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IFA NUMBER> STS-26-B-01
TITLE:HDP #1, #3, #6, and #7, Blast Containers. (MSFC-01)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 12/02/1988 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1988-11-15 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44627 PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	A11801	A	A11802
A	PV402-5418	A	PV402-5419

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: USBI: M. DOOLEY
2:

0 DESCRIPTION:
Blast Container or Debris Container System (DCS) plunger did not seat due to debris wedged between the plunger and the HDP hole.
.
(This problem has been declared an offical IFA by USBI on contractor # USBI029-STR-1 and MSFC IFA No: STS-26-B-01.)

- CLOSURE RATIONAL:
DCS stud attach fractured prematurely, allowing frangible nut and initiators to become trapped between plunger and opening. Corrective action will revise installation procedure to provide the maximum gap between the bottom of stud attach and contact surface of plunger. This will allow preload release of holddown stud without breaking the stud attach prematurely.

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IFA NUMBER> STS-26-B-02
TITLE:RH SRB AFT IEA Cable Damage/IEA End Cover Gone (MSFC-02)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 12/02/1988 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1988-11-15 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44628 PHASE: ENTRY/LANDING

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	A11839	A	PV402-5436

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: USBI: M. DOOLEY
2:

0 DESCRIPTION:
Aft IEA cover is missing. The rivets were sheared in an upward direction indicating damage occurred at water impact. Also, ten cables connected to the aft IEA were found pulled out of their respective connectors.
.
(This problem has been declared an offical IFA by USBI on contractor # USBI029-E/I-2 and MSCF IFA No: STS-26-B-2.)

- CLOSURE RATIONAL:
The cause of the damage is concluded to be high water impact forces which flight experience confirms is a low probability random occurrence. There is no action required because of the low probability of the high

water impact loads, with the only effect being a hardware refurbishment, reuse issue.

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IFA NUMBER> STS-26-B-03
TITLE:LH SRB RSS Antenna SLA Missing (MSFC-04)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 12/02/1988 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1988-11-15 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44629 PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A11836 A PV402-5464
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: USBI MR. M. DOOLEY
2:
0 DESCRIPTION:
Supper light ablator (SLA) was found missing on the sloped face of the LH SRB RSS Antenna (+Z axis).
.
(This problem has been declared an official IFA by USBI on contractor # USBI029-RSS-3 and MSFC IFA No: STS-26-B-3.)

- CLOSURE RATIONAL:
The damage was caused by water impact. There is no corrective action required. The antenna cover is not a reuse item.

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IFA NUMBER> STS-26-B-04
TITLE:Lube Oil Recirculating Line Leaking (MSFC-21)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 11/09/1988 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1988-11-15 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44625 PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A11822 A PV402-5450
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R. HENRY
2:
0 DESCRIPTION:
The RH SRB APU lube oil recirculating line was discovered leaking during gearbox (tilt-system A) servicing. STS-26-B-4

- CLOSURE RATIONAL:
This problem is atributed to improper swaging of the recirculation lines. The improperly swaged tubes are all part of one lot. Two of these lines were flown on STS-26, one had been scrapped during production and the one remaining has been scrapped. Sundstrand has completed inspection of all swaged tubes and has found no more improperly swaged tubes.

