bracket by structures engineering indicated that there was no crack growth or stress corrosion growth prior to failure. Also, no soot was observed on the painted surfaces between the bracket and aft exit cone shell, further indicating a splashdown failure.

CAAR Tracking Number: PV-6-142791

This problem has been closed in the MSFC PRACA system for STS-33R and subs.

Flight Problem Report approved at Lv. II Noon PRCB on 11/21/89.
(PRCBD# S44804F)

Status: Closed

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-M-01
TITLE:Left SRM Rock Actuator Bracket damage.

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-M-02
TITLE:Left SRM factory joint weatherseal forward edge unbonds.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 12/08/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1991-02-07 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44804G PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12554 A PV-6-142790
A PV-6-142942 K PR D-BI-032L-0001
K PR D-BI-032L-0008

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. THORNTON/EE52
2:

0 DESCRIPTION:
3149flight operations at KSC revealed on left SRM indications of forward edge unbonds in two locations: Forward segment dome-to-cylinder factory joint and the forward center segment factory joint weatherseals.

The left SRM forward center segment factory joint weather seal unbond is located at 0 deg, approximately 6.6" circumferentially by 1.75" deep. The second unbond was observed on the forward dome-to-cylinder factory joint weatherseal form 225 deg to 248 deg with a maximum axial depth of 2.05 inches. Adjacent paint was peeled from the case and attached to the edge of the EPDM at the area of the unbond. Corrosion is evident on the case under the EPDM and under the peeled paint. Both factory joint unbonds are adhesive failures between the Chemlok 205 primer and the motor case. It is considered that the primer underneath the paint adjacent to the EPDM also experienced an adhesive failure. There is no evidence of soot or heat effects.

Previous history indicates adhesive failures of the weather seal are caused by case surface conditions (smoothness) and/or contamination. The STS-34 unbonds indicate only localized contamination (worst unbond less than 7% of the total weatherseal). The structural assessment shows flight loads are not sufficient to create debris concern (safety factor > 6.0). As corrective action, additional conscan and surface finish requirements have been added. All pin retainer band cleaning will be done prior to assembly to eliminate potential contaminants. For STS-33R (next flight), a visual inspection and 0.005" shim stock edge probing were performed at TC prior to paint closeout. Also, a 100% visual inspection has been performed at KSC. The observed unbroken paint radius between the case and weatherseal is a good indicator of the weatherseal's capability to withstand on-pad moisture entry.

CAAR Tracking Numbers: PV-6-142790; PV-6-142924

Contractor Tracking Number: SPR DR4-5/176

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-M-02
TITLE:Left SRM factory joint weatherseal forward edge unbonds.

0 DESCRIPTION: (Continued from previous page).

MSFC PRACA Tracking Number: A12554

This problem is deferred through STS-40 in the MSFC PRACA system. Problem was closed for STS-39 and subs on 2/7/91.

Flight Problem Report was closed OSB on 12/08/89. (PRCBD# S44804G).

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report closed OSB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-M-03
TITLE:Putty on Right SRM Igniter outer Gasket and Left SRM Igniter Gasket Retainer

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 12/08/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44804H PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A 12563 D SPR DR4-5/177
K PR D-BI-032R-0009

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: E. CARRASQUILLO/EE51
2:

0 DESCRIPTION:
Putty was found up to the aft face of the outer primary gasket and into the seal void/gland area, between 234 and 5 degrees of the right SRM igniter. Also, putty was found on the aft face of the gasket retainer (0.11" max) and under the retainer from 262 to 297 deg of the left SRM.

The concern regarding an anomaly of this nature is that the gasket's sealing capability might be impaired by the embedded putty. Though there was no leakage or blowby past the seal (no blowhole in the putty) the seal is not designed to have putty in it. It should be free of any contaminants. The problem cause is attributed to the igniter installation process. Putty embedded in the gasket depends on the amount and location of the putty during assembly. Putty located near the gasket and/or excess amounts may squeeze between the sealing surfaces during igniter installation. As corrective action, the putty layup and igniter installation processes have been improved based on results of previous installation tests. These tests demonstrated that the putty does not enter the gasket area when laid up to the tighter dimensional requirements (layup dimensions closely controlled, key layup dimensions recorded, and putty weight measurements monitored). This corrective action had already been implemented on STS-33R (left SRM igniter only) and STS-32R (both SRMs) at KSC, and it was implemented on STS-36 and subs at TC. Since the right SRM igniter for STS-33R was processed in a similar fashion to STS-34, its (RSRM-7B) igniter was removed and reinstalled with the new putty layup configuration. After assembly, all igniter joints were (are required to be) leak checked for verification.

MSFC PRACA Tracking Number: A12563

This problem was closed in the MSFC PRACA system for STS-36 and subs
Page 10

on 1/9/90.

Flight Problem Report was closed OSB on 12/08/89. (PRCBD# S44804H)

Status: Closed

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-M-03

TITLE:Putty on Right SRM Igniter outer Gasket and Left SRM Igniter Gasket Retainer

0 DESCRIPTION: (Continued from previous page).

- CLOSURE RATIONALE:

Flight Problem Report closed OSB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-M-04

TITLE:Left SRM Center Field Joint aft side unbond of K5NA closeout

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 12/08/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-11-15 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44804J PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12580 D SPR DR4-5/179

0 CLOSURE INITIATED BY:

RESPONSIBLE MANAGERS 1: L. HANKS/EE51
2:

0 DESCRIPTION:

A 5" circumferential unbond of the K5NA closeout (located at the 0 deg radial location) was noted on the aft edge of the left SRM center field joint. The unbond is from the JPS cork as well as the motor case wall.

A scrape was found just aft of the unbond area and in line with the 0 deg location, indicating contact with some object(s). Debris from the nozzle jettison is considered to be the likely source for striking this area and resulting in the K5NA anomalous condition.

The K5NA was unbonded but remained in place. Since the unbond occurred after booster separation, there is no debris hazard to the orbiter and no impact relative to flight safety for future missions.

Minor damage to the K5NA caused by debris or water impact is not uncommon (reference TWR 50050 "Postflight Engineering Evaluation Plan").

This problem has been closed in the MSFC PRACA system for STS-33R and subs.

Flight Problem Report was closed OSB on 12/08/89. (PRCBD# S44804J)

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report closed OSB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-M-05
 TITLE:Left and Right SRM aft dome EPDM Blisters

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
 IFA DATE:
 IFA STATUS: CLOSED : 12/08/1989 ELAPSED TIME: 000 : 00.00.00
 PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
 PRCBD NUMBER: S44804K PHASE: POST LANDING

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	PV-6-143411	A	PV-6-143413
A	12572	D	SPR DR4-5/178
K	PR D-BI-032L-0019	K	PR D-BI-032R-0017

0 CLOSURE INITIATED BY:
 RESPONSIBLE MANAGERS 1: J. PHELPS/EE51
 2:

0 DESCRIPTION:
 Blisters were found on the aft dome carbon filled EPDM of both SRMs to varying levels.

The right SRM aft dome has blisters located from 270-0-90 deg and near 180 deg (approximately 15 blisters). The largest blister measures 5.5" axially by 4.5" circumferentially at 0 deg. The left SRM aft dome has blisters located intermittently the full circumference (approx. 10 blisters). The largest blister measures 2" axially by 1" circumferentially. The evaluation indicated that an adequate thermal safety factor was maintained. The blister condition did not cause an abnormal erosion in the aft dome CFF EPDM. The CFF EPDM is in compression during firing, and the virgin CFF EPDM is separated from chamber gas flow by a thick char layer.

CAAR Tracking Numbers: PV-6-143413; PV-6-143411

Contractor Tracking Number: SPR DR4-5/178

MSFC PRACA Tracking Number: A12572

This problem was closed in the MSFC PRACA system for STS-31R and subs on 3/19/90.

Flight Problem Report was closed OSB on 12/08/89. (PRCBD# S44804K)

Status: Closed

- CLOSURE RATIONALE:
 Flight Problem Report closed OSB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-P-01
 TITLE:COMPUTER INTERFACE UNIT (CIU) NO LOCK ***DEL FROM BL PER S44804R1***

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
 IFA DATE:
 IFA STATUS: CLOSED : 11/13/1989 ELAPSED TIME: 000 : 00.00.00
 PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
 PRCBD NUMBER: S44804R1 PHASE:

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
*	*****NONE FOUND*****	*	*****NONE FOUND*****

0 CLOSURE INITIATED BY:
 RESPONSIBLE MANAGERS 1:
 2:

0 DESCRIPTION:

*****NONE FOUND*****

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-P-02
TITLE:INERTIAL UPPER STAGE (IUS) INSOLATION VALVE TRANSDUCER FAILURE
DELETED FROM BL PER #S44804R1

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 11/13/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44804R1 PHASE:

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* *****NONE FOUND***** * *****NONE FOUND*****

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

0 DESCRIPTION:
*****NONE FOUND*****

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-P-03
TITLE:Payload and General Support Computer (PGSC) Display Failure.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 296 : 00.42.00
IFA DATE: 10/22/1989
IFA STATUS: CLOSED : 12/01/1989 ELAPSED TIME: 004 : 07.48.20
PRACA STATUS: UNKNOWN HOUSTON TIME: 18.42.00
PRCBD NUMBER: S44804L PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M PYLD-09

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R. SAMUELSON
2:

0 DESCRIPTION:
During execution of sequence 8 (samples 15, 16, 17) the PGSC incurred a display failure although the GEM indicated that sample 15 was "PROCESSING".

Impact: Possible inability to initiate sequences and check sample status. May not automatically transition to next sample.

Resolution: After wakeup crew observed a possible screen failure (the crew recorded the screen on video tape). This was treated as a PGSC failure by the crew and they performed PM stow procedure. Post-flight investigation required.

Flight Problem Report was approved at the Lv. II Noon PRCB on 12/1/89. (PRCBD# S44804L)

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II noon PRCB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-V-01
TITLE:DDU #1 changeout

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00

STS0034.txt

IFA STATUS: CLOSED : 01/17/1990 IFA DATE: 10/16/1989
PRACA STATUS: CLOSED : 1990-07-24 ELAPSED TIME: 000 : 00.00.00
PRCBD NUMBER: S44805 HOUSTON TIME: 00.00.00
PHASE: PRE-LAUNCH

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-142385 K IPR 34RV-0226
K PR DIG-4-05-0144 P CAR 34RF01

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: W. LEVERICH
2:

0 DESCRIPTION:

Commander's AMI accel tape rate was reading -50 FPS, S/B 32.2 FPS.
Problem detected during a Dedicated Display check per OMI S0007
operation. DDU #1 was removed and replaced. Retest was performed
except for BFS engage test (waiver WK1397). Retest was good.

Vendor found a bad shift register.

CAAR Tracking Number: PV-6-142385

CAR Status: Explained with AR open.

Action required closeout issued on 7/2/90.

CAR closed on 7/3/90.

Flight Problem Report approved at Level II Noon PRCB on 1/17/90
(PRCBD #S44805).

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Noon PRCB.

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STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT

01/31/95
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IFA NUMBER> STS-34-V-02
TITLE:EIU #3 Bite (Momentary)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 291 : 09.00.00
IFA STATUS: CLOSED : 01/11/1990 IFA DATE: 10/18/1989
PRACA STATUS: CLOSED : 1990-08-23 ELAPSED TIME: 000 : 00.00.00
PRCBD NUMBER: S44804Z HOUSTON TIME: 03.00.00
PHASE: PRE-LAUNCH

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 34RV-0241 K PR DIG-4-A0009
M BSTR-01 P CAR 34RF02

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: M. SUFFREDINI
2:

0 DESCRIPTION:

EIU #3 Bite #13 set and 60 Kbit data stream lost, both momentarily.
Reurrence would result in loss of 60 Kbit. Problem did not recur.
No impact to the mission. LCC deviation for LO2 dome temperature.

All three EIU's are scheduled to be replaced with modified EIU's
during the STS-36 flow per MCR 14699.

Problem did repeat at KSC during power-up.

EIUS replaced on 11/22/89. Retest is complete.

STS0034.txt

CAR Status: Explained with AR open. Explained closeout issued on 8/1/90.

Flight Problem Report approved at Level II Noon PRCB on 1/11/90 (PRCBD #S44804Z).

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level Noon PRCB

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STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT

01/31/95

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IFA NUMBER> STS-34-V-04

TITLE:APU-1 fault to high speed

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 291 : 16.55.00
IFA STATUS: CLOSED : 01/29/1990 IFA DATE: 10/18/1989
PRACA STATUS: CLOSED : 1990-02-20 ELAPSED TIME: 000 : 00.01.20
PRCBD NUMBER: S044805D HOUSTON TIME: 10.55.00
PHASE: ASCENT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	IV-6-018888	A	PV-6-143908
K	IPR 36RV-0025	K	PR APU-4-06-0155
M	MMACS-02	P	CAR 34RF05

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MCMILLAN
2:

0 DESCRIPTION:

APU #1 experienced an inadvertent speed shift to the high speed band during ascent. Crew selected high speed to avoid alarms. APU operated okay the rest of ascent.

Will turn on APU-1 at MACH-10 and back off at postlanding wheel stop. Will sniff test valve module at Dryden.

Sniff check and visual inspection of APU-1's GGVM at Dryden, on 10/24/89, indicated no propellant leakage and no obvious external deformity of the GGVM. Dryden T/S complete.

T/S'ing at KSC scheduled for 11/1/89. Replacement hardware due at KSC on 11/11/89 (controller) and 11/17/89 (APU).

Controller has been removed and sent to Sunstrand.

Initial ATP vibration testing of controller at Sunstrand was unsuccessful at finding a failure. Additional testing is in work.

APU #1 to be removed during OMI V1196 scape operation the weekend of 11/18/89.

High speed loop require details in-work. KSC needs CHIT for APU change-out/rewire by 11/17/89.

Controller failure was recreated at vendor. Controller S/N 311 failed thermal test. APU R&R was cancelled.

CAAR Tracking Numbers: IV-6-018888; PV-6-143908

CAR Status: Explained closeout for OV-102, flt. 9, STS-32. Recieved explained closeout for all vehicles, all flights. CAR was closed on 1/19/90.

Failure caused by transistor 2Q7 in APU controller going open

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-V-04
TITLE:APU-1 fault to high speed

0 DESCRIPTION: (Continued from previous page).
circuit. Intermetallic difusion of gold base lead in AL. bond pad of Raytheon transistor. Cause of failure was due to heat and time. Examination of similar units did not show a similar condition.

Flight Problem Report approved at Level II Noon PRCB on 1/29/90.
(PRCBD #S044805D)

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB>

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-V-05
TITLE:MDM FA1 I/O Errors

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 291 : 17.29.00
IFA DATE: 10/18/1989
IFA STATUS: CLOSED : 12/13/1989 ELAPSED TIME: 000 : 00.35.20
PRACA STATUS: CLOSED : 1990-05-04 HOUSTON TIME: 11.29.00
PRCBD NUMBER: S44804N PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A IV-6-018879 A PV-6-143390
K IPR 36RV-0024 K PR DIG-4-06-0146
M DPS-01 P CAR 34RF06

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: B. SWAN
2:

0 DESCRIPTION:
MDM FA-1 failed at the MDM as detected by both PASS and BFS just prior to OMS-2 burn. Crew was able to recover the MDM after the OMS-2 burn by port moding string #1 to secondary port.

Trouble-shooting at Dryden confirmed that port 1 was not communicating

MDM R&R'd on 10/31/89, retest is complete. MDM to be sent to vendor for F/A.

CAAR: Tracking Numbers: IV-6-018879; Pv-6-143390

CAR Status: Explained with AR open.

Flight Problem Report approved at Lv. II Noon PRCB on 12/13/89.
(PRCBD# S44804N)

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-V-06
TITLE:APU-2 GG/FP Heater A inoperative

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 291 : 22.00.00
IFA STATUS: CLOSED : 01/25/1990 IFA DATE: 10/18/1989
PRACA STATUS: CLOSED : 1989-11-16 ELAPSED TIME: 000 : 05.06.20
PRCBD NUMBER: S044805E HOUSTON TIME: 16.00.00
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER PHASE: ON-ORBIT
M MMACS-03 P CAR 34RF07
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MCMILLAN
2:

0 DESCRIPTION:
Same problem that occurred on STS-27 and STS-30 missions.
(REF. PR UA-4-A0007)

. APU 2 fuel pump/GGVM system A heaters did not respond when selected.
System B heaters selected and operated properly.

. T/S'ing at Dryden indicated "A" heaters are now working properly. will
ferry on "A" heaters since "B" heaters were erratic towards end of
mission (ref IFA STS-34-10)

. Thermostat (S27A) was R&R'd on 11/3/89, retest was succesfull.

. Thermostat worked properly during vacuum testing at JSC. XRAY of
thermostat complete. Thermostat will be sent to Sunstrand on 11/8/89.

. Change Request to be prepared at JSC to direct rewiring of the vehicle
from forward panel A12 to the APU in the aft.