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IFA NUMBER> STS-26-B-05
TITLE:Broken Strap in LH Frustum (MSFC-22)

```
0 MISSION CONSTRAINT:            SUBS          IFA TIME GMT: 000 : 00.00.00
                                               IFA DATE:
  IFA STATUS:   CLOSED   : 12/02/1988          ELAPSED TIME: 000 : 00.00.00
  PRACA STATUS: CLOSED   : 1988-11-15          HOUSTON TIME: 00.00.00
  PRCBD NUMBER: S44630                         PHASE:        ASCENT
0 TYPE      TRACKING NUMBER          TYPE      TRACKING NUMBER
   A   A11838                         A   PV402-5398
0 CLOSURE INITIATED BY:
  RESPONSIBLE MANAGERS 1: USBI: M. DOOLEY
                       2:
0 DESCRIPTION:
   A strap securing Baro-switch tube Assembly in the LH SRB Frustum was
   broken at the fastener.

- CLOSURE RATIONAL:
   This is a low-probability random occurrence during water impact with no
   corrective action required.  This is not an ascent, crit 1 issue, only a
   refurbishment issue.

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  IFA NUMBER> STS-26-B-06
  TITLE:LH Frustum LSC CDF Line Severed (MSFC-23)

0 MISSION CONSTRAINT:            SUBS          IFA TIME GMT: 000 : 00.00.00
                                               IFA DATE:
  IFA STATUS:   CLOSED   : 12/02/1988          ELAPSED TIME: 000 : 00.00.00
  PRACA STATUS: CLOSED   : 1988-11-15          HOUSTON TIME: 00.00.00
  PRCBD NUMBER: S44631                         PHASE:        POST LANDING
0 TYPE      TRACKING NUMBER          TYPE      TRACKING NUMBER
   A   A11835                         A   PV402-5463
0 CLOSURE INITIATED BY:
  RESPONSIBLE MANAGERS 1: USBI: M. DOOLEY
                       2:
0 DESCRIPTION:
   A Linear Shaped Charged (LSC) Confined Detonating Fuse (CDF) line was
   found severed at the 401 ring connector during postflight assessment
   of the LH SRB.  STS-26-B-6

- CLOSURE RATIONAL:
   This damage occurred during towback, thus does not meet the criteria for
   an in-flight anomaly.  No corrective action required.

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  IFA NUMBER> STS-26-B-07
  TITLE:Main Parachute #3 Tear (MSFC-03)

0 MISSION CONSTRAINT:            SUBS          IFA TIME GMT: 000 : 00.00.00
                                               IFA DATE:
  IFA STATUS:   CLOSED   : 11/09/1988          ELAPSED TIME: 000 : 00.00.00
  PRACA STATUS: CLOSED   : 1988-11-15          HOUSTON TIME: 00.00.00
  PRCBD NUMBER: S44626                         PHASE:        ASCENT
0 TYPE      TRACKING NUMBER          TYPE      TRACKING NUMBER
   A   A11837                         A   PV402-5409
0 CLOSURE INITIATED BY:
  RESPONSIBLE MANAGERS 1: R.RUNKLE-EE11 USBI
                       2:
0 DESCRIPTION:
   Main Parachute #3 experienced a tear from ribbons 131 to 148 in the
```

460 strength level area. Paint found in this region indicates contact was made with the bipod strut area. The tear was a few ribbons away from a gore split which would disable the chute from fully opening. Investigation continues as to consideration as an IFA. (STS-26-B-7)

- CLOSURE RATIONAL:
The damage is attributed to contact with the Bipod strut foam fairing. There is no corrective action required because the worst case (one parachute, inoperable) will still result in an acceptable water impact velocity. A ripstop change has been proposed as a long term corrective action to limit potential parachute ribbon damage from propagating and causing parachute failure.

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IFA NUMBER> STS-26-B-08
TITLE:SRM CAVITY COLLAPSE LOAD FOLLOWING WATER INSPECT

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 03/01/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44650L PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A120608
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R.HENRY EE11 USBI
2:
0 DESCRIPTION:
The cavity collapse load (238,000 lbs, 50 ms) experienced following water impact exceeded the design yield strength (173,000 lbs) of RH Rock TVC Actuator - S/N 80.

- CLOSURE RATIONAL:
The refurbishment procedures, tests and proof load tests assure that the servoactuators are flight worthy. Teardown analyses of flown hardware have demonstrated that the design is acceptable. Vendor postflight inspection and test show no effect on actuator which is attributable to this exceedance.

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IFA NUMBER> STS-26-B-09
TITLE:DEFINED WATER IMPACT LOADS FOR THE SRB TVC LOWER FRAME R.H. WERE EXCEEDED DURING WATER IMPACT
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 03/01/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-03-02 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44650M PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12058
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R.HENRY EE11 USBI
2:
0 DESCRIPTION:
Water impact is a stress and not a fatigue environment, therefore, postflight inspection will detect failure caused by the environment. Teardown analyses of flown hardware have demonstrated that the design is acceptable for the water impact environment. All TVC LRUs mounted on

the lower frame of STS-26 have been inspected and show no evidence of damage.

- CLOSURE RATIONAL:
The TVC lower frames installed on STS-29 are new and certified for single mission use. The Hydraulic Reservoirs are the only lower frame LRUs being reflown on STS-29. The refurbishment procedures assure these LRUs will meet flight requirements. Therefore, this is not an ascent issue.

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IFA NUMBER> STS-26-B-10
TITLE:PYRO SHOCK QUALIFICATION LEVELS FOR THE RH SRB RATE GYRO ASSEMBLY

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 03/03/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-03-03 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44650N PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12065
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R.HENRY EE11 USBI
2:
0 DESCRIPTION:
The SRB RGAs function only during ascent, the observed exceedance occurs during descent at frustum separation. Level II PRCBD S40443A limits the use of SRB RGAs to one flight, accordingly all STS-29 RGAs are new.

- CLOSURE RATIONAL:
The use of new RGAs precludes any effect on subsequent missions attributable to ordnance shock level exceedance. The effect on the SRB RGAs is solely a reuse issue.

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IFA NUMBER> STS-26-D-01
TITLE:DEGRADATION OF HUM SEP B. (MOD-10)**** NOT BASELINED ****

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 275 : 09.18.00
IFA DATE: 10/01/1988
IFA STATUS: CLOSED ELAPSED TIME: 001 : 17.41.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 03.18.00
PRCBD NUMBER: NOT BASELINED PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M EECOM-05
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: P.CERNA
2:
0 DESCRIPTION:
The waste water collection rate while operating HUM SEP B has been significantly reduced since the end of the first sleep period. The reduced HUM SEP B collection rate has continued for approximately 30 hours.
.
Impact: Degraded HUM SEP B
.
Resolution: The plan is to leave HUM SEP A on at the end of the ECLSS redundant component checkout (EZ CAP FD 3). HUM SEP A has been

collecting waste water at the expected rate since the beginning of its operating period.

.

History: STS-5 had degraded HUM SEP A and B (restriction in cabin heat exchanger slurper or water separator package).
STS-6 had degraded HUM SEP A (low air flow).

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IFA NUMBER> STS-26-D-02
TITLE:MADS BOT PERCENT TAPE ANOMALY. (MOD-22) **** NOT BASELINED ****

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 277 : 13.50.00
IFA DATE: 10/03/1988
IFA STATUS: CLOSED
ELAPSED TIME: 003 : 22.13.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 07.50.00
PRCBD NUMBER: NOT BASELINED
PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M INCO-07
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R.LABRODE
2:
0 DESCRIPTION:
At listed GMT, the modular ancilliary data system (MADS) tape recorder was observed during one of its nominal "snapshot" mode data takes. We noticed that the percent tape (MSID V78Q9602A), which has a range of 0 to 100, read 7 percent as the recorder reached beginning of tape (BOT) instead of 0 percent as expected. We later commanded the recorder to BOT, and saw the same indication (7 percent tape quantity).

.

Impact: all percent tape readings will be inaccurate for the MADS. Nominal MADS operation is possible.

.

Various offsets have been observed on other vehicles, but not of this magnitude. Hardware should be evaluated further.

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IFA NUMBER> STS-26-D-03
TITLE:MITS LAN WORKSTATION MED INPUTS IN MOC ONLY

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 273 : 12.00.00
IFA DATE: 09/29/1988
IFA STATUS: CLOSED : 02/22/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 07.00.00
PRCBD NUMBER: S44650
PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M MCC
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: B.CULBERTSON
2:
0 DESCRIPTION:
MED inputs from workstations "LINUS", "FLASH", and "MPAD" were tramsmitted to the MOC only and not the DSC. There was no impact to data processing but the possibility did exist for data loss if a MDOD/DSC select over had been necessary.

- CLOSURE RATIONAL:
The anomaly was determined to be software.