. Thermostat tests at Sunstrand not complete, but testing so far has
shown no problems.

. Rewire approval was given by Lv. II, via Noon PRCB, on 11/20/89.

. Rewiring is complete. Retest per OMI V1019 complete.

. CAR Status: Closed (11/1/89) by referencing CAR 30RF15-010 for the
similar problem on STS-30.

. Flight Problem Report approved at Level II Noon PRCB on 1/25/90.
(PRCBD #S044805E)

. Status: Closed

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-V-06
TITLE:APU-2 GG/FP Heater A inoperative

0 - CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

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IFA NUMBER> STS-34-V-07
TITLE:FES Hi load inboard duct temp low.

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0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 291 : 17.06.00
IFA STATUS: CLOSED : 01/22/1990 IFA DATE: 10/18/1989
PRACA STATUS: CLOSED : 1989-11-16 ELAPSED TIME: 000 : 00.12.20
PRCBD NUMBER: S044805C HOUSTON TIME: 11.06.00
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M EECOM-01 P CAR 34RF08

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:

0 DESCRIPTION:
At MET 12 + 34, the Hi load inboard duct temp (V63T1820A) was observed decreasing. Both heaters were enabled on the Hi load duct. Approx. 3 min later crew shut down FES primary A, switched to secondary, temp continued to decrease. The system stabilized under RAD flow. Heaters left on for bakeout. On flight day 2, the topping FES functioned properly on Primary A and Primary B controllers. Suspect excess water in Hi-load during ascent due to RTG extra heat load.

Bldg 45 CHIT (J3147A) approved on 11/14.

T/S'ing in work per TPS ECL-4-06-0179.

Boroscope of heater duct completed on 12/1/89, no anomalies noted. Additional T/S'ing has not found cause of the problem.

CAR status: Recieved explained closeout, CAR was closed on 1/26/90.

Flight Problem Report approved at Level II Noon PRCB on 1/22/90.
(PRCBD #S044805C)

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-V-08
TITLE:APU-3 seal leak into drain bottle

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 293 : 12.00.00
IFA STATUS: CLOSED : 01/18/1990 IFA DATE: 10/20/1989
PRACA STATUS: UNKNOWN ELAPSED TIME: 001 : 19.06.20
PRCBD NUMBER: S44805B HOUSTON TIME: 06.00.00
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A IV-6-018947 K IPR 36RV-0027
P IM/34RF09

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MCMILLAN
2:

0 DESCRIPTION:
APU 3 cavity seal drain line pressure increasing (V46P0390A) and fuel pump inlet pressure decreasing (V46P0310A). Suspect leak in static seal.

Problem also seen on STS-30. 30CC of propellant removed from STS-30 catch bottle.

Drain bottle, from STS-34, will be checked at KSC to determine is seal

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leak has degraded; if not then probable recommend flying-as-is for STS-36.

Drain bottle purge scheduled for 11/17/89 during OMI V1196 operation.

No longer considered a problem. Circuit Breaker will be checked at KSC per OMI V1196.

Drain is complete. WILTEC sample results good. PR to be closed.

CAAR Tracking Number: IV-6-018947

Flight Problem Report approved at Level II Noon PRCB on 1/18/90. (PRCBD #S44805B)

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level Noon PRCB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-V-09
TITLE:R-OMS Eng cover HTR sys B failed off (V43T5720A)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 293 : 14.53.00
IFA DATE: 10/20/1989
IFA STATUS: CLOSED : 01/24/1990 ELAPSED TIME: 001 : 21.59.20
PRACA STATUS: CLOSED : 1990-04-07 HOUSTON TIME: 08.53.00
PRCBD NUMBER: S044805G PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A IV-6-019181 K IPR 36RV-0004
K PR RP03-11-0364 M PROP-01
P IM/36RF13

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. WELCH
2:

0 DESCRIPTION:
During heater configuration to B heaters, the AFT propulsion System (APS) right pod (RP03) B heaters failed to activate.

Suspect a bad pin; KSC to check wiring. POD will be removed and sent to the ORPA for other work.

POD removal complete. Found a recessed pin in connector. Connector has been replaced. Pod reinstalled on 12/13.

CAAR Tracking Numbers: IV-6-019181

Flight Problem Report approved at Level II Noon PRCB on 1/24/90. (PRCBD #S044805G)

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-V-10
TITLE:APU 2 fuel pump heater B cycling high.

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0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 294 : 03.00.00
IFA STATUS: CLOSED : 01/18/1990 IFA DATE: 10/20/1989
PRACA STATUS: CLOSED : 1994-03-30 ELAPSED TIME: 002 : 10.06.20
PRCBD NUMBER: S44805A HOUSTON TIME: 21.00.00
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	IV-6-018946	A	PV-6-143563
K	IPR 36RV-0026	K	PR APU-4-06-0154
M	MMACS-04	P	CAR 34RF11

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MCMILLAN
2:

0 DESCRIPTION:
APU fuel pump heater B has been cycling erratically toward higher temperatures.

Thermostat (S27B) R&R'd on 11/3/89. Thermostat to be returned back to Sunstrand for failure analysis.

Thermostat retest successful.

CAAR Tracking Numbers: IV-6-018946; PV-6-143563.

CAR status: Explained closeout for OV-102; flt. 9, STS-32 on 12/11/89. Recieved explained closeout with action open on 1/22/90.

Flight Problem Report approved at Level II Noon PRCB on 1/18/90 (PRCBD #S44805A)

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-V-11
TITLE:GFE - 70 MM Hasselblad camera shutter failed closed.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 294 : 13.08.00
IFA STATUS: CLOSED : 12/08/1989 IFA DATE: 10/21/1989
PRACA STATUS: UNKNOWN ELAPSED TIME: 002 : 20.14.20
PRCBD NUMBER: S44804M HOUSTON TIME: 07.08.00
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
M	MMACS-05	P	FIAR BFCE-2-10-F004

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:

0 DESCRIPTION:
The shutter on the 100 mm lens closed and will not open. In this configuration, the lens cannot be removed from the camera body.

Flight Problem Report approved at Lv. II Noon PRCB on 12/8/89. (PRCBD# S44804M)

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

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IFA NUMBER> STS-34-V-12

TITLE:CRYO O2 Manifold 2 Isolation Valve did not close.

0 MISSION CONSTRAINT:	SUBS	IFA TIME GMT: 293 : 02.29.00
		IFA DATE: 10/20/1989
IFA STATUS: CLOSED	: 01/02/1990	ELAPSED TIME: 001 : 09.35.20
PRACA STATUS: CLOSED	: 1990-05-22	HOUSTON TIME: 20.29.00
PRCBD NUMBER: S44804Q		PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	PV-6-149025	K	IPR 36RV-0003
K	PR FCP-4-06-0112	M	EECOM-02
P	CAR 34RF12		

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. SUITER
2:

0 DESCRIPTION:

The crew attempted to close the cryo O2 manifold tank 2 valve on panel R-1 per the sleep configuration. Crew reported they held switch for 5 seconds. No talkback. No switch discrete (V5X1146E).

Valve closed properly on first T/S'ing step while on-orbit. Valve opened properly postflight.

KSC to perform standard c/o per OMI V1022.

Bldg 45 CHIT (J3146A) approved on 11/16/89.

T/S'ing on 11/20/89 was unable to recreate problem. Checkout per V1022 good.

Further troubleshooting performed on 1/13-14/90. P9418 was demated at panel R1A2. Switch was "Teased" and one set of contacts could be made to close before the other. Connector was remated and retest was good.

Switch replacement not required in support of STS-36. Panel R1A2 removed 4/6/90 and sent to NSLD to replace switch S5.

CAAR Tracking Number: PV-6-149025

Flight Problem Report approved at Level II Noon PRCB on 1/2/90. (PRCBD #S44804Q)

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Noon PRCB.

1

STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT

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IFA NUMBER> STS-34-V-13

TITLE:GFE - TAGS Overtemp Indication

0 MISSION CONSTRAINT:	SUBS	IFA TIME GMT: 294 : 01.08.00
		IFA DATE: 10/21/1989
IFA STATUS: CLOSED	: 01/23/1990	ELAPSED TIME: 002 : 08.14.20
PRACA STATUS: UNKNOWN		HOUSTON TIME: 19.08.00
PRCBD NUMBER: S44805F		PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
M	INCO-02		

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. SUITER
2:

0 DESCRIPTION:
Several false overtemps cleared by power cycle. Later overtemp stayed on. TAGS continued DTO.

. TAGS to be removed at KSC and sent back to JSC per MCR 15463 for upgrade.

. TAGS removal complete, shipped to JSC on 11/9/89. Replacement unit has been installed per TPS COM-4-06-0128.

. Flight Problem Report approved at Level II Noon PRCB on 1/23/90. (PRCBD #S44805F)

. Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-V-14
TITLE:S-Band URF antenna (ELEC 2) failed to switch

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 295 : 10.05.00
IFA DATE: 10/22/1989
IFA STATUS: CLOSED : 01/02/1990 ELAPSED TIME: 003 : 17.11.20
PRACA STATUS: CLOSED : 1990-02-05 HOUSTON TIME: 04.05.00
PRCBD NUMBER: S44804T PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A IV-6-018974 A PV-6-144199
K IPR 36RV-0028 K PR COM-4-06-0078
K PR EPD-4-06-0697 M INCO-03
P CAR 34RF13

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. SUITER
2:

0 DESCRIPTION:
SM GPC issued an antenna message. Message caused by S-Band control assembly failure to select proper beam direction. T/S confirmed the URF failed to select properly.

. T/S at KSC recreated problem 6 times on SW beam controller assembly #2. Okay on #1. Spares are available at KSC.

. More troubleshooting performed on 11/7/89.

. URF antenna switch coil open and pulses out of SPEC.

. Antenna and SBCA R&R with an updated version, complete. Retest is complete.

. Bent pin in bulkhead connector, A4J1, found during R&R procedure. Suspect this bent pin was the cause of the anomaly. Connector was R&R'd.

. CAAR Tracking Numbers: IV-6-018974(IPR 36RV-0028);
PV-6-144199

. IM Status: ECD 12/15/89.

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Flight Problem Report approved at Level II Noon PRCB on 1/2/90.
(PRCBD #S44804T)

Status: closed

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-V-14
TITLE:S-Band URF antenna (ELEC 2) failed to switch

0 - CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-V-15
TITLE:Pilot HSI "PRI MILE" erroneous during FCS checkout

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 295 : 12.40.00
IFA DATE: 10/22/1989
IFA STATUS: CLOSED : 01/04/1990 ELAPSED TIME: 003 : 19.46.20
PRACA STATUS: CLOSED : 1990-12-11 HOUSTON TIME: 06.40.00
PRCBD NUMBER: S44804W PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A IV-6-018986 A PV-6-143573
K IPR 36RV-0029 K PR DIG-4-06-0147
M GNC-01 P CAR 34RF14

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: W. LEVERICH
2:

0 DESCRIPTION:
The crew reported that during FCS dedicated display checkout the right HSI primary miles indicated 3300 versus 3000 required. Low test 300 versus 200. Retest same results hi. Low okay.

Crew also reported some condensation was present in the meter during Ascent. The condensation cleared once on-orbit.

HSI R&R'd on 11/1/89.

Retest scheduled for 11/15/89.

HSI passed leak tests at the vendor. Vendor replaced faulty mag wheel in the unit.

CAAR Tracking Numbers: IV-6-018986; PV-6-143573

CAR Status: Explained with AR open.

Flight Problem Report approved at Level II Noon PRCB on 1/4/90.
(PRCBD #S44804W)

Status: closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II noon PRCB.

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IFA NUMBER> STS-34-V-17

TITLE:S-Band ULF Antenna (Elec 1) failed to switch

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 295 : 23.58.00
IFA DATE: 10/22/1989
IFA STATUS: CLOSED : 01/02/1990 ELAPSED TIME: 004 : 07.04.20
PRACA STATUS: CLOSED : 1991-05-28 HOUSTON TIME: 17.58.00
PRCBD NUMBER: S44804U PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-144198 K IPR 34RV-0028
K PR COM-4-06-0077 M INCO-04
P CAR 34RF15
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. SUITER
2:

0 DESCRIPTION:
During transition from ULA to ULF, Antenna Electronics 1 failed to select the forward antenna. Telemetry indicated that neither antenna was selected. Corrected by cycling to Elec 2 then back to Elec 1.
T/S'ing scheduled for 11/2-3/89. Probable antenna replacement; spares are available.
T/S'ing could not duplicate anomaly.
Similar failure signature as seen on a previous flight of OV-103/STS-25.
Switch beam assembly R&R is complete. Retest is complete.
CAAR Tracking Number: PV-6-144198
CAR Status: Explained with action required for all flights (11/30/89).
Action closeout issued on 2/22/91.
CAR submitted for closure on 2/25/91.
Flight Problem Report approved at Level II Noon PRCB on 1/2/90. (PRCBD #S44804U)
Status: Closed
- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-V-18

TITLE:WSB 2 Vent temp no reponse on controller A

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 296 : 13.45.00
IFA DATE: 10/23/1989
IFA STATUS: CLOSED : 01/05/1990 ELAPSED TIME: 004 : 20.51.20
PRACA STATUS: CLOSED : 1989-12-18 HOUSTON TIME: 07.45.00
PRCBD NUMBER: S44804Y PHASE: ENTRY/LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A IV-1-000063 K IPR 36RV-0031
M MMACS-06 P CAR 34RF16
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. THELEN
2:

0 DESCRIPTION:

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WSB steam vent temp heater A did not respond. Switched to B controller with normal reponse.

Could be heater or controller failure.

Standard T/S'ing on Heater/Controller at KSC.

T/S'ing scheduled for 11/3/89.

Heater performance nominal at KSC, anomaly unrepeatable.

U.A. closure in process.

CAR Status: Explained closeout on 12/11/89.

Flight Problem Report approved at Level II Noon PRCB on 1/5/90. (PRCBD #S44804Y)

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Noon PRCB.

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IFA NUMBER> STS-34-V-19

TITLE:Right Vent door #3 motor 1 operating on two phases

0 MISSION CONSTRAINT:	SUBS	IFA TIME GMT: 291 : 16.53.00
		IFA DATE: 10/18/1989
IFA STATUS: CLOSED	: 01/25/1990	ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED	: 1990-07-05	HOUSTON TIME: 10.53.00
PRCBD NUMBER: S044805J		PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	IV-6-019034	K	IPR 36RV-0032
K	PR MEQ-4-06-0273	P	CAR 34RF17

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:

During prelaunch when vent doors prepositioned, right vent door 3 motor 1 operated on 2 phases. AC1 phase B was lost. Occurred 3 times in flight. Phase B is lost when door opens and phase C is lost when door closes.

Previous problem with same door on STS-30, (Rev. KSC IPR 30RV-0066). KSC replaced MCA-1 then closed the problem by UA (PR UA-4-A0034).

T/S'ing scheduled for 11/2/89 via break-out boxes.

T/S'ing on 11/9/89 repeated anomaly, found one phase of PDU is open.

R&R of vent door PDU complete. Retest complete.

CAAR Tracking Numbers: IV-6-019034

CAR Status: Explained for STS-33 and STS-32. Open for others.

Flight Problem Report approved at Level II PRCB on 1/25/90. (PRCBD #S044805J)

Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-V-20
TITLE:ET/ORB LOX AFT Separation Hole Plugger Failed

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 10/18/1989
IFA STATUS: CLOSED : 01/29/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-12-12 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044805L PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR PYR-4-06-0082 P CAR 34RF21
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. GUTHERY
2:

0 DESCRIPTION:
ET/ORB LOX aft separation hole plugger failed to seat properly.
Stopped 2" short of full extension. Jammed by detenator booster and
detonator. Crushed connector backshell found on runway. All debris
accounted for. Photos taken at Dryden.
.
Saw similar problem on STS-29.
.
Assembly removed at Dryden and sent to RI/DNY. Potential redesign
being reviewed at Level III TSR; low priority.
.
CAR Status: Closed on 10/31/89.
.
Flight Problem Report approved at Level II Noon PRCB on 1/29/90.
(PRCBD #S044805L)
.
Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-34-V-21
TITLE:RH stop bolt was bent on centering ring of FWD ET attach SEP assembly

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 08/10/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1991-07-10 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044805V PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR PYR-4-06-0085 P CAR 34RF22
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. GUTHREY
2:

0 DESCRIPTION:
RH Stop bolt bent on centering ring of FWD sep assembly.
.
Photos taken at Dryden.
.

Parts removed at Dryden and sent to RI/DNY.

Research indicates GSE used to mate forward bipod caused the problem. Bolt is in analysis at RI/DNY.

Work around/GSE change in work.

CAR Status: Explained with AR open.

Flight Problem Report was presented to Level II Noon PRCB on 1/29/90. Chairman requested that IFA remain open and discussed at the STS-36 FRR along with discussion of the STS-32 IFA (PRCBD #S044805K).

Flight Problem Report approved at Level II Daily SPRCB on 8/10/90 (PRCBD #S044805V).

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Daily SPRCB

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STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 45

IFA NUMBER> STS-34-V-3A

TITLE:Instrumentation: APU-3 Injector tube temp (V46T0374)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 291 : 15.47.00
IFA DATE: 10/18/1989
IFA STATUS: CLOSED : 01/25/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-12-12 HOUSTON TIME: 09.47.00
PRCBD NUMBER: S044805H PHASE: PRE-LAUNCH

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A IV-6018853 A PV-6-143562
K IPR 34RV-0246 K IPR 36RV-0022
K PR APU-4-06-0153 P CAR 34RF03

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:
APU #3 injector tube temp bias low (315 S/B 355). KSC saw fluctuation.

Plan is to have KSC to move wiring to back-up sensor.

SPC has performed connector repin. Retest scheduled for 11/6/89.

6 Deg. bias seen on retest, fy with bias.

CAAR Tracking Numbers: IV-6018853; PV-6-143562.

STS-34 IPR# 34RV-0246

CAR Status: Transfer to CAR 11F010-010 on 11/17/89.

Flight Problem Report approved at Level II Noon PRCB on 1/25/90.
(PRCBD #S044805H)

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Noon PRCB.

1

IFA NUMBER> STS-34-V-3B
TITLE:Instrumentation: APU-3 EGT #1 (V46T0324A)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 291 : 16.49.00
IFA DATE: 10/18/1989
IFA STATUS: CLOSED : 01/25/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 10.49.00
PRCBD NUMBER: S044805H PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	PV-6-142666	K	PR APU-4-06-0152
M	MMACS-01	P	IM/34RF04

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:
APU #3 EGT #1 failed low prelaunch.
KSC to R&R transducer.
Transducer R&R and channelization completed, PR is closed.
CAAR Tracking Numbers: PV-6-142666.
IM status: Closed on 11/8/89.
Flight Problem Report approved at Level II Noon PRCB on 1/25/90
(PRCBD #S044805H)
Status: Closed
- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 47

IFA NUMBER> STS-34-V-3C
TITLE:Instrumentation: APU-3 EGT #2 Failed

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 10/22/1989
IFA STATUS: CLOSED : 01/25/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044805H PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	PR APU-4-06-0152	P	IM/34RF18

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:
APU-3 EGT #2 erratic during ascent and failed during FCS C/O.
KSC to R&R transducer.
Transducer R&R and channelization completed, PR is closed.
IM status: Closed on 11/8/89.
Flight Problem Report approved at Level II Noon PRCB on 1/25/90.
(PRCBD #S044805H)
Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 48

IFA NUMBER> STS-34-V-3D
TITLE:Instrumentation: APU-2 EGT #1 failed

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 10/23/1989
IFA STATUS: CLOSED : 01/25/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044805H PHASE: ENTRY/LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR APU-4-06-0152 M MMACS-07
P IM/34RF19
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:
APU-2 EGT #1 failed during entry.
KSC to R&R transducer.
Transducer R&R and channelization completed, PR is closed.
IM Status: Closed on 11/8/89
Flight Problem Report approved at Level II Noon PRCB on 1/25/90
(PRCBD #S044805H)
Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1 STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 49

IFA NUMBER> STS-34-V-3E
TITLE:WSB #3 Regulator out pressure failed

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 10/23/1989
IFA STATUS: CLOSED : 01/25/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-12-12 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044805H PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 36RV-0002 M MMACS-08
P CAR 34RF20
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:
WSB #3 regulator out pressure (V58P0304A) failed. Possible sensor
failure or controller B upgrade failure.
T/S'ing at KSC has been unable to recreate the anomaly (12/13/89).
Still appears to be a potential data dropout problem.
U.A. closure approved.

STS0034.txt

·
CAR Status: Closed with explained closeout on 12/12/89.

·
Flight Problem Report approved at Level II Noon PRCB on 1/25/90.
(PRCBD #S044805H)

·
Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1
STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 50

IFA NUMBER> STS-34-V-16A
TITLE:GFE - "Darken Arc" across CCTV Camera C

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 294 : 07.00.00
IFA STATUS: CLOSED : 12/18/1989 IFA DATE: 10/21/1989
PRACA STATUS: UNKNOWN ELAPSED TIME: 002 : 14.06.20
PRCBD NUMBER: S44804P HOUSTON TIME: 01.00.00
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M INCO-01 P FIAR BFCE-029-F013

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:

0 DESCRIPTION:
An area or degraded image was noticed on CCTV Camera C. Area is
darkened extending through center of image.

·
Camera has been removed and was shipped to Boeing FEPC.

·
Flight Problem Report was approved at Lv. II Noon PRCB on 12/18/89.
(PRCBD# S44804P)

·
Status: Closed

- CLOSURE RATIONALE:
Flight Problem Report approved at Level II Noon PRCB.

1
STS-034 (OV-104,FLT #5) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 51

IFA NUMBER> STS-34-V-16B
TITLE:GFE - Camera "B" had spots on screen

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA STATUS: CLOSED : 12/18/1989 IFA DATE:
PRACA STATUS: UNKNOWN ELAPSED TIME: 000 : 00.00.00
PRCBD NUMBER: S44804P HOUSTON TIME: 00.00.00
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* *****NONE FOUND***** * *****NONE FOUND*****

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:

0 DESCRIPTION:
Camera "B" had spots on screen.

·
Camera has been removed.

·
MRB for future use and return to spares.

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Flight Problem Report approved at Lv. II Noon PRCB on 12/18/89.
(PRCBD# S44804P)

Status: Closed

- CLOSURE RATIONALE:

Flight Problem Report approved at Level II Noon PRCB.

-JFDPO12: NORMAL TERMINATION OF PROCESSING

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STS-035 (OV-102,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 1

IFA NUMBER> STS-35-B-01
TITLE:Right SRB Main Parachutes Disconnect Failure at Water Impact.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 12/02/1990
IFA STATUS: CLOSED : 01/09/1991 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1991-02-12 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044824A PHASE: ENTRY/LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A13335 K PR D-BI038R-0001
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

0 DESCRIPTION:

The three main parachutes were found draped over the booster which required disconnecting at the cargo link to complete the retrieval operations. Bridgewire resistance tests were conducted on the NSIs, not only confirming a nominal condition but also matching those resistance values measured preflight. Further troubleshooting exonerated the recovery battery and Altitude Switch Assembly (ASA). The right SRB forward skirt was later transferred to the ARF where electrical testing isolated the Wide Band Signal Conditioner (WBSC) in channel B as the source of this problem's cause. The parachute separation circuitry (in order of signal flow) consists of two (2) water impact sensors (channels A and B), two WBSC's (channels A and B), the Sensor Timing Unit (STU) encompassing a detector and Pyrotechnic Initiator Controller (PIC), and the NASA Standard Initiator (NSI) to the release system. Channel A provides the fire 1 signal to the main parachute PIC, and Channel B provides the fire 2 signal to the PIC. Both fire 1 and fire 2 signals are required to fire the PIC. This particular signal conditioner is unique, with respect to the SRB, to the parachute disconnect function at water impact. Failure of the noted system function necessitates manual separation of the parachutes from the forward skirt by the divers. This is the first known SRB failure of the WBSC. Also, these WBSC's are "one-flight-only" items. As a result, this anomaly is considered a criticality 3 failure. No further action will be taken unless WBSC flight failures become frequent.

KSC LSOC Tracking Number: PV-4-030155; PV-6-175588

This problem to be closed in the MSFC PRACA System.

Flight Problem Report approved at Special Level II Daily PRCB on 1/9/91 (PRCBD #S044824A).

Status: Closed

1

STS-035 (OV-102,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 2

IFA NUMBER> STS-35-D-01
TITLE:SpaceLab Subsystem Computer Failed

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 338 : 02.26.00
IFA DATE: 12/03/1990
IFA STATUS: CLOSED : 02/11/1991 ELAPSED TIME: 001 : 19.36.59
PRACA STATUS: UNKNOWN HOUSTON TIME: 20.26.00

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PRCBD NUMBER: S044824G PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M CDMS-03

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: B. JACKSON
2:

0 DESCRIPTION:
Due to an incorrectly applied command, the Spacelab subsystem computer failed. The command problem was caused by an error in workstation program SLOMANDO option SRN which incorrectly changed an ECOS write core memory command into an SCOS write core memory command. The operators did not detect the error before the load was uplinked.

Impact: SCOS/SCAS function not available.

Resolution: SCOS was recovered with an IPL.

Flight Problem Report approved at Special Level II Daily PRCB on 2/11/91 (PRCBD# S044824G).

1 STS-035 (OV-102,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 3

IFA NUMBER> STS-35-D-02
TITLE:MPC Pointing Control select Switch Problem

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 337 : 00.19.00
IFA DATE: 12/02/1990
IFA STATUS: CLOSED : 05/17/1991 ELAPSED TIME: 000 : 17.29.59
PRACA STATUS: UNKNOWN HOUSTON TIME: 18.19.00
PRCBD NUMBER: S044825H PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M IPS-04

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R. ELLSWORTH
2:

0 DESCRIPTION:
The manual pointing controller (MPC) failed to function during IPS pointing activities. Troubleshooting of this problem indicated that the MPC connector was not attached to the correct port to the MPC pointing control select switch on the deployment/pointing panel (DPP, Panel L12). The spacelab IPS cable configuration defines the MPC connection as Port 2 (corresponding to switch position 2), while the current Columbia cable configuration has the MPC connected to Port 1.

Impact: The MPC will not function at the MPC pointing control select switch setting of 2, as designated by the FDF.

Resolution: Because the MPC is dedicated to the IPS for the entire mission, the MPC pointing control select switch is to be placed at setting 1 for the remainder of the mission.

Flight Problem Report approved at Special Level II Daily PRCB on 05/17/91 (PRCBD# S044825H).

1 STS-035 (OV-102,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 4

IFA NUMBER> STS-35-I-01
TITLE:BFS Patch for Longitude Incorrect

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:

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IFA STATUS: CLOSED : 02/01/1991 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044824E PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* *****NONE FOUND***** * *****NONE FOUND*****

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: H. MOBLEY
2:

0 DESCRIPTION:
Patch to BFS complimentary load for Pad B definition was incorrect at the sixth digit place for longitude. Delta of 143 feet between PFS and BFS was seen during Ascent. Error was found post ascent via data review.

Flight Problem Report approved at Special Level II Daily PRCB on 2-01-91 (PRCBD# S044824E).

1 STS-035 (OV-102,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 5

IFA NUMBER> STS-35-M-01
TITLE:Heat effect of the Carbon Cloth Phenolic (CCP) on the Left RSRM Nozzle Joint 3

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 01/17/1991 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044824B PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER

D DR4-5/203
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. THORNTON/EE52
2:

0 DESCRIPTION:
During the follow-on postflight inspection of the left RSRM nozzle joint 3 at TC, a 1.5" gas path was observed through an RTV void at 195 deg, resulting in heat effects to the CCP surface and sooting to the primary O-ring.

Nozzle joint 3 is located between the nose inlet assembly and the throat assembly. The surface of the virgin CCP material in the joint, below the erosion surface and char line in the nozzle throat, showed signs of heat effects for approximately one inch below the depth of the char line. Soot also reached the primary O-ring for a distance of approximately 12" circumferentially in both directions from the location of the gas path (195 deg). There was no blowby erosion, or heat effect to the primary O-ring, and no metal components were affected. RTV, which is used in the assembly process to close the gaps in the RSRM throat joints, contributes as a thermal barrier, but not as a seal in the RSRM nozzle joints. It is a design goal to retain RTV in the joint below the level of the char line, but this is not a performance requirement.

All previous RTV backfilled nozzle joints have successfully met their design requirements. No flight or static test nozzle joints have exhibited any primary O-ring heat effects, erosion, or blowby. Blow paths have been experienced in the RTV in all RSRM nozzle joints, and soot has reached the primary O-ring on 33 out 165 joints. This is the first occurrence of heat affected virgin CCP in joint 3. Heat affected CCP, SCP (silicia), and GCP (glass), was found in joint 2 (nose inlet bearing/cowl) of STS-26 (360L001A, left RSRM), QM-7, and PVM-1 with no observed heat effects to the primary O-ring. Gas paths and soot in the nozzle joints are within the experience base of 26

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flight nozzles and 7 static test nozzles. As corrective action, an aero/thermal analysis of nozzle joint 3 will be evaluated to determine what volume and gas flow characteristics are required to duplicate/model this condition. Also, TC will review corrective actions implemented with respect to RTV backfill processing to prevent RTV voids.

Flight Problem Report approved at special LV. II Daily PRCB on 1/17/91

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STS-035 (OV-102,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 6

IFA NUMBER> STS-35-M-01

TITLE:Heat effect of the Carbon Cloth Phenolic (CCP) on the Left RSRM Nozzle
Joint 3

0 DESCRIPTION: (Continued from previous page).
(PRCBD# S044824B).

Status: Closed

1

STS-035 (OV-102,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 7

IFA NUMBER> STS-35-S-01

TITLE:Data Display Systems (DDS) #1 and 2 Failed

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 336 : 16.39.00
IFA DATE: 12/02/1990
IFA STATUS: CLOSED : 05/08/1991 ELAPSED TIME: 000 : 09.49.59
PRACA STATUS: UNKNOWN HOUSTON TIME: 10.39.00
PRCBD NUMBER: S044825F PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M CDMS-01

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

0 DESCRIPTION:

At GMT 336:16:41:55 the crew reported a smell of overheated wiring.
At GMT 336:16:39':58:58 received fault message (210) SS10 CDLR fail.

Crew then reported that the starboard side payload data display system (DDU plus keyboard) went dead. No other indications of failure. No current spikes (current exceeded one amp for nine seconds) or circuit breakers popped. Smell receded after auto shutdown.

No impact to Orbiter Systems. DDS System 1 or 2 required to complete payload mission, 2 units aboard.

Initial troubleshooting of the Data Display System (DDS) DDU1 on panel R12 indicates that the malfunction that occurred was most likely internal to the DDU.

Safety is following the DDS-1 anomaly and recommends leaving the DDS-1 off unless MSFC can provide acceptable rationale for powering it back on.

Investigation of DDS installation hardware for possible switch in location of DDS #2 to mission station panel R12, and DDS #1 (currently inoperative) to the payload station panel L11, to enhance on-orbit operations performed. No decision has been made on whether to make this switch of hardware.

Flight director Gary Coen chaired a meeting to evaluate proposed plans to repower data display unit (DDU) #1. MSFC presented detailed plans

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to repower DDU-1 and a contingency plan for loss of the second DDU. Acquisition of science data and safety concerns were dominant in the discussions. Results of this meeting are a recommendation to continue DDU-2 operations and develop contingency plans to repower DDU-1 in the event DDU-2 fails. These results will be briefed at the MMT. In the event both DDUs are lost, ground will command the Spacelab Inertial Pointing System (IPS).

MSFC is to determine if ground will be able to monitor IPS heaters in the event both DDU's are lost.

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STS-035 (OV-102,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 8

IFA NUMBER> STS-35-S-01
TITLE:Data Display Systems (DDS) #1 and 2 Failed

0 DESCRIPTION: (Continued from previous page).

DDS 1 was repowered at GMT 340:19:54:51. The crew attempted to get a test pattern. The crew smelled an odor again. DDS was powered off at 340:19:56:15.

DDS 1 is failed and will not be used the remainder of the flight.

DDS 2 performed an auto shutoff at GMT 340:12:08. A 210 EXIO and SSIO CPLR FAIL message was annunciated. The crew reported a smoke smell at the time of the failure. No currents greater than 0.65 amps were observed.

Flight Problem Report approved at Special Level II Daily PRCB on 05/08/91 (PRCBD# S044825F).

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STS-035 (OV-102,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 9

IFA NUMBER> STS-35-S-02
TITLE:HDRR Transport PWR supply status failure

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 339 : 06.20.00
IFA DATE: 12/05/1990
IFA STATUS: CLOSED : 05/08/1991 ELAPSED TIME: 002 : 23.30.59
PRACA STATUS: UNKNOWN HOUSTON TIME: 12.20.00
PRCBD NUMBER: S044825G PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M INCO-04

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

0 DESCRIPTION:

At the above GMT during an HDRR dump the HDRR went to stop and the transport unit power supply indicated fail. This is caused by voltage monitors showing an out of limits voltage. A power cycle reset this indicator. Playback of data indicated that just prior to the failure the motor current began varying from about 0.6 to 1.2 amps. Normal is 0.9 amps. Upper limit is 2.5 amps. No spike was seen although rate is only 1 sample/second. Further troubleshooting shows no motion in octaves 2, 4, and 32 in forward and reverse. Other octaves not tested. Evaluation of EPDB 1 current is inconclusive. Data for period of 6 hours prior to failure indicate only one instance of less than expected HDRR motor currents during FWD reconfiguration at 339:05:52:15 GMT. This showed a widened startup current pulse with a drop of required motor currents to .6 of expected. Transport unit failed on next attempt at playback. Troubleshooting following the

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failure showed continued degradation in motor current. This could indicate either a transport unit motor failure or a power supply failure. We feel the power supply failure is more likely. A SPAN CHIT has been submitted requesting further engineering data.