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IFA NUMBER> STS-26-D-04
TITLE:HOST #4 WAS DOWN BECAUSE OF CONTINUOUS OC6 ABENDS AND CUP USAGE AT 100%

0 MISSION CONSTRAINT: SUBS
IFA STATUS: CLOSED : 02/22/1989
PRACA STATUS: UNKNOWN
PRCBD NUMBER: S44650A
IFA TIME GMT: 000 : 00.00.00
IFA DATE: 10/01/1988
ELAPSED TIME: 000 : 00.00.00
HOUSTON TIME: 00.00.00
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
D	DR 089100	M	MCC-02

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: A. DAVIS
2:

0 DESCRIPTION:
The DSC (HOST 3) was immediately selected. There was an impact of 30 seconds without DTRS data. A software dump of the system (HOST 4) was taken for subsequent troubleshooting.

- CLOSURE RATIONAL:
A software dump taken during the flight pointed out a coding error in the automatic hard copy of data link summary messages, whereby the function executed prematurely. This caused a memory overlay, resulting in the above problem. An operational workaround was put into effect for the remainder of STS-26 and for the STS-27 flight, the workaround was to execute the hardcopy function manually prior to it getting to the problem state.

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IFA NUMBER> STS-26-D-05
TITLE:KU-BAND BOOM STOW ENABLE II DESCRETE NEVER INDICATED AN ENERGIZED STATE DURING STS-27
0 MISSION CONSTRAINT: SUBS
IFA STATUS: CLOSED : 02/22/1989
PRACA STATUS: UNKNOWN
PRCBD NUMBER: S44775A
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
ELAPSED TIME: 000 : 00.00.00
HOUSTON TIME: 00.00.00
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
M	MCC-03		

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. HOLLOWAY
2:

0 DESCRIPTION:
The Ku-Band Boom Stow Enable II discrete never indicated an energized state during STS-27. KSC and Rockwell-Downey both received an energized indication. The MCC console and the NRT data did not indicate energized.

- CLOSURE RATIONAL:
Evidence points to the fact that the parameter was caught in a restart (initial job ABENDED) in reconfiguration and was processed twice, causing an incorrect start bit.

Compare software has been written and utilized for STS-29 and STS-30 to report all telemetry-related information which has changed from the baseline reconfiguration data base. Deltas are discussed with data suppliers and are either confirmed as valid or are corrected.

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IFA NUMBER> STS-26-D-06
TITLE:MILA RANGING DATA HAD A LARGE BIAS AT LIFT-OFF

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 273 : 15.37.00
IFA DATE: 09/29/1988
IFA STATUS: CLOSED : 02/22/1989
ELAPSED TIME: 273 : 15.37.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 10.37.00
PRCBD NUMBER: S44650B
PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M STDN-01
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: B. CULBERTSON
2:
0 DESCRIPTION:
MIL experienced two 300 meter range jumps during early ascent (+ 10 sec and + 35 sec). It is believed MIL may have been on a side lobe of the RF signal from lift-off through handover from PDL back to MIL (+ 2:30 mins). MILA used their new SUE ranging and exciter/receiver system for the first time.

- CLOSURE RATIONAL:
It has been determined that the fast acquisition mode function of the SUE system was not working properly - a narrower bandwidth setting is required. MIA used medium acquisition speed for STS-27 successfully and will continue in this workaround mode while engineering tests are conducted at GSFC.

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IFA NUMBER> STS-26-D-07
TITLE:UNABLE TO ACQUIRE SOLID LOCK ON VANS TLM DURING LANDING

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 277 : 08.09.00
IFA DATE: 10/03/1988
IFA STATUS: CLOSED : 02/22/1989
ELAPSED TIME: 277 : 08.09.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 02.09.00
PRCBD NUMBER: S44650G
PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M STDN-06
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: C.CAPPS
2:
0 DESCRIPTION:
TLM was unusable at VANS during landing phase. VTR was used to supply TLM, while the U/L was maintained through VANS.

- CLOSURE RATIONAL:
A design problem exists at VANS with the down-converter associated with the microdyne receivers used at the station. Interference with the downlink was generated from the uplink in the downconverter. Engineering is working on a permanent fix for the downconverter. A workaround exists and was used during STS-27 landing using a different type of receiver (MFR) which does not have the interference problem.

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IFA NUMBER> STS-26-D-08
TITLE:UNABLE TO LOCK ON DFRF TLM UNTIL UPLINK MODULATION DROPPED AT LANDING

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 277 : 08.18.00
IFA DATE: 10/03/1988

IFA STATUS: CLOSED : 02/22/1989 ELAPSED TIME: 003 : 16.41.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 02.18.00
PRCBD NUMBER: S44650H PHASE: ENTRY/LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M STDN-07
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. COLE
2:
0 DESCRIPTION:
After handover to DFRF during entry, the TLM was unusable. After a short time (approximately 1 min), the site was directed to drop its uplink modulaiton which was suspected as being a possible cause of the downlink problem. The TLM cleaned up and was usable from that point.

- CLOSURE RATIONAL:
It was found that DFRF, which used microdyne receivers, could not maintain downlink lock because of what appeared to be noise on the downlink signal. The noise was related to the orbiter ranging being enabled over DFRF (site does not have ranging capability). Site uplink modulation does not have a ranging signal, which the orbiter was trying to turn around, causing noise on the downlink. This is a near-term limitation of DFRF. A workaround exists and an agreement made with INCO to turn the biter ranging off at DFRF handover time. This was tested during STS-27 successfully. System filters have been ordered or future system enhancment.

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IFA NUMBER> STS-26-D-09
TITLE:GN STATIONS W/SPACECRAFT COMMAND ENCODERS (SCE) INTERMITTENTLY INDICATED BLOCK SEQUENCE ERRORS ON FORWARD LINK (CMD)
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 02/22/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44650J PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M STDN-08
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. COLE
2:
0 DESCRIPTION:
Several GN sites reported block sequence errors on the JSC originated forward link. NSP link did not appear to be dropping out by observing MCC displays and event lights. Performed a delog of the fullrate data via NRT and found that the NSP was dropping lock. This was not noted on the displays or event lights since it generaly was occurring on only a few frames.

- CLOSURE RATIONAL:
It was determined that an MCC 1024K MDM channel enabled to MSFC via GSFC for an ops recorder dump was, in effect, overloading the JSC-GSFC MDM system. This resulted in uneven spacing of blocks being sent to the SCE; the SCE buffering of the blocks was affected to the extent that blocks sometimes would be lost.

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IFA NUMBER> STS-26-D-10
TITLE:ECHO RECEIVED BY CREW WHILE ON PAD

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 273 : 14.20.00
IFA DATE: 09/29/1988
IFA STATUS: CLOSED : 02/22/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 09.20.00
PRCBD NUMBER: S44650K
PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M STDN-09
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. COLE
2:
0 DESCRIPTION:
Prior to launch, during the simo voice checks, the crew reported hearing an echo. A delay adjustment was made at the comm tech console to clear in real time. The echo problem had previously been identified and the delay adjustment equipment was provided to eliminate the echo. After the STS-26 mission, an in-depth investigation of the echo problem revealed that the delay is variable, aapparently dependent on circuit loading, and that adjustments to the delay need to be made as required. Testing with MILA was performed to confirm the above, and to validate the Comm Tech procedures. These procedures were used on STS-27.

- CLOSURE RATIONAL:
The echo problem is caused by delays in the voice signal due to different circuit routes of the S-Band and UHF voice, and is variable, dependent on circuit loading. SR# 4009 (semi-automatic delay adjustment) was initiated to provide the Comm Tech with a faster and more accurate method of making the adjustment. The SR is scheduled for implementation on 01/29/89. This will provide the delay adjustment with the push of a single button. The manual method capability will still exist as a backup.

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IFA NUMBER> STS-26-E-01
TITLE:Nozzle Tube Splits (MSFC-18)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 11/30/1988
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1988-11-21
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44635
PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A012914 A A11778
A UCR/FAR A012914
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: E. JACOBS
2:
0 DESCRIPTION:
During Post-flight inspection of the main engines, nozzle tube splits were discovered. This condition has occurred in previous shuttle missions and may fall under an expected occurrance category. Investigation continues as to the cause of this problem. IFA # STS-26-E-1

- CLOSURE RATIONAL:
Not a design or configuration issue. Acceptance testing of the SSME's screens significant contamination. Local nozzle tube rupture has insignificant effect on SSME and vehicle performance.

The tube was repaired using standard repair procedure.