Impact: Significant changes to DMC will be required. P/L recorder can support S/L OPS but can only contain 56 minutes of data prior to needing to be dumped. Dumps can only be performed at a 1:1 ratio. ATL may have to be modified to prevent data loss due to the P/L recorder limitation. Some SL data may still be lost.

Resolution: HDRR is down for remainder of flight and will be powered off to conserve energy. PL recorder will be used to support SL OPS.

Flight Problem Report approved at Special Level II Daily PRCB on 05/08/91 (PRCBD# S044825G).

1 STS-035 (OV-102,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 10

IFA NUMBER> STS-35-T-01
TITLE:ET TPS Divots at the Intertank-to-Hydrogen Flange

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA STATUS: CLOSED : 01/29/1991 IFA DATE:
PRACA STATUS: UNKNOWN ELAPSED TIME: 000 : 00.00.00
PRCBD NUMBER: S044824C HOUSTON TIME: 00.00.00
PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* *****NONE FOUND***** * *****NONE FOUND*****

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: C. BRAMON/EE31
2:

0 DESCRIPTION:

During photographic review of the STS-35 astronaut's pictures of the ET in-flight, ten (10) circular TPS divots were observed on the Intertank-to-Hydrogen flange.

The photographs revealed five (5) divots on the left side (+Y axis) of the tank and five (5) divots on the right side (-Y axis) of the tank. The largest six divots are approximated in size, ranging from eight (8) to ten (10) inches. The ET intertank flanges are closed out after the splice/mate of the forward LO2 tank to the aft LH2 tank. The intertank flanges are manually sprayed with BX-250 foam, bonded to existing tank foams by isochem adhesive.

Flight Problem Report approved at Special Level II Daily PRCB on 1-29-91 (PRCBD# S044824C).

1 STS-035 (OV-102,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 11

IFA NUMBER> STS-35-V-01
TITLE:GFE - OPS RCDR #1 Track #2 Problem

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 337 : 11.34.00
IFA STATUS: CLOSED : 03/25/1991 IFA DATE: 12/03/1990
PRACA STATUS: UNKNOWN ELAPSED TIME: 001 : 04.44.59
PRCBD NUMBER: S044824H HOUSTON TIME: 05.34.00
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR INS-2-11-0669 M INCO-03
P FIAR-BFCE-029-F022 P 40V-0003

STS0035.txt

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:
OPS recorder #1, track #2 unable to dump data. Loss of dump data from
337:09:24 to 337:09:35. No OPS impact. Will not use track #2.
JSC requesting R&R of recorder at Dryden after performing T-O dumps.
Need shipping containers, 1 at KSC (already shipped), 2 at Palmdale
(status unknown), or 6 at Vendor.
Shipped from DFRC on 12/15/90, replacement unit installed at KSC.
Flight Problem Report was approved at Special Level II Daily PRCB
on 3/25/91 (PRCBD# S044824H).

1 STS-035 (OV-102,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-35-V-02
TITLE:GFE - TAGS Jam

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 337 : 12.20.26
IFA DATE: 12/03/1990
IFA STATUS: CLOSED : 04/05/1991 ELAPSED TIME: 001 : 05.31.25
PRACA STATUS: UNKNOWN HOUSTON TIME: 06.20.26
PRCBD NUMBER: S044824M PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR COM-2-11-0159 M INCO-02
P FIAR JSC-EE-0661

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: B. SWAN
2:

0 DESCRIPTION:
TAGS has jammed twice with the crew successfully clearing the JAM by
working MAL. 2.8A.
This is the first mission where the TAGS hardcopier has been used in a
manner where it is turned off while not in use and turned on only
briefly for transmission every 12 hours.

There have been 4 transmission sessions, with paper JAMS occurring in
2 sessions. Each time the JAM was cleared by the crew. In each
instance where a JAM occurred, transmission was initiated immediately
upon receiving a NORM TEMP indication from the unit (approximately 15
minutes after power-up). In the 2 instances where JAMS did not
occur, the unit had been on for at least an hour before transmission
was initiated.

At this time, the problem is believed to be inadequately heated metal
surfaces adjacent to the developer. While the developer has reached
its operating temperature, other surfaces are slower to heat up
(there is no convective heating in 0 g.). Moisture is boiled off when
processing paper and collects on these "cooler" surfaces. When a
sufficient amount of moisture collects, a subsequent page will stick
and a JAM occurs. Allowing the unit to heat for a longer time will
enable these critical surfaces to heat to a point where moisture will
not collect on them.

The TAGS is being allowed to heat up for a minimum of 45 minutes
before transmissions are initiated.

Additional jam occurred at 339:13:14 while page 3 of a message
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sequence was passing through the OHC developer. During troubleshooting, the TAGS jam tool also malfunctioned (IFA STS-35-03B).

This problem will not impact the mission.

JSC is requesting the TAGS be removed at KSC, while in the VAB,

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IFA NUMBER> STS-35-V-02
TITLE:GFE - TAGS Jam

0 DESCRIPTION: (Continued from previous page).
without KSC performing any trouble-shooting.
TAG's removed on 1/15/91.

Flight Problem Report approved at Special Level II Daily PRCB on 04/05/91 (PRCBD# S044824M).

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IFA NUMBER> STS-35-V-03
TITLE:GFE - TAGS UNJAMMING TOOL BROKE(NOT BASELINED AS IFA)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 339 : 13.29.00
IFA STATUS: CLOSED : 12/20/1990 IFA DATE: 12/05/1990
PRACA STATUS: UNKNOWN ELAPSED TIME: 003 : 06.39.59
PRCBD NUMBER: S044824R1 HOUSTON TIME: 07.29.00
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER PHASE: ON-ORBIT
M MMACS-06 P FIAR BFCE-213-F006

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:

0 DESCRIPTION:
Not declared as an IFA at the Level II IFA Baselineing PRCB on 12/20/90.

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IFA NUMBER> STS-35-V-04
TITLE:Left RCS Drain Panel Heater "A" not on at Normal Temperature.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 337 : 22.39.00
IFA STATUS: CLOSED : 04/12/1991 IFA DATE: 12/03/1990
PRACA STATUS: CLOSED : 1991-09-10 ELAPSED TIME: 001 : 15.49.59
PRCBD NUMBER: S044824Y HOUSTON TIME: 16.39.00
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER PHASE: ON-ORBIT
K IPR 40V-0011 K PR LP03-0288
M PROP-01 P CAR 35RF02

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MCMILLAN
2:

0 DESCRIPTION:
The LRCS drain temperatures, V42T2304A and V42T2305A, indicated that the heater did not cycle at the expected 59 deg F on the L POD A heaters. The temperature on the "A" heater went down to 52 deg F, which was within 3 deg F of the FDA, before switching to the "B" heater. The system operated properly on the "B" heater.

Data analysis indicates that the "A" heater cycled once before failing. The "A" heater has been switched to AUTO and the temperature will be allowed to drop to 35 deg F to confirm heater cycle failure (Ref. CHIT 027).

This heater is located in the stinger area of the pod and is accessible in the OPF without removing the pod.

Trouble-shooting results show heater looks good, now suspect thermostat. Trouble shooting results show bad thermostat. R&R complete, retest found bad splices. Rework complete, retest found an unexplained 2500 ohm resistance between test conductor and switch splice (due to error on integrated schematic), test using correct pins indicates heater is wired properly. Switch spliced back into system and retest was successful (04/15/91).

CAR Status: Explained problem closeout with action required issued on 05/20/91.

Flight Problem Report approved at Special Level II Daily PRCB on 04/12/91 (PRCBD# S044824Y).

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IFA NUMBER> STS-35-V-05
TITLE:Waste Water Dump Degradation

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 339 : 12.30.00
IFA DATE: 12/05/1990
IFA STATUS: CLOSED : 04/12/1991 ELAPSED TIME: 003 : 05.40.59
PRACA STATUS: CLOSED : 1991-10-22 HOUSTON TIME: 06.30.00
PRCBD NUMBER: S044824W PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 40V-0004	K	PR ECL-2-11-0595
M	EECOM-01	P	CAR 35RF03

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: M. ENGLE
2:

0 DESCRIPTION:
Waste water dump data shows a gradual degradation of the waste water dump rate. Line completely blocked on fourth waste dump. Waste tank off-loaded to CWC and UCD's/UAS's. 30 psia N2 purge failed to remove block.

CHIT J3483 approved on 1/9/91 (PRCBD# S052908K) for dump nozzle line cleaning. In-line waste water (urine) filter disassembled at RSC, found 2 sections of filter element missing. Nozzle removal completed, to NSLD for TT&E; new nozzle to be installed/additional work to be resumed in OPF. Foreign material found in nozzle. Preliminary analysis of material from nozzle matches filter material. Off-shelf filter was examined at RSC. Two of three filter elements disintegrated due to loss of plasticizer. Filter had same time history as OV-102's flight filter - 1980 (2-01-91).

New nozzle installation complete, close-outs complete (3/27/91).

CAR Status: Issued on 1/3/91. Explained closeout for OV-103, Flt #12 (STS-39), for OV-104, Flt #8 (STS-37), and for OV-102, Flt #11 (STS-40) was issued on 1/24/91.

Flight Problem Report approved at Special Level II Daily PRCB on
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04/12/91 (PRCBD# S044824W).

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IFA NUMBER> STS-35-V-06
TITLE:GFE - Four Headsets Inoperative and One Crew Remote Unit (CRU) Failed

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 336 : 18.00.00
IFA DATE: 12/02/1990
IFA STATUS: CLOSED : 04/15/1991 ELAPSED TIME: 000 : 11.10.59
PRACA STATUS: UNKNOWN HOUSTON TIME: 12.00.00
PRCBD NUMBER: S044824T PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M INCO-10

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: B. SWAN
2:

0 DESCRIPTION:
Crew reports (4) inoperative headsets. (1) is physically broken, the others will not transmit. Also, a CRU would not transmit.

FIAR Numbers: BFCE-029-F024; BFCE-029-F025; BFCE-029-F026

Flight Problem Report approved at Special Level II Daily PRCB on 04/15/91 (PRCBD# S044824T).

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IFA NUMBER> STS-35-V-08
TITLE:GFE - OPS Recorder #2 Track 5 degraded quality.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 340 : 08.01.00
IFA DATE: 12/06/1990
IFA STATUS: CLOSED : 03/25/1991 ELAPSED TIME: 004 : 01.11.59
PRACA STATUS: UNKNOWN HOUSTON TIME: 02.01.00
PRCBD NUMBER: S044824J PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR INS-2-11-0670 M INCO-05
P FIAR BFCE-029-F028

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:
Dump of OPS 2 track 5 is degraded when dumped in both directions.

JSC requesting R&R of recorder at Dryden after performing T-0 dumps. Need shipping containers, 1 at KSC (already shipped), 2 at Palmdale (status unknown), or 6 at Vendor.

Shipped from DFRC on 12/15/90.

Flight Problem Report was approved at Special Level II Daily PRCB on 3/25/91 (PRCBD# S044824J).

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IFA NUMBER> STS-35-V-09
TITLE:GFE - Payload Recorder Track 5 Degraded Quality

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 339 : 19.18.00
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IFA STATUS: CLOSED : 03/29/1991 IFA DATE: 12/05/1990
PRACA STATUS: UNKNOWN ELAPSED TIME: 003 : 12.28.59
PRCBD NUMBER: S044824K HOUSTON TIME: 13.18.00
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR INS-2-11-0671 M INCO-06
P FIAR BFCE-029-F027

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:
Initial P/L recorder dump at 4:1 and 2:1 were degraded. Recorder continued to degrade during mission, with 1:1 dumps also affected.
JSC requesting R&R of recorder at Dryden after performing T-0 dumps. Need shipping containers, 1 at KSC (already shipped), 2 at Palmdale (status unknown), or 6 at Vendor.
Shipped from DFRC on 12/15/90.
Flight Problem Report was presented but not approved at Special Level II Daily PRCB on 3/25/91. Action was assigned to the Orbiter and GFE Projects Office. Scheduled for representation on 3/29/91.
Flight Problem Report represented and approved at Special Level II Daily PRCB on 03/29/91 (PRCBD# S044824K).

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IFA NUMBER> STS-35-V-10
TITLE:-Z Star Tracker failed first two self-tests

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 336 : 08.51.00
IFA DATE: 12/02/1990
IFA STATUS: CLOSED : 04/08/1991 ELAPSED TIME: 000 : 02.01.59
PRACA STATUS: CLOSED : 1991-09-10 HOUSTON TIME: 02.51.00
PRCBD NUMBER: S044824N PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 40V-0012 M GNC-01
P IM/35RF04

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: W. LEVERICH
2:

0 DESCRIPTION:
The -Z Star Tracker failed two self-tests due to small position errors. These position errors were observed only on the first self-test software cycle. All subsequent software cycles show the correct BITE (built-in-test-equipment) star position. Star Tracker performance has been nominal.
The -Z Star Tracker passed a third self-test at GMT 337:18:50:27. Data from the third self-test was nominal. Three additional S/T have also been successful.
It appears that the Star tracker electronics may not have responded quickly enough to star acquisition during the first two self-tests. This slow response could be a function of warm-up time, since the tracker self-test response appeared nominal after two days of operation. The trackers had been powered on for 26 minutes prior to the first two self-tests. (SODB constraint: >15 min.)

This condition has been seen during laboratory test on other units
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but has never occurred in flight.

Troubleshooting at KSC resulted in 3 failures out of 11 tests, more tests/troubleshooting completed. Data review completed, close with MR, fly-as-is.

IM Status: Issued on 12/10/90.

Flight Problem Report approved at Special Level II Daily PRCB on 04/08/91 (PRCBD# S044824N).

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IFA NUMBER> STS-35-V-12
TITLE:GFE - Camera "C" Color wheel sticking

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 341 : 22.06.00
IFA STATUS: CLOSED : 01/18/1991 IFA DATE: 12/07/1990
PRACA STATUS: UNKNOWN ELAPSED TIME: 005 : 15.16.59
PRCBD NUMBER: S044824R1 HOUSTON TIME: 16.06.00
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER PHASE: ON-ORBIT
M INCO-08 P FIAR BFCE-029-F030
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:
0 DESCRIPTION:
Reference STS-035 IFA ORB-07B.

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IFA NUMBER> STS-35-V-13
TITLE:Upper Left S-Band Antenna Performance Poor

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 342 : 01.30.00
IFA STATUS: CLOSED : 04/22/1991 IFA DATE: 12/07/1990
PRACA STATUS: CLOSED : 1991-11-15 ELAPSED TIME: 005 : 18.40.59
PRCBD NUMBER: S044825E HOUSTON TIME: 19.30.00
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER PHASE: ON-ORBIT
K PR COM-2-11-0163 M INCO-09
P CAR 35RF06 U PR UA-0007
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: B. SWAN
2:
0 DESCRIPTION:
Unexplained forward link dropouts have occurred while on this antenna. Reflective power has fluctuated between 1 and 5 watts during these dropouts.

No T/S'ing CHIT required; KSC T/S'ing in-work as of 1/11/91.

IM Status: Issued on 12/11/90.

Insertion loss checks completed (all antennas OK except upper left), TDR checks completed. Additional T/S'ing/data evaluation completed. Antenna switch is currently suspect (spare A.O.S.). Antenna switch removed and sent to JSC for Failure Analysis (FA). Replacement switch installation complete, retest scheduled for OPF. Coax torque checks completed, troubleshooting continuing (2/20/91).

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JSC Failure analysis of switch found no problem. Additional troubleshooting found bad coax at X0576 bulkhead. R&R of W561 and W523 completed. Additional troubleshooting still shows drop outs. Upper left antenna R&R complete, TPS reinstallation in-work (3/27/91).

Flight Problem Report approved at Special Level II Daily PRCB on 04/22/91 (PRCBD# S044825E).

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IFA NUMBER> STS-35-V-14
TITLE:GFE - Camera "D" Intermittent Power-up/Commanding Problem

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 344 : 03.16.00
IFA DATE: 12/09/1990
IFA STATUS: CLOSED : 01/18/1991 ELAPSED TIME: 007 : 20.26.59
PRACA STATUS: UNKNOWN HOUSTON TIME: 21.16.00
PRCBD NUMBER: S044824R1 PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
P FIAR BFCE-029-F031
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:
0 DESCRIPTION:
Reference STS-035 IFA ORB-07C.

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IFA NUMBER> STS-35-V-15
TITLE:Noise on A/G 2

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 341 : 13.30.00
IFA DATE: 12/07/1990
IFA STATUS: CLOSED : 04/18/1991 ELAPSED TIME: 005 : 06.40.59
PRACA STATUS: CLOSED : 1991-08-28 HOUSTON TIME: 07.30.00
PRCBD NUMBER: S044825C PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 40V-0015 M INCO-11
P IM/35RF07
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: B. SWAN
2:

0 DESCRIPTION:
At the above time the CAPCOM reported an annoying rushing noise on A/G 2. The noise had been present the entire mission. At a GMT of 342/22:30 the NSP was switched to NSP 1, and the rushing noise went away. At 343/00:44 NSP 2 was commanded again and the noise came back.

Similar problems have occurred on STS-28 (INCO-02) and STS-61C. Possible ACCU, ATU, or NSP-02, problem.

CHIT J3505 to identify troubleshooting requirements was approved on 2/17/91 (PRCBD# S052909P). Troubleshooting in-work, 3/7/91. Troubleshooting unable to repeat problem. Additional troubleshooting in-work (3/27/91). Additional T/S'ing w/break-out-box indicates noise coming from NSP2; R&R awaiting completion of ACCU retest.

Noise on NSP2 determined to be normal operation; will close as an explained condition.

IM Status: Issued on 12/14/90.

Flight Problem Report approved at Special Level II Daily PRCB on 04/18/91 (PRCBD# S044825C).

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IFA NUMBER> STS-35-V-16
TITLE:PLBD Environmental seal debond.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA STATUS: CLOSED : 04/12/1991 IFA DATE: 12/10/1990
PRACA STATUS: UNKNOWN ELAPSED TIME: 000 : 00.00.00
PRCBD NUMBER: S044825 HOUSTON TIME: 00.00.00
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR STR-2-11-2705 P CAR 35RF08
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. GERLACH
2:

0 DESCRIPTION:
A 24" piece of the environmental seal between panels 1 and 2 on the right PLBD was found loose on top of the PLBD.
Seal was trimmed for ferry flight (18" segment at RI-Downey for analysis). Further investigation pending access in OPF. Vendor (RI Tulsa) support requested/scheduled for 3/1/91. Seal disassembly/further investigation shows old seal bond good/seal dislodged by grounding finger/angle. Seal disassembly completed, re-bond completed, re-assembly completed (less TPS re-installation) (3/5/91).

IM Status: Issued on 12/14/90.

Flight Problem Report approved at Special Level II Daily PRCB on 04/12/91 (PRCBD# S044825). Action was assigned to VA to perform a detailed analysis of feasibility of design change to preclude PLBD environmental seal coming loose.

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IFA NUMBER> STS-35-V-17
TITLE:WSB 3A operation abnormal during ascent and entry.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA STATUS: CLOSED : 04/12/1991 IFA DATE: 12/02/1990
PRACA STATUS: CLOSED : 1991-01-30 ELAPSED TIME: 000 : 00.00.00
PRCBD NUMBER: S044824P HOUSTON TIME: 00.00.00
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
P CAR 35RF09
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MCMILLAN
2:

0 DESCRIPTION:
During ascent, spray cooling did not initiate until APU 3 lube oil return temp reached 280 deg. F (S/B 250 deg. F). During entry, slight overcooling occurred. Hot oil flush required. Hot oil flush preps in-work (3/6/91).

CAR Status: Issued on 1/17/91 and submitted for closure on 1/17/91.

Tracking transferred to open CAR 38RF01-010.

Flight Problem Report approved at Special Level II Daily PRCB on 04/12/91 (PRCBD# S044824P).

1 STS-035 (OV-102,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-35-V-18
TITLE:window w-1 has a 0.15" diameter chip

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA STATUS: CLOSED : 04/12/1991 IFA DATE: 12/07/1990
PRACA STATUS: CLOSED : 1991-03-11 ELAPSED TIME: 000 : 00.00.00
PRCBD NUMBER: S044824V HOUSTON TIME: 00.00.00
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER PHASE: ENTRY/LANDING
K PR STR-2-11-2703 P CAR 35RF10
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. GUTHERY
2:

0 DESCRIPTION:
Postlanding inspection revealed an impact 0.15" in diameter and approximately 0.005" in depth. "Spider webbing" type cracks emanating from the impact point. Noted by the crew on FD6. Believed to be caused while in the atmosphere during ascent. Window will be R&R'd.
Window inspection at KSC determined depth of hit to be 0.0109, under engineering evaluation. Probable R&R per KSC, no spare available. Spare build-up in work at NSLD.

Window removal complete, replacement installation in-work. Window cavity pressure and decay checks (part of V1076) passed, window final potting in work (3/7/91).

CAR Status: Problem closeout for OV-102, all flights, issued on 2/20/91. CAR submitted, by RI, for closure on 2/8/91.

Flight Problem Report approved at Special Level II Daily PRCB on 04/12/91 (PRCBD# S044824V).

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IFA NUMBER> STS-35-V-19
TITLE:WSB 2 subjected to abnormally large quantities of wax

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA STATUS: CLOSED : 04/03/1991 IFA DATE: 12/02/1990
PRACA STATUS: CLOSED : 1991-01-30 ELAPSED TIME: 000 : 00.00.00
PRCBD NUMBER: S044824L HOUSTON TIME: 00.00.00
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER PHASE: ASCENT
K PR APU-2-11-0217 P CAR 35RF11
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MCMILLAN
2:

0 DESCRIPTION:
During ascent and entry large amounts of wax was noted in the APU 2 tube oil system. APU 2 will be R&R'd; however, WSB 2 needs to have hot oil flush.

Hot oil flush preps in-work (3/5/91).

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CAR Status: Issued on 1/17/91 and submitted for closure on 1/17/91.
Tracking transferred to open CAR 38RF01-010.

Flight Problem Report approved at Special Level II Daily PRCB on
04/03/91 (PRCBD# S044824L).

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STS-035 (OV-102,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-35-V-20
TITLE:RCS vernier jet R5D failed off.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 339 : 19.03.00
IFA DATE: 12/05/1990
IFA STATUS: CLOSED : 04/18/1991 ELAPSED TIME: 003 : 12.13.59
PRACA STATUS: CLOSED : 1991-04-04 HOUSTON TIME: 13.03.00
PRCBD NUMBER: S044825D PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M PROP-02 P CAR 35RF12
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. WELCH
2:

0 DESCRIPTION:
RM deselected jet R5D due to low chamber pressure. The data indicated
the presence of helium in the crossfeed line. Similar to failure seen
on STS-9 (IFA STS-9-14).

Normal turnaround checkout to be performed at KSC.

CAR Status: Explained short closeout for all flights, all vehicles
issued on 01/22/91. CAR submitted for closure on 03/19/91.

Flight Problem Report approved at Special Level II Daily PRCB on
04/18/91 (PRCBD# S044825D).

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IFA NUMBER> STS-35-V-21
TITLE:RH AFT SEP Hole Plugger did not fully extend

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 12/10/1990
IFA STATUS: CLOSED : 04/18/1991 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1991-01-28 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044825B PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR PYR-2-11-0091 P CAR 35RF13
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. GERLACH
2:

0 DESCRIPTION:
The hole plugger did not complete its stroke. One of the two boosters
was jammed in between the plugger and the rim of the hole. The other
booster is missing.

Hole plugger assembly removed at DFRC and sent to RI/DNY.

CAR Status: Issued on 1/3/91

Flight Problem Report approved at Special Level II Daily PRCB on
04/18/91 (PRCBD# S44825B).

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IFA NUMBER> STS-35-V-22
TITLE:Right hand stop bolt bent on ET forward structural attach assembly.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 12/12/1990
IFA STATUS: CLOSED : 01/31/1991 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1991-02-01 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044825A PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR PYR-2-11-0092 P CAR 35RF14
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. GERLACH
2:

0 DESCRIPTION:
Bolt is bent approx. 5 degrees. Similar occurrences have occurred on STS-32, STS-34, and STS-38. Damage is worst than seen on STS-38, but not as bad as STS-34.
Forward ET Attach Assembly removed at DFRC and sent to RI/DNY.
Car Status: Issued on 1-03-91. Tracking will occur on CAR AD7938-010. RI submitted CAR for closure on 1-25-91.
Presentation made to Level II PRCB on 1/31/91. IFA was closed, PRCBD# S044825A.

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IFA NUMBER> STS-35-V-23
TITLE:Pilot Seat Down Limit Switch Failure

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 12/02/1990
IFA STATUS: CLOSED : 02/01/1991 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1991-10-14 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044824D PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR FCS-A0031 P CAR 35RF15
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:

0 DESCRIPTION:
Pilot seat failed to allow the seat motor to drive down. Down limit switch R&R'd during the STS-35 OPF flow as a result of IFA STS-32-27.
Troubleshooting found bad switch assembly, R&R complete (3/7/91).
CAR Status: Issued on 1/8/91. Explained problem closeout for OV-103, Flt. #12 (STS-39) and OV-104, Flt. #8 (STS-37) issued on 1/8/91.
Flight Problem Report approved at Special Level II Daily PRCB on 2-01-91 (PRCBD# S044824D).

1 STS-035 (OV-102,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-35-V-24

STS0035.txt

TITLE:Ice Formation on Rudder/Speed Brake Panels.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
 IFA STATUS: CLOSED : 04/12/1991 IFA DATE: 12/10/1990
 PRACA STATUS: CLOSED : 1992-02-25 ELAPSED TIME: 000 : 00.00.00
 PRCBD NUMBER: S044824U HOUSTON TIME: 00.00.00
 PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
 P CAR 35RF16

0 CLOSURE INITIATED BY:
 RESPONSIBLE MANAGERS 1: J. GUTHERY
 2:

0 DESCRIPTION:
 DFRC convoy personnel found ice between upper and lower right hand rudder/speed brake panels.

·
 CAR Status: Issued on 2/8/91. Explained closeout for all vehicles, all flights issued on 2/8/91. CAR submitted for closure on 2/8/91. CAR closure rejected by subsystem manager. CAR reissued w/explained closeout for OV-102 (Flt #11, STS-40); OV-103 (Flt #12, STS-39); and OV-104 (Flt #8, STS-37) on 2/15/91.

·
 Under evaluation/no special KSC tasks identified, RSB drain holes to be verified clear as part of normal (OMRS) RSB inspection. V-STAB drain hole cleaning/gap filler rework completed (04/22/91).

·
 This problem was declared an IFA by a Special Level II Daily PRCB on 01/18/91 (PRCBD# S044824R1).

·
 Flight Problem Report approved at Special Level II Daily PRCB on 04/12/91 (PRCBD# S044824U).

1 STS-035 (OV-102,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-35-V-7A
 TITLE:GFE - CCTV Camera "B" Failed

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 340 : 13.23.00
 IFA STATUS: CLOSED : 04/10/1991 IFA DATE: 12/06/1990
 PRACA STATUS: UNKNOWN ELAPSED TIME: 004 : 06.33.59
 PRCBD NUMBER: S044824Q HOUSTON TIME: 07.23.00
 PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
 K PR COM-2-11-0160 M INCO-07
 P FIAR BFCE-029-F029

0 CLOSURE INITIATED BY:
 RESPONSIBLE MANAGERS 1: D. DILLMAN
 2:

0 DESCRIPTION:
 Crew reported that camera B had no picture. Further commanding from the ground indicated same result.

·
 Camera removed at KSC and returned to JSC (2/28/91).

·
 Flight Problem Report approved at Special Level II Daily PRCB on 04/10/91 (PRCBD# S044824Q).

1 STS-035 (OV-102,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-35-V-7B
 TITLE:GFE - Camera "C" Color wheel sticking
 Page 18

STS0035.txt

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 341 : 22.06.00
 IFA STATUS: CLOSED : 04/10/1991 IFA DATE: 12/07/1990
 PRACA STATUS: UNKNOWN ELAPSED TIME: 005 : 15.16.59
 PRCBD NUMBER: S044824Q HOUSTON TIME: 16.06.00
 PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
 K PR COM-2-11-0161 M INCO-08
 P FIAR BFCE-029-F030

0 CLOSURE INITIATED BY:
 RESPONSIBLE MANAGERS 1: D. DILLMAN
 2:

0 DESCRIPTION:
 Upon activation camera C image showed convex black area on top,
 concave black area on bottom and B&w picture in center. Cycling power
 did not clear the problem. Transient anomaly.
 Camera removed at KSC and returned to JSC (2/28/91).
 Flight Problem Report approved at Special Level II Daily PRCB on
 04/10/91 (PRCBD# S044824Q).

1 STS-035 (OV-102,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
 PAGE 36

IFA NUMBER> STS-35-V-7C
 TITLE:GFE-Camera "D" Intermittent Power-up/Commanding Problem

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 344 : 03.16.00
 IFA STATUS: CLOSED : 04/10/1991 IFA DATE: 12/09/1990
 PRACA STATUS: UNKNOWN ELAPSED TIME: 007 : 20.26.59
 PRCBD NUMBER: S044824Q HOUSTON TIME: 21.16.00
 PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
 K PR COM-2-11-0162 P FIAR BFCE-029-F031

0 CLOSURE INITIATED BY:
 RESPONSIBLE MANAGERS 1: D. DILLMAN
 2:

0 DESCRIPTION:
 Camera D was powered up and only "snow" appeared on the monitor.
 Later camera D was powered back up and worked fine.
 Analysis of downlink video reveals camera D was phase shifting
 throughout the entire mission. This failure was the result of a large
 phase shift. No testing required. Camera to be R&R'd at KSC.
 Camera removed at KSC and returned to JSC (2/28/91).
 Flight Problem Report approved at Special Level II Daily PRCB on
 04/10/91 (PRCBD# S044824Q).

1 STS-035 (OV-102,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-35-V-11A
 TITLE:Instrumentation: APU 2 Gas Gen Bed Temp Slow Response

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 343 : 04.20.00
 IFA STATUS: CLOSED : 04/12/1991 IFA DATE: 12/08/1990
 PRACA STATUS: CLOSED : 1991-10-14 ELAPSED TIME: 006 : 21.30.59
 PRCBD NUMBER: S044824Z HOUSTON TIME: 22.20.00
 PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER

STS0035.txt
M MMACS-05

K PR APU-2-11-0219
P CAR 35RF05

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:
During APU-2 startup for FCS checkout, gas gen bed temperature reading lagged 20 seconds behind nominal. APU operated nominally.

APU-2 to be R&R'd per Orbiter and GFE Project Manager (ref. CHIT J3476). R&R completed on 3/11/91.

CAR Status: Issued on 12/13/90. Explained short CAR for OV-104, flts 8 & 9 (STS-37 & -43) and OV-102, flt 11 (STS-40) issued on 04/01/91.

Flight Problem Report approved at Special Level II Daily PRCB on 04/12/91 (PRCBD# S044824Z).

-JFDPO12: NORMAL TERMINATION OF PROCESSING

1
1
1

STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 1

IFA NUMBER> STS-36-B-01
TITLE:Left SRB Ordnance Ring Pin embedded in ETA Ring Foam

0 MISSION CONSTRAINT: 31 SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 03/29/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044816H PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-154174 K PR D-BI-036L-0005
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R. RUNKLE/EE13
2:

0 DESCRIPTION:
During postflight inspection of the left SRB, a frustum separation pin from the ordnance ring was found embedded in the forward side of the ETA Ring instafoam, between the -Y and -Z axes.

A total of three frustum separation pins were missing and twenty-nine were backed out of the forward skirt/ordnance ring. This is not considered to be an unusual postflight condition, but the embedded pin is a first time occurrence. The embedded pin has been identified as one of the three "missing" pins and is considered to be from the position 34 hole location of the ordnance ring. The retainer clips which hold the pins in place are a reused item. Due to the design tolerances of the retaining clips and the unevenly distributed loads on the pins, it is possible for the flight environment to cause a pin to come loose/disengaged. Material analyses show that additional heat effects were experienced after the pin became embedded in the foam. Associated analyses of the thermal design loads cannot preclude an ascent occurrence of the foam heating effects. As corrective action, the ordnance ring pins will be positively locked in place using a fastener/daisy chain lockwire configuration for STS-31R and STS-35. An improved design which prevents pin loss will be implemented for STS-41 and subsequent flights.

MSFC PRACA Tracking Number: A12822.

This problem must be closed prior to STS-31, per the STS-36 L+7 SPRCB.

This problem has been closed in the MSFC PRACA system for STS-35 and subs on 6/5/90.

Flight Problem Report was approved at Level II Noon PRCB on 3/29/90. (PRCBD #S044816H)

Status: Closed

1

STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 2

IFA NUMBER> STS-36-B-02
TITLE:Left SRB Frustum MPSS Nut Missing

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 03/29/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00

STS0036.txt

PRCBD NUMBER: S044816J PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-154061 K PR D-BI-036L-0002

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R. RUNKLE/EE13
2:

0 DESCRIPTION:

During removal of the main parachute #3 deployment bag from the left SRB frustum, a nut was noted missing from the third restraint link bolt (from inboard) along the top of the Main Parachute Support Structure (MPSS) isogrid panel nearest the -Z axis.

The SRB Postflight Assessment Team (SPAT) confirmed that the restraint link bolt was in place, supporting the restraint links on each side of the isogrid. There are 28 additional restraint links which support the top of the deployment bag and 16 supports on the bottom. The material analysis shows that a nut was on the bolt at one time but was not fully torqued. This was determined by comparison of the threads on this fastener with adjacent fasteners which still had nuts installed. It is not known when the nut came off; however, the nut was not forced off (bolt threads don't show distress). Neither the drawings nor the assembly manual allow for removal of the nuts after installation of the parachutes. No corrective action is required for for this design or the associated assembly documentation. Technicians and inspectors were briefed regarding proper installation of the fasteners.

MSFC PRACA Tracking Number: A12841

This problem has been closed in the MSFC PRACA system for STS-41 and subs on 5/1/90.

Flight Problem Report approved at the Level II Noon PRCB on 3/29/90 (PRCBD #S044816J)

Status: Closed

1

STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 3

IFA NUMBER> STS-36-B-03
TITLE:Right SRB AFT Skirt missing safety wire on GN2 purge line

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 03/28/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044816E PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-154172 K PR D-BI-036R-0003

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R. RUNKLE/EE13
2:

0 DESCRIPTION:

During postflight inspection of the right SRB aft skirt, a missing safety wire was found from a "B" nut on the GN2 purge tube assembly.

The missing safety wire is believed to have been left off during assembly. Although this anomaly did not affect the performance of the GN2 purge tube assembly during the prelaunch activities, the safety wire should be present, securing the connector adapter and coupling nuts. A drawing review was conducted which confirmed that there is a general note on the drawing that requires safety wire at this

STS0036.txt

location. Safety wire was properly installed at the same location on the left SRB aft skirt flown on STS-36. The torques applied to the tube assembly prevented loosening of the connector and adapter. STS-31R has been reinspected for compliance to the lockwire requirements and is in compliance. As corrective action, a specific flag note has been added to the drawing which more clearly defines the lockwire requirements for this assembly. Assembly technicians and inspectors have been briefed to emphasize the importance to adhering to drawing notes to ensure proper assembly.

MSFC PRACA Tracking Number: A12853

This problem has been closed in the MSFC PRACA system for STS-41 and subs on 5/1/90.

Flight Problem Report approved at Level II Noon PRCBD on 3/28/90 (PRCBD #S044816E)

Status: Closed

1

STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 4

IFA NUMBER> STS-36-B-04

TITLE:Left SRB drogue parachute first stage reefing line cutter did not fire

0 MISSION CONSTRAINT: 31 SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 03/28/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044816F PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-154243 K PR D-BI-036L-0008
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R. RUNKLE/EE13
2:

0 DESCRIPTION:

The first stage (seven second) reefing line cutter, located at gore 45 of the left SRB drogue parachute (S/N 3036), did not fire.

The two cutters on the first stage reefing line cutter are redundant. The other first stage reefing line cutter functioned properly. The unfired cutter was found with the sear pin still in the housing, and the cutter actuation lanyard was missing. Photographic evidence confirms that the lanyard was installed properly at assembly. A pull test was performed on the material from the same lot as the missing lanyard and exceeded the specification requirement of 550 lbs (high: 678 lbs, low: 617 lbs). Test data demonstrates that parachute deployment which causes the lanyard to pull on the sear pin at an angle greater than 140 degrees will result in a failure of the cutter. The proper configuration and performance of the cutter has been verified by X-ray and shows nominal configuration. Also, a disassembly and firing confirmed the cutter configuration and performance to be nominal. The dynamics associated with parachute deployment are random and may in some instances result in an angle greater than that qualified for proper lanyard pull on the cutter sear pin. This condition is considered a low probability occurrence (3 failures out of 1052 cutters flown). No corrective action is required. The packing procedures were refined after STS-11. Because of this, the probability of two cutters failing on the same reefing line has fallen from 0.00132 (on STS-8) to 0.0000295 (on STS-36).

This problem must be closed prior to STS-31, per the STS-36 L+7 SPRCB.
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MSFC PRACA Tracking Number: A12854

This problem has been closed in the MSFC PRACA system for STS-41 and subs on 5/1/90.

Flight Problem Report approved at Level II Noon PRCBD on 3/28/90 (PRCBD #S044816F)

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 5

IFA NUMBER> STS-36-B-05

TITLE:Right and Left SRB ETA Rings with cable tie-wraps disengaged from electrical cable assemblies

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00

IFA STATUS: CLOSED : 03/30/1990 IFA DATE:

PRACA STATUS: UNKNOWN ELAPSED TIME: 000 : 00.00.00

PRCBD NUMBER: S044816L HOUSTON TIME: 00.00.00

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER PHASE: POST LANDING

* *****NONE FOUND***** * *****NONE FOUND*****

0 CLOSURE INITIATED BY:

RESPONSIBLE MANAGERS 1: R. RUNKLE/EE13

2:

0 DESCRIPTION:

During postflight inspection of both the left and right SRB ETA Rings, several cable tie-wraps were found disengaged from the electrical cable assemblies.

Three cable tie-wraps were found disengaged on the right SRB ETA Ring (one near the aft IEA end cover and two on the cable bundles between the upper and lower struts). Also, one cable tie-wrap was disengaged on the left SRB ETA Ring upper strut cable bracket. The failure mode was slippage through the locking ratchet in the head of the tie-wrap. Water intrusion occurred while the SRBs were in the spar buoy mode and allowed saturation of these tie-wraps. Dupont design data predicts a loss of material strength due to water saturation. Tests conducted by the USBI Materials Lab have verified strength degradation due to water saturation. Tie-wraps which were soaked for 16 hours failed at 25 lbs; whereas, identical unsoaked tie-wraps failed at a median value of 50 lbs. The combination of tie-wrap preload and tow back loads caused these tie-wraps to fail. Both areas which contained these tie-wraps were closed out with PR-855 foam which prevented movement of the cables. Cable tie-wraps with metal locking mechanisms are being evaluated for future implementation.

MSFC PRACA Tacking Numbers: A12855

This problem has been closed in the MSFC PRACA system for STS-41 and subs on 5/14/90.

Flight Problem Report was approved at Level II Noon PRCB on 3/30/90 (PRCBD #S044816L)

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-B-06

STS0036.txt

TITLE:Right SRB ETA Ring missing cork on aft side

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 03/28/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044816G PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-154315 K PR D-BI-036R-0010
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R. RUNKLE/EE13
2:

0 DESCRIPTION:
During postflight inspection of the right SRB ETA ring, an area of cork approximately 5.5" X 3.0" was noted as missing from the aft side, located at the center of the web (+Z axis).

The missing section of cork was under a larger section of instafoam which was also missing. The damage was initiated by debris which impacted this area of the ETA Ring. This impact was determined by the presence of debris slivers found embedded in the hypalon paint surfaces and the surrounding cork. The aeroheating effects observed on the cork edges, instafoam, and hypalon paint indicated this condition occurred during descent. It was concluded along with this initial loss of cork being a descent occurrence, that additional cork was lost at water impact. As a result, no corrective action is required.

MSFC PRACA Tracking Number: A12856

This problem has been closed in the MSFC PRACA system for STS-41 and subs on 5/1/90.

Flight Problem Report approved at Level II Noon PRCB on 3/28/90.
(PRCBD #S044816G)

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 7

IFA NUMBER> STS-36-B-07
TITLE:Right SRB Frustum MTA-2 Debonds

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 03/30/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044816M PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-154383 K PR D-BI-036R-0012
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: W. MANN/EE13
2:

0 DESCRIPTION:
During postflight inspection of the right SRB frustum, the MSFC Trowellable Ablator 2 (MTA-2) was found debonded at sixteen ramp locations.

The voids are limited to the center of each ramp location (ramps one through sixteen) with no smileys, cracks, or missing material. The voids occurred between layers of the MTA-2. Material analyses performed on the MTA-2 sections removed from two fasteners concluded

STS0036.txt

that the voids were air bubbles which were introduced during material application. This conclusion is based on location, size, and configuration of the voids. Analysis shows the inherent strength of the MTA-2 (greater than 100 psi) is greater than the thermal vacuum induced by the void pressure (18 psi). This demonstrates adequate strength to prevent the loss of MTA-2 associated with the small voids experienced. In summary, the voids were introduced during material application and were too small to initiate the loss of MTA-2. As corrective action, processing enhancements for MTA-2 application are being evaluated in hopes of minimizing excessive voids.

MSFC PRACA Tracking Number: A12823

This problem was closed in the MSFC PRACA system for STS-35 and subs on 11/27/90.

Flight Problem Report approved at Level II Noon PRCB on 3/30/90 (PRCBD #S044816M)

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 8

IFA NUMBER> STS-36-D-01
TITLE:SSME Post Powerdown Hard Failure ID.

0 MISSION CONSTRAINT: 31 SUBS IFA TIME GMT: 059 : 08.14.00
IFA DATE: 02/28/1990
IFA STATUS: CLOSED : 04/06/1990 ELAPSED TIME: 000 : 00.23.38
PRACA STATUS: UNKNOWN HOUSTON TIME: 02.14.00
PRCBD NUMBER: S044816U PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
D DR 127436 M BSTR-01
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. D. REDING
2:

0 DESCRIPTION:
Two erroneous SSME hardware failure identifiers were annunciated post SSME controller powerdown (powerdown at 15 min MET, FIDS annunciated at 24 min MET). Left SSME FID was "IE B FAIL", T-REF = 4:42.7, F-D = 004-031, center SSME had no defined nomenclature, T-REF = 4:43.4 F-D-102-271. The SSME controller cannot generate FIDS once it has been powered down. A MOC DR has been generated.

Post flight review required of MOC comp for susceptibility of data hits.

This problem must be closed prior to STS-31, per the STS-36 L+7 SPRCB.

Flight Problem Report approved at Level II Noon PRCB on 4/6/90 (PRCBD #S044816U).

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-D-02
TITLE:SPOC Anomaly

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 061 : 14.07.00
IFA DATE: 03/02/1990

STS0036.txt

IFA STATUS: CLOSED : 04/19/1990 ELAPSED TIME: 002 : 06.16.38
PRACA STATUS: UNKNOWN HOUSTON TIME: 08.07.00
PRCBD NUMBER: S044816W PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M FDO-01

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. RASK
2:

0 DESCRIPTION:
SPOC locked up following input of earth OBS data and code return to save data.

Impact: None

Corrective Action: Recycle power, SPOC Software should function nominally.

Resolution: Likely cause of the problem is earth OBS updates occurred while world map ground track was also updatint. Probability of this reoccurring is small.

Flight Problem Report approved at Level II Noon PRCB on 4/19/90 (PRCBD #S044816W)

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 10

IFA NUMBER> STS-36-D-03
TITLE:SPOC Hardware Lock-up

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 061 : 00.00.00
IFA DATE: 03/01/1990
IFA STATUS: CLOSED : 04/19/1990 ELAPSED TIME: 001 : 16.09.38
PRACA STATUS: UNKNOWN HOUSTON TIME: 18.00.00
PRCBD NUMBER: S044816V PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M FDO-02

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. BROWN
2:

0 DESCRIPTION:
Several crew reports of unexpected suspension in SPOC execution have been received during FD3 and FD4 operation.

Impact: Although both SPOC units are apparently involved, there is no impact.

Resolution: The FD4 morning message instructed the crew to invoke a procedure developed in early 1989 and known to be successful in addressing similar symptoms arising from loose eprom chips. This procedure involves cycling SPOC power which may remedy other hardware problems, such as overheating, contributing to the anomaly. Post-flight crew debrief will assess success of power cycles.

Flight Problem Report approved at Level II Noon PRCB on 4/19/90 (PRCBD #S044816V)

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
Page 7

IFA NUMBER> STS-36-K-01

TITLE:Missing Washer on Debris Containment System HDP #6.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
 IFA STATUS: CLOSED : 05/23/1990 IFA DATE: 03/06/1990
 PRACA STATUS: UNKNOWN ELAPSED TIME: 000 : 00.00.00
 PRCBD NUMBER: S044817C HOUSTON TIME: 00.00.00
 PHASE: PRE-LAUNCH
 0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
 A PV-6-154239 K PR D-BI-036L-0006
 0 CLOSURE INITIATED BY:
 RESPONSIBLE MANAGERS 1: C. FAIRY
 2:

0 DESCRIPTION:
 HDP #6 CSK washer was missing on back RH bolt. washer is installed
 as S/N 65 on drawing 10100-0014.
 Flight Problem Report approved at Level II Noon PRCB on 5/23/90
 (PRCBD# S044817C).
 Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
 PAGE 16

IFA NUMBER> STS-36-K-02

TITLE:Phenolic chisel found under K5NA closeout on right SRB.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
 IFA STATUS: CLOSED : 05/23/1990 IFA DATE: 03/07/1990
 PRACA STATUS: UNKNOWN ELAPSED TIME: 000 : 00.00.00
 PRCBD NUMBER: S044817B HOUSTON TIME: 00.00.00
 PHASE: POST LANDING
 0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
 A PV-6-15436B K PR D-BI-036R-0017
 0 CLOSURE INITIATED BY:
 RESPONSIBLE MANAGERS 1: C. FAIRY
 2:

0 DESCRIPTION:
 The sharpened end of a phenolic chisel was discovered under K5NA
 closeout of forward segment systems tunnel floor plate. The
 chisel is light green and measures 1/4 x 4".
 Flight Problem Report approved at Level II Noon PRCB on 5/23/90
 (PRCBD# S0448178B).
 Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-M-01

TITLE:Right SRM Igniter/Forward Dome Boss Interface surface metal pitting
 and Gask-O-Seal damage

0 MISSION CONSTRAINT: 31 SUBS IFA TIME GMT: 000 : 00.00.00
 IFA STATUS: CLOSED : 03/30/1990 IFA DATE:
 PRACA STATUS: UNKNOWN ELAPSED TIME: 000 : 00.00.00
 PRCBD NUMBER: S044816P HOUSTON TIME: 00.00.00
 PHASE: POST LANDING
 0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
 D SPR DR 4-5/191

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. THORNTON/EE52
2:

0 DESCRIPTION:

During postflight inspection of the right SRM igniter outer joint, a small area of pitting was observed on the I.D. of the forward dome boss and on the O.D. of the igniter chamber at 175 degrees. Also cadmium plating was damaged on the gask-o-seal at the same location.

The right SRM igniter outer joint had a blowhole in the putty at 175 degrees that measured 0.3" circumferentially at about 4" below the adapter. During cleanup of the hardware, pitting was noted in the areas corresponding to the location of the blowhole. The most severe pitting was noted on the I.D. of the forward dome igniter boss. The area of pitting began 1 3/8' from the forward surface of the forward dome boss. The igniter chamber pitting was much lighter but in the same radial location as the forward dome boss pitting. The M&P analyses concluded that the metal surface damage was a result of corrosion and not due to hot gas erosion. The corrosion resulted from the combination of propellant by-products, followed by emersion in saltwater. No damage or heat effects were seen on the viton seal material, and there was no evidence of hot gas leakage past the seal. However, soot was present on the I.D. of the outer gask-o-seal metal retainer. Hot gas flow through the blowhole in the putty contributed to the cadmium plating breakdown/separation from the gask-o-seal at 175 degrees, over an area of 1.5" circumferentially by 0.15" radially. Mold impressions of the corrosion pitting were taken on the D6AC forward dome and igniter chamber surfaces, revealing the maximum pit depth to be 0.002". The worst case analysis for an anomaly of this nature predicted positive structural margins of safety and no damage to the elastomeric seal. No corrective action is required for STS-31R. An investigation is being conducted to consider a change of gasket retainer material from cadmium plated steel to stainless steel, and/or an igniter joint redesign.

KSC CAAR Tracking Numbers: PV-6-154631; PV-6-154632; PV-6-154634

MSFC PRACA Tracking Number: A12778

This problem must be closed prior to STS-31, per the STS-36 L+7 SPRCB.

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-M-01
TITLE:Right SRM Igniter/Forward Dome Boss Interface surface metal pitting
and Gask-O-Seal damage

0 DESCRIPTION: (Continued from previous page).

This problem has been closed in the MSFC PRACA system for STS-41 and subs on 7/31/90.

Flight Problem Report approved at the Level II Noon PRCB on 3/30/90 (PRCBD #S044816P).

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-M-02
TITLE:Left SRM Separations on I.D. of Igniter Adapter Plug Secondary O-Ring.

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IFA STATUS: CLOSED : 03/30/1990 IFA DATE: ELAPSED TIME: 000 : 00.00.00
 PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
 PRCBD NUMBER: S044816N PHASE: POST LANDING
 0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
 A PV-6-154643 D SPR DR4-5/193
 0 CLOSURE INITIATED BY:
 RESPONSIBLE MANAGERS 1: S. THORNTON/EE52
 2:

0 DESCRIPTION:

During postflight inspection of the left SRM igniter, a material separation was observed on the I.D. of the igniter adapter plug secondary o-ring. The separation measured approximately 0.700" in length (33% of o-ring circumference), by 0.045" in depth, at a 45 deg angle from the tangential plane of the surface.

A similar problem was seen on the RSRM-6B (STS-34 right SRM) igniter adapter plug secondary o-ring. The separation is believed to have been caused at assembly by the edge of the dovetail due to excessive grease in the groove. Excessive grease causes an overfill condition, trapping the o-ring between the edge of the dovetail and the igniter adapter. Corrective actions to preclude over filling the dovetail grooves with grease are under investigation. The flight rationale consists of the following. The circumferential separation is on the ID of the o-ring; the top and bottom sealing surfaces were not violated. Circumferential separations do not compromise the sealing capability of the o-ring. The damaged o-ring is in a face seal with no gap opening. Also, the damaged o-ring successfully passed a postflight leak test at 2159 psi (igniter Maximum Expected Operating Pressure (MEOP)) without the primary o-ring installed. Finally, the STS-31R igniter adapter plugs have successfully passed a vacuum bell leak test. The plug torque levels will be verified and a 'feeler' gage check is planned for the STS-31R igniter adapter plug as well. Several short and long term corrective actions have been defined.

MSFC PRACA Tracking Number: A12773

This problem must be closed prior to STS-31, per the STS-36 L+7 SPRCB.

This problem was closed in the MSFC PRACA system for STS-31R and subs on 4/5/90.

Flight Problem Report approved at the Level II Noon PRCB on 3/30/90 (PRCBD #S044816N).

Status: Closed

1

STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-01
 TITLE:AC 2 Phase A inverter failure

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 054 : 22.44.00
 IFA DATE: 02/23/1990
 IFA STATUS: CLOSED : 03/23/1990 ELAPSED TIME: 000 : 00.00.00
 PRACA STATUS: CLOSED : 1990-06-27 HOUSTON TIME: 16.44.00
 PRCBD NUMBER: S044816A PHASE: PRE-LAUNCH
 0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
 K IPR 36RV-0159 K PR EPD-4-06-0747
 P CAR 36RF01
 0 CLOSURE INITIATED BY:
 RESPONSIBLE MANAGERS 1: D. SUITER

2:

0 DESCRIPTION:

AC 2 Phase A had numerous voltage and current fluctuations in a two minute period. Fluctuations were from 112 VAC - 122.8 VAC, OMRSD is 110-120 VAC.

Inverter 4(S/N 51), in avionics bay 2, was R&R'd with S/N 42. SSMEC retest complete, FC-2 was powered down and back up, and FCP retest is complete.

Exceptions EK1671 and EK1672 were approved on 2/24/90 for SSME AC phasing verification in the aft and for fuel cells for cold zap and start up purge requirements.

Failed unit is at vendor for failure analysis. Vendor has repeated problem.

Problem isolated to loose connection caused by 4 loose screws. CHIT J3239 approved to recycle suspect units (3 on OV-104, 1 on OV-102, and one spare) to vendor for proper screw torquing.

Suspect units, S/N 18, 38, and 49, to be R&R'd on 4/7 or 4/8/90.

KSC CAAR Tracking Numbers: PV-6-153517

CAR Status: Upgraded on 3/12/90. Explained closeout for OV-102, OV-103, and OV-105 received on 5/4/90. Closeout for all flights on OV-104 issued on 6/21/90.

Flight Problem Report was approved at Level II Noon PRCB on 3/22/90. (PRCBD #S044816A).

Status: closed

1

STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-02
TITLE:LH2 17" disconnect 'B' indication intermittant (V41X1445X).

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 055 : 22.25.19
IFA DATE: 02/24/1990
IFA STATUS: CLOSED : 06/13/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-10-05 HOUSTON TIME: 16.25.19
PRCBD NUMBER: S044817N PHASE: PRE-LAUNCH

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 36RV-0170 K IPR 38V-0002
P CAR 36RF02

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. WELCH
2:

0 DESCRIPTION:

The MPS 17" disconnect 'B' open indication dropped out for approx 12 seconds during fast fill. The GLS software subsequently issued a LH2 stop flow command. No explanation was found for the dropout. Since the LCC requires only 1 of 2 indications, and the 'A' indication was good, the LH2 fast fill was resumed.

Indication was normal for rest of mission.

Troubleshooting by vendor during OMI V1009.01 found no problems, switch operations was nominal. Orbiter electrical troubleshooting performed on 5/2/90. Indication dropout is related to chill down,

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which influenced microswitch operation. SPC planning to close as a U.A.

CAR Status: Upgraded on 3/27/90. Explained closeout summary for STS-31R (OV-103, Flt #10) was received on 4/2/90. Explained closeout summary for OV-102, Flt #10 (STS-35) issued on 5/1/90. Closeout rationale for all flights, all vehicles, issued on 6/28/90. CAR was closed on 6/28/90.

Flight Problem Report approved at Level II Daily PRCB on 6/13/90 (PRCBD #S044817N).

Status: Closed

1

STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-04
TITLE:RCS Thruster R3D Failed off.

0 MISSION CONSTRAINT:	SUBS	IFA TIME GMT: 059 : 07.59.00
		IFA DATE: 02/28/1990
IFA STATUS: CLOSED	: 05/09/1990	ELAPSED TIME: 000 : 00.08.38
PRACA STATUS: CLOSED	: 1990-05-24	HOUSTON TIME: 01.59.00
PRCBD NUMBER: S044816Y		PHASE: ASCENT
0 TYPE TRACKING NUMBER	TYPE TRACKING NUMBER	
K IPR 38V-0013	K PR RP03-12-0394	
M PROP-01	P CAR 36RF07	

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. WELCH
2:

0 DESCRIPTION:
Chamber pressure did not reach the required pressure within the required time period-redundancy management deselected the thruster.

Suspect real fail-off due to oxidizer poppet valve not opening.

Thruster throat visual inspection at DFRF found no contamination.

CHIT J3226A approved on 3/16/90 (PRCBD #S052087).

Pod removed on 3/30/90 and sent to ORPA. R3D removed on 4/6/90 and sent to vendor (Marquardt) on 4/17/90. Replacement thruster has been installed and retest was good.

CAR Status: Closed on 4/26/90, action transferred to CAR 29RF02-010.

KSC CAAR Tracking Number: IV-6-021987

Flight Problem Report approved at Level II Noon PRCB on 5/9/90 with minor changes requested. The PRCBD will be signed OSB. (PRCBD #S044816Y)

Status: Closed

1

STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-07
TITLE:WSB #2 Vent System A Heater Failed (V58T0265A).

0 MISSION CONSTRAINT:	SUBS	IFA TIME GMT: 059 : 11.15.00
		IFA DATE: 02/28/1990

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IFA STATUS: CLOSED : 03/24/1990 ELAPSED TIME: 000 : 03.24.38
PRACA STATUS: CLOSED : 1991-02-14 HOUSTON TIME: 05.15.00
PRCBD NUMBER: S044817E PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 36RV-0031 K PR HYD-4-07-0256
M MMACS-04 P CAR 36RF10

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. THELEN
2:

0 DESCRIPTION:

WSB #2 Vent Heater A began to degrade about 1 hour and 15 minutes after activation. Heater B was selected and operated nominally. Heater A was reselected for entry, was slow to come up and operated erratically during entry.

This is a repeat of an STS-34 IFA #18 that was troubleshoot at KSC and could not be repeated. A UA (PR UA-4-06-0044) was processed on the STS-34 problem.

Nozzle heater troubleshooting showed nominal operation. Controller R&R'd on 3/30/90 and retest is complete. Controller at vendor and is being troubleshoot. Problem was not detected and no discrepancies were found.

CAR Status: Issued on 3/30/90. Recieved explained closeout rational on 3/20/90 for STS-35 (OV-102, flt #10) and STS-31R (OV-103, flt #10), and STS-38 (OV-104, flt #7). Explained closeout for all vehicles, all flight issued on 7/25/90. CAR closed on 12/10/90.

KSC CAAR Tracking Number: PV-6-155991

Flight Problem Report approved at Level II noon PRCB on 5/24/90 (PRCBD# S044817E).

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-08
TITLE:Hydraulic System 1 Leak

0 MISSION CONSTRAINT: 31 SUBS IFA TIME GMT: 059 : 07.50.00
IFA DATE: 02/28/1990
IFA STATUS: CLOSED : 04/06/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1991-08-28 HOUSTON TIME: 01.50.00
PRCBD NUMBER: S044816Q PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR HYD-4-07-0252 K PR V070-4-07-0184
M MMACS-05 P CAR 36RF11

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. THELEN
2:

0 DESCRIPTION:

Temperature increased as expected. The pressure dropped as expected after SRB ignition because of decrease in atmospheric pressure due to altitude increase, but did not level out as expected. Reservoir volume usually increases by 6% during ascent, but no increase was seen.

Reservior quantity decreased to 27% by time of APU-1 shutdown post-landing.

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Leaking flex hose shipped to RI/DNY on 2/7/90. Failure Analysis in work.

Inspection at RI/DNY found a tiny fracture in the teflon liner, 19 inches from swage fitting. Additional marks found on liner about 1 1/2 inches from pin hole. Hole attributed to manufacturing defect and trauma to the line, related to kinks found inside of line.

CHIT J3244A approved on 3/23/90. Cleanup CHIT J3254 approved.

CAR Status: Upgraded on 3/7/90. Explained closeout rationale for STS-31R (OV-103, flt 10) updated on 4/5/90. Explained closeout for STS-35 and 40 (OV-102, Flt 10 & 11); STS-41 and 39 (OV-103, Flt 11 & 12) and STS-38 and 37 (OV-104, Flt 7 & 8) was issued on 5/14/90. Explained closeout for OV-103, flt# 12 (STS-39), issued on 1/30/91. Explained closeout for OV-104, flt# 8 (STS-37), issued on 2/27/91. Final closeout for all vehicles/all flights issued on 7/10/91. CAR submitted for closure, by RI-DNY, on 7/11/91.

KSC CAAR Tracking Numbers: IV-6-021750 (IPR 38V-0004); PV-6-155116

OV-105 hoses (3) have been inspected with two having anomalous conditions. Sys #2 and 3 hoses from OV-104 have been removed for expedited inspection at KSC. Clean-up at system level is complete, PR closeout is complete.

This IFA must be closed prior to STS-31 per the STS-36 L+7 SPRCB.

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-08
TITLE:Hydraulic System 1 Leak

0 DESCRIPTION: (Continued from previous page).
Flight Problem Report approved at Level II Noon PRCB on 4/6/90
(PRCBD# S044816Q)

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-09
TITLE:CRT-4 Screen went blank

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 061 : 07.10.00
IFA DATE: 03/02/1990
IFA STATUS: CLOSED : 06/13/1990 ELAPSED TIME: 001 : 23.19.38
PRACA STATUS: CLOSED : 1990-10-01 HOUSTON TIME: 01.10.00
PRCBD NUMBER: S044817L PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 38V-0009 K PR DIG-4-07-0159
M DPS-01 P CAR 36RF12

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: M. SUFFREDINI
2:

0 DESCRIPTION:
Power cycles provided only temporary recovery. Data indicated DU LVPS Bite. Unit inoperative for remainder of mission.

KSC R&R completed; returned to vendor for failure analysis.

Vendor isolated problem to a bad capacitor solder joint in the

horizontal deflection circuit.

KSC CAAR Tracking Numbers: IV-6-021743; PV-6-154969

CAR Status: Issued on 3/14/90. Explained rationale with action required received on 4/2/90.

Flight Problem Report approved at Level II Daily PRCB on 6/13/90 (PRCBD #S044817L).

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-10
TITLE:GFE - Press Control Sys (PCS) O2 Bleed Orifice Leak

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA STATUS: CLOSED : 06/13/1990 IFA DATE:
PRACA STATUS: UNKNOWN ELAPSED TIME: 000 : 00.00.00
PRCBD NUMBER: S044817G HOUSTON TIME: 00.00.00
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR VJCS-4-07-0125 M EECOM-02
P FAIR B-FCE-026-F001

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: M. ENGLE
2:

0 DESCRIPTION:
Crew tightened elbow fitting "B" nut and reduced leak. Normal O2 flow rates followed.

Shipped to JSC on 3/9/90. KSC to leak check Orbiter half of QD per OMRSD, OMI V1217, starting on 4/10/90.

Orifice checked out at JSC and no discrepancies were found. KSC to leak check orbiter half of QD during OMRSD - OMI V1217. Suspect bleed orifice fitting backed off during prelaunch cleaning activities.

KSC CAAR Tracking Numbers: PV-6-155041

Flight Problem Report approved at Level II Daily PRCB on 6/13/90 (PRCBD #S044817G).

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-11
TITLE:Free H2O near HUM SEP A

0 MISSION CONSTRAINT: 35 SUBS IFA TIME GMT: 061 : 17.46.00
IFA STATUS: CLOSED : 05/23/1990 IFA DATE: 03/02/1990
PRACA STATUS: CLOSED : 1990-04-07 ELAPSED TIME: 002 : 09.55.38
PRCBD NUMBER: S044817D HOUSTON TIME: 11.46.00
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 38V-0005 K PR ECL-4-07-0399
M EECOM-04 P CAR 36RF13

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: M. ENGLE

2:

0 DESCRIPTION:

Crew reported finding 1-2 cups of water outside humidity separator A. WWMS wand was used for free fluid disposal. Reconfigured to humidity separator B.

JSC is requesting a fluid flow check and line flush of the WWMS.

Decision has been made to remove the HUM SEP package at DFRF and have the vendor, Hamilton Standard, do an initial teardown and inspection.

Exception, EK1691, approved on 3/8 to ferry without HUM SEP B powered.

Vendor inspection complete at DFRF. Contamination found where never found before (pitot tube inlet partially blocked). HUM SEP package at vendor for further analysis.

CHIT J3256 to perform blowdown of heat exchanger was approved on 4/2/90. Blowdown to be performed weekend of 4/7/90 per TPS ECL-4-07-0194. Replacement HUM SEP received at KSC on 4/6/90 and installation is complete. Retest and Leak test were good.

KSC CAAR Tracking Numbers: IV-6-021749

CAR Status: Closed on 4/5/90 referencing open CAR 32RF08-010.

This problem must be closed by STS-35, per the STS-36 L+7 SPRCB.

Flight Problem Report approved at Level II Noon PRCB on 5/23/90 (PRCBD# S044817D)

Status: Closed

1

STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT

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IFA NUMBER> STS-36-V-12
TITLE:Thruster R4R Failed OFF during Hot Fire

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 062 : 15.17.00
IFA DATE: 03/03/1990
IFA STATUS: CLOSED : 05/09/1990 ELAPSED TIME: 003 : 07.26.38
PRACA STATUS: CLOSED : 1990-05-24 HOUSTON TIME: 09.17.00
PRCBD NUMBER: S044816Z PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 38V-0012 K PR RP03-12-0343
M PROP-06 P CAR 36RF14

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. WELCH
2:

0 DESCRIPTION:

Chamber pressure did not reach the required pressure within the required time period-redundancy management deselected the thruster.

Suspect real fail-off due to oxidizer poppet valve not opening.

Visual inspection of thruster throat at DFRF, found no contamination.

CHIT J3226A approved on 3/16/90.

Pod removed on 3/30/90 and sent to ORPA. R4R removed on 4/6/90 and sent to vendor (Marquardt) on 4/17/90. Replacement thruster has been installed and retest was good.

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CAR Status: Closed on 4/26/90, action transferred to CAR 29RF02-010.

KSC CAAR Tracking Number: IV-6-021987

Flight Problem Report approved at Level II Noon PRCB on 5/9/90 with minor changes requested. The PRCBD was signed OSB on 5/10/90. (PRCBD #S044816Z)

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-14
TITLE:FES Primary Controller A shutdown

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 060 : 10.46.00
IFA STATUS: CLOSED : 06/13/1990 IFA DATE: 03/01/1990
PRACA STATUS: CLOSED : 1990-07-05 ELAPSED TIME: 001 : 02.55.38
PRCBD NUMBER: S044817J PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 38V-0014 M EECOM-03
P CAR 36RF16

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: M. ENGLE
2:

0 DESCRIPTION:
Shutdown occurred when water dump mode was initiated.

KSC to troubleshoot postflight.

CHIT J3242 approved on 3/16/90 (PRCBD #S052088)

Troubleshooting found no anomalies. Most likely cause of shutdown is reduced feedline pressure when operating at 10.2 PSI. Fly as is, KSC has closed the IPR.

CAR Status: No impact statement for STS-31R issued on 3/29/90.
No impact statement for STS-35 issued on 5/2/90. CAR was closed on 6/8/90 with an explained closeout.

Flight Problem Report approved at Level II Daily PRCBD on 6/13/90 (PRCBD #S044817J).

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-17
TITLE:HYD SYS 1 Lo press operations exhibited off-nominal pressures

0 MISSION CONSTRAINT: 31 SUBS IFA TIME GMT: 063 : 17.38.00
IFA STATUS: CLOSED : 04/06/1990 IFA DATE: 03/04/1990
PRACA STATUS: CLOSED : 1993-02-17 ELAPSED TIME: 004 : 09.47.38
PRCBD NUMBER: S044816T PHASE: ENTRY/LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR HYD-4-07-0250 K PR HYD-4-07-0251
M MMACS-05 P CAR 36RF19

0 CLOSURE INITIATED BY:

RESPONSIBLE MANAGERS 1: D. THELEN
2:

0 DESCRIPTION:

During low press operations the HYD SYS 1 pressure stayed at 2400 psi instead of dropping to 800 psi, then pressure slowly dropped to 600 psi and remained steady.

SYS #1 main hydraulic pump and filter have been removed. Pump was sent to vendor for failure analysis. Replacement pump due on 4/6.

Vendor found outer piston/cylinder galled. Pump at RI/DNY for detailed analysis. It appears that contamination temporarily hung up the depressurization piston within its bore.

Pump outlet filter module sent to wiltech for cleaning. wiltech reported, that when filter was drained, that more particulates came out than what could be counted. No analysis of particulate material was performed.

Orbiter Hyd system was back flushed on 4/5/90. KSC to perform analysis of any particulates recovered. No results as of 4/11/90. Shaft fell out of replacement pump during pre-installation inspection. Pump routed to NSLD. Replacement clip shipped from vendor on 4/16/90. Pump returned to KSC on 4/18/90. Replacement pump installed on 4/19/90.

KSC CAAR Tracking Numbers: IPR 38V-0022; PV-1-004547; PV-1-004548; IPR 36V-0017 (PV-6-155101)

CAR Status: Issued on 3/16/90. Received explained closeout rationale for STS-31R (OV-103, Flt #10) on 3/28/90.

This problem must be closed by STS-31 per the STS-36 L+7 SPRCB.

Flight Problem Report approved at Level II Noon PRCB on 4/6/90 (PRCBD #S044816T).

Status: Closed

1

STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT

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IFA NUMBER> STS-36-V-18
TITLE:TAGS Paper Folding

0 MISSION CONSTRAINT:	SUBS	IFA TIME GMT: 060 : 03.30.00
		IFA DATE: 03/01/1990
IFA STATUS: CLOSED	: 05/21/1990	ELAPSED TIME: 000 : 19.39.38
PRACA STATUS: UNKNOWN		HOUSTON TIME: 21.30.00
PRCBD NUMBER: S044817A		PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER	TYPE TRACKING NUMBER	
M INCO-02		

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. SUITER
2:

0 DESCRIPTION:

Fourth page folded up prior to silver tray clip. Only occurred once. Known design deficiency; therefore uplinks are limited to 10 pages. No fix is available presently.

No KSC action; Fly-as-is.

Flight Problem Report approved at Level II Noon PRCB on 5/21/90 (PRCBD# S044817A)

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-19
TITLE:Right DDU had intermittent BITE (V73X3051X)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 063 : 18.10.00
IFA DATE: 03/04/1990
IFA STATUS: CLOSED : 06/13/1990 ELAPSED TIME: 004 : 10.19.38
PRACA STATUS: UNKNOWN HOUSTON TIME: 12.10.00
PRCBD NUMBER: S044817K PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 38V-0023 K PR DIG-4-07-0160
M GNC-01 P CAR 36RF22
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: M. SUFFREDINI
2:

0 DESCRIPTION:
After touchdown BITE indication was intermittently good/bad.

Box missing BITE upgrade modification. DDU R&R is complete and DDU was sent to the vendor on 3/23/90. Anomaly caused by a marginal time constant in the transition detection circuit. This is a known deficiency, the -0004 upgrade will eliminate. Retest of replacement DDU was good.

KSC CAAR Tracking Number: PV-6-155400

Flight Problem Report approved at Level II Daily PRCB on 6/13/90 (PRCBD #S044817K).

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-20
TITLE:HYD SYS #1 Reservoir pressure (V58P0131A)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 059 : 07.50.00
IFA DATE: 02/28/1990
IFA STATUS: CLOSED : 05/25/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1991-01-28 HOUSTON TIME: 01.50.00
PRCBD NUMBER: S044817F PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
P CAR 36RF23
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. THELEN
2:

0 DESCRIPTION:
Reservoir pressure did not drop as expected during ascent and entry.

CHIT J3244A was approved on 3/2/90. work is complete; everything was nominal. Hyd operations for turnaround starts 4/9/90.

Cause is believed to be due to allowable piston stiction coupled with the hydraulic leak.

CAR Status: Upgraded on 3/29/90. Received no-impact to STS-31 rationale on 3/29/90. Explained closeout for STS-35 (OV-102, Flt #10)

STS0036.txt

and STS-38 (OV-104, Flt #7) issued on 5/11/90. Explained closeout for all vehicles, all flights issued on 12/6/90.

Flight Problem Report approved at level II noon PRCB on 5/25/90 (PRCBD #S044817F).

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-3A
TITLE:APU-1 EGT #1 Failed (V46T0142A)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 056 : 05.53.00
IFA DATE: 02/24/1990
IFA STATUS: CLOSED : 06/13/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 23.53.00
PRCBD NUMBER: S044817M PHASE: PRE-LAUNCH

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 36RV-0191 K PR APU-4-06-0160
M MMACS-01 P IM/36RF03

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: M. ENGLE
2:

0 DESCRIPTION:
Immediately following APU startup the EGT #1 sensor began to give erratic readings.

Transducer R&R per deferred PR APU-4-A0009, is complete.

IM Status: Closed on 3/15/90.

Flight Problem Report approved at Level II Daily PRCB on 6/13/90 (PRCBD #S044817M).

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-3B
TITLE:APU-1 Injector temp erratic (V46T0174A)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 056 : 05.58.30
IFA DATE: 02/24/1990
IFA STATUS: CLOSED : 06/13/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1991-03-15 HOUSTON TIME: 23.58.30
PRCBD NUMBER: S044817M PHASE: PRE-LAUNCH

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 38V-0011 K PR APU-4-07-0167
M MMACS-02 P CAR 36RF04

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: M. ENGLE
2:

0 DESCRIPTION:
After APU-1 run time of approx. 5 min. 30 seconds, the APU-1 injector temperature sensor began to give erratic readings.

APU removed on 3/27/90. Sensor will be repaired at Sunstrand.

Orbiter signal conditioner will be check during APU check-out per OMI V1019.

STS0036.txt

CAR Status: No flight impact statement for STS-31 issued on 3/30/90. Explained closeout summary for OV-102, Flt 10-12; OV-103, Flt 11-13; and OV-104, Flt 7-9, was received on 5/2/90. Explained closeout summary for all vehicles, all flights issued on 12/06/90. CAR submitted for closure on 2/8/91. Closeout summary rewritten and reissued on 3/7/91. CAR resubmitted for closure, by RI, on 3/7/91.

KSC CAAR Tracking Numbers: PV-6-156003

Flight Problem Report approved at Level II Daily PRCB on 6/13/90 (PRCBD #S044817M).

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-3C
TITLE:APU-1 GGVM T1 Biased High (V46T0171A)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 056 : 05.58.00
IFA DATE: 02/25/1990
IFA STATUS: CLOSED : 06/13/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 23.58.00
PRCBD NUMBER: S044817M PHASE: PRE-LAUNCH

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 38V-0010 K PR APU-4-07-0166
P CAR 36RF05

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: M. ENGLE
2:

0 DESCRIPTION:
The APU-1 fuel valve module temp 1 sensor was biased high, by 20-30 Deg. F, throughout the APU runtime.

APU removed on 3/27/90. Sensor to be repaired at Sunstrand.

Orbiter signal conditioner will be check during APU check-out per OMI V1019.

KSC CAAR Tracking Numbers: PV-6-156000

Flight Problem Report approved at Level II Daily PRCB on 6/13/90 (PRCBD #S044817M).

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-3E
TITLE:APU-3 EGT #2 Failed (V46T0340A)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 063 : 18.25.00
IFA DATE: 03/04/1990
IFA STATUS: CLOSED : 06/13/1990 ELAPSED TIME: 004 : 10.34.38
PRACA STATUS: UNKNOWN HOUSTON TIME: 12.25.00
PRCBD NUMBER: S044817M PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR APU-4-06-0161 M MMACS-07
P IM/36RF20

0 CLOSURE INITIATED BY:

RESPONSIBLE MANAGERS 1: M. ENGLE
2:

0 DESCRIPTION:

APU-3 exhaust gas temp #2 sensor failed post-landing. Nominal failure signature.

Transducer R&R is complete.

IM Status: Closed on 3/14/90.

Flight Problem Report approved at Level II Daily PRCB on 6/13/90 (PRCBD #S044817M).

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-5A
TITLE:Vol. H Door and Door Latch Binding

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 059 : 10.54.00
IFA DATE: 02/28/1990
IFA STATUS: CLOSED : 06/13/1990 ELAPSED TIME: 000 : 03.03.38
PRACA STATUS: CLOSED : 1991-06-20 HOUSTON TIME: 04.54.00
PRCBD NUMBER: S044817H PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M MMACS-03 P CAR 36RF08

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. GERLACH
2:

0 DESCRIPTION:

Crew reported latch and door binding - used screwdriver to unlatch and to open door.

Inspection and operation at DFRF found no problem. Crew reports problem was with the door and not the latch. Suspect thermal/pressure effects caused binding. Inspection at KSC found no problems.

CAR Status: No impact statement for STS-31 issued on 3/30/90 and for STS-35 issued on 4/27/90. Explained problem closeout issued on 6/8/90 for OV-102 (FLTS #11 & 12); OV-103 (Flts #11 & 12), and OV-104 (Flts #7 & 8).

Flight Problem Report approved at Level II Daily PRCB on 6/13/90 (PRCBD #S044817H).

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-5B
TITLE:LIOH Stowage volume could not be removed

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 03/02/1990
IFA STATUS: CLOSED : 06/13/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044817H PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 38V-0019 K PR UA-4-07-0110
M MMACS-06 P IM/36RF21

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. GERLACH
2:

0 DESCRIPTION:
Crew could not remove to clean up free water - KSC check for screw/
fastener binding.

JSC/RI-DNY are evaluating potential design changes.

KSC CAAR Tracking Numbers: IV-6-021794

IM Status: Issued on 3/6/90.

Flight Problem Report approved at Level II Daily PRCB on 6/13/90
(PRCBD #S044817H).

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-6A
TITLE:R RCS MANF 1 OX ISO VLV OP position indication intermittent(V42X3226X)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 059 : 07.50.16
IFA DATE: 02/28/1990
IFA STATUS: CLOSED : 06/13/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1991-04-04 HOUSTON TIME: 01.50.16
PRCBD NUMBER: S044817P PHASE: PRE-LAUNCH

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A IV-6-021794 K IPR 38V-0019
M PROP-03 P CAR 36RF09

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. WELCH
2:

0 DESCRIPTION:
At L-4 seconds, the right RCS aft oxidizer manifold #1 isolation valve
open indication changed from open, to not open. The missing indication
caused RCS RM software to annunciate an "RM DLMA MANF" message and to
override RRCS manifold #1 closed upon transisiton to MM103 (SRB SEP).

RRCS Manifold #1 was overridden open via the OVERRIDE display (SPEC 51)
post ET separation.

The "open" indication returned when the crew moved the RRCS maifold 1
switch from "GPC" to "OPEN" post OMS-2.

KSC to troubleshoot at ORPA. CHIT J3226A was approved on 3/16/90
(PRCBD #S052087). Wiring troubleshooting scheduled for 4/7/90. No
wiring discrepancies found, actuator (LV318) was R&R'd.

Suspect LPS commands were removed before the valve was driven fully
prelaunch. Ascent vibration caused intermittent microswitch
activation.

CAR Status: Issued on 4/27/90. Explained closeout for all vehicles,
all flights issued on 2/7/91. CAR submitted for closure on 2/8/91.
Corrections to explained closeout issued on 3/19/91. CAR resubmitted
for closure on 3/19/91.

Flight Problem Report approved at Level II Daily PRCB on 6/13/90
(PRCBD #S044817P).

Status: Closed

1

STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-6B

TITLE:L RCS 3/4/5 B OX TK ISO Valve OP position indication intermittent
(V42X2224X)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 059 : 07.50.29
IFA DATE: 02/28/1990
IFA STATUS: CLOSED : 06/13/1990 ELAPSED TIME: 000 : 00.00.07
PRACA STATUS: CLOSED : 1990-07-05 HOUSTON TIME: 01.50.29
PRCBD NUMBER: S044817P PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A IV-6-021795 K IPR 38V-0020
M PROP-05 P CAR 36RF24

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. WELCH
2:

0 DESCRIPTION:

At L+7 seconds, the left RCS 3/4/5 "B" oxidizer tank isolation valve open indication changed from open to not open, to open during a 2 second period. Valve indication since then has been normal.

KSC to troubleshoot. CHIT J3226A was approved on 3/16/90 (PRCBD #S052087). wiring troubleshooting scheduled for week of 4/23/90. No wiring discrepancies were found; actuator (LV266) was R&R'd. Suspect telemetry dropout as cause of problem.

CAR status: Closed on 5/3/90, all action transferred to CAR 36RF09.

Flight Problem Report approved at Level II Daily PRCB on 6/13/90 (PRCBD #S044817P).

Status: Closed

1

STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-6C

TITLE:L RCS 1/2 OX XFD VLV CL Position indication intermittent (V42X2237X)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 059 : 07.51.07
IFA DATE: 02/28/1990
IFA STATUS: CLOSED : 06/13/1990 ELAPSED TIME: 000 : 00.00.45
PRACA STATUS: CLOSED : 1990-07-05 HOUSTON TIME: 01.51.07
PRCBD NUMBER: S044817P PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 38V-0021 K PR LP01-13-0404
M PROP-04 P CAR 36RF25

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. WELCH
2:

0 DESCRIPTION:

At L + 45 seconds, the left RCS 1/2 oxidizer crossfeed valve close indication changed from closed, to not closed (1 to 0). The closed indication returned when the crew performed the post OMS-2 reconfiguration, which moved the L RCS 1/2 XFD switch from "GPC" to "Close"

KSC to troubleshoot. CHIT J3226A was approved on 3/16/90 (PRCBD #S052087). wiring troubleshooting scheduled for week of 4/23/90. No wiring discrepancies were found, actuator (LV 272) was R&R'd.

Suspect LPS commands were removed before the valve was driven fully

STS0036.txt

prelaunch. Ascent vibration caused intermittent microswitch activation.

CAR Status: Closed on 5/3/90, all action transferred to CAR 36RF09.

KSC CAAR Tracking Numbers: IV-6-021796

Flight Problem Report approved at Level II Daily PRCB on 6/13/90 (PRCBD #S044817P).

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-15A
TITLE:Mid Port Payload Bay Flood Light Failed

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 063 : 13.35.00
IFA STATUS: CLOSED : 05/18/1990 IFA DATE: 03/04/1990
PRACA STATUS: CLOSED : 1990-07-11 ELAPSED TIME: 004 : 05.44.38
PRCBD NUMBER: S044817 HOUSTON TIME: 07.35.00
PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 38V-0007 M EECOM-07
P CAR 36RF17

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. SUITER
2:

0 DESCRIPTION:
Crew reported failure.

Troubleshooting is complete, anomaly can not be reproduced. UA processing in work.

CAR Status: Explained closeout as a UA issued on 6/25/90, CAR closed on 6/27/90.

Flight Problem Report approved at Level II Noon PRCB on 5/18/90 (PRCBD #S044817).

Status: Closed

1 STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-36-V-15B
TITLE:AFT Port Payload Bay Flood Light Failed

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 063 : 13.35.00
IFA STATUS: CLOSED : 05/18/1990 IFA DATE: 03/04/1990
PRACA STATUS: UNKNOWN ELAPSED TIME: 004 : 05.44.38
PRCBD NUMBER: S044817 HOUSTON TIME: 07.35.00
PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 38V-0008 K PR EPD-4-07-0769
M EECOM-07

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. SUITER
2:

0 DESCRIPTION:
Crew reported failure.

STS0036.txt

Lamp was R&R'd and during retest the anomaly reoccurred. Additional troubleshooting inconclusive. FEA #2 was R&R'd, retest on 4/10/90 was unsuccessful. Light flickered then went out. Aft port light replaced and retest was good (4/18/90).

Flight Problem Report approved at Level II Noon PRCB on 5/18/90 (PRCBD# S044817)

Status: closed

1

STS-036 (OV-104,FLT #6) OFFICIAL INFLIGHT ANOMALY REPORT

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IFA NUMBER> STS-36-V-15C

TITLE:AFT Starboard Payload Bay Flood Light Flickering

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 063 : 13.35.00
IFA STATUS: CLOSED : 05/18/1990 IFA DATE: 03/04/1990
PRACA STATUS: CLOSED : 1992-01-08 ELAPSED TIME: 004 : 05.44.38
PRCBD NUMBER: S044817 HOUSTON TIME: 07.35.00
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 38V-0006 M EECOM-07
P CAR 36RF27

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. SUITER
2:

0 DESCRIPTION:
Crew cycled power - flickering was more rapid. Crew reported not waiting the required 45 minutes to reapply power.

Lamp was R&R'd, retest was successful.

Flight Problem Report approved at Level II Noon PRCB on 5/18/90 (PRCBD# S044817)

Status: closed

-JFDP012: NORMAL TERMINATION OF PROCESSING