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IFA NUMBER> STS-26-E-02
TITLE:MCC Leak on E-1 due to Ni/Cu Unbond (MSFC-19)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 11/30/1988
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44636
PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A UCR A012915
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: B.WOOD - ROCKETDYNE
2:
0 DESCRIPTION:
POST-FLIGHT INSPECTION DISCOVERED AN MCC LEAK DUE TO Ni/Cu UNBOND. (UCR # A012915). IFA # STS-26-E-2

- CLOSURE RATIONAL:
Proof test and post proof inspections screen critical weld defects. Any weld defects which survive proof will leak before burst. Small leaks, characteristic of this unit, are not detrimental to engine or vehicle performance.

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IFA NUMBER> STS-26-E-03
TITLE:E-1 HPFTP DISCHARGE TEMP CHANNEL B SHIFT (MSFC-14)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 11/30/1988
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1988-11-25
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44637
PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A009974 A A11877
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J.MOORHEAD/EE21 - RKDN
2:
0 DESCRIPTION:
The E-1 High Pressure Fuel Turbopump (HPFTP) discharge temperature shifted from nominal on Channel B. This is most probably due to coolant flow distribution. Under evaluation. IFA # STS-26-E-3

- CLOSURE RATIONAL:
The most likely cause of the noted temperature oscillation is turbine coolant flow circumferential redistribution at the temperature sensor location. This was induced by flow characteristics in the manifold as a function of throttling. No corrective action is recommended.

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IFA NUMBER> STS-26-E-04
TITLE:E-1, HPFTP COOLANNT LINER PRESSURE VARIATIONS (MSFC-15)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 11/30/1988
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-01-30
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44638
PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER

A A009972 A A11876

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J.MOORHEAD/EE21 - RDKN
2:

0 DESCRIPTION:
E-1 HPFTP experienced abnormal fluctuations in the coolant liner pressure. Under evaluation. IFA # STS-26-E-4

- CLOSURE RATIONAL:
The cause of the anomaly is inboard static seal leakage followed by outboard static seal crack. The noted pressure oscillations are within the SSME test experience and are not detrimental to SSME operation.

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IFA NUMBER> STS-26-E-05
TITLE:CRACKED BELLOWS SEAL AT MCC

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 11/30/1988 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-07-13 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44639 PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A11865 A 020239
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: E.JACOBS/EE21 - RKDN
2:

0 DESCRIPTION:
Cracked bellows seals at the MCC to nozzle interface found during investigation of MCC weld 12 leak on ME-1 (engine 2019).

- CLOSURE RATIONAL:
Overall, the results show bellows seal cracking with protrusions greater than 0.075 inch, metallic bluing of the seal without cracking with protrusion above 0.028 inches and no seal overheating as evidenced by metallic bluing with less than or equal to 0.025 inch protrusions.

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IFA NUMBER> STS-26-M-01
TITLE:TPS Missing (CAP Cork Unbonded) (MSFC-20)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 12/02/1988 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-04-11 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44632 PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A11767 A DR4-57114
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: L. HANKS
2:

0 DESCRIPTION:
TPS is missing around DFI cable which are outside cable tunnel. The MSFA Tracking No: STS-26-M-1.
.
During postflight inspection of both SRMs, Thermal Protection Systems (TPS) corks covering DFI/GEI cable runs was missing in several places.

- CLOSURE RATIONAL:

Only TPS cap cork is a flight debris concern since all other TPS has not had any flight failure history. Inadequate cork/cork bonding technique contributed to TPS cap cork loss. The design is adequate given the increased process constraints and final process verification ("Tap-Test") are implemented. Corrective action will be to inspect and repair all TPS cork voids/edge unbonds on all subsequent DFI-bearing RSRMs.

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IFA NUMBER> STS-26-M-02
TITLE:Moisture in Field Joints. (MSFC-06)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 12/02/1988
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-07-21
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44633
PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A11842 A DR4-5/118

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: L.HANKS/EE11 MTI
2:

0 DESCRIPTION:
Salt water penetrated all six field joint moisture barriers. Approximately one liter of water was removed from left forward joint and similar amounts were found in others. Samples are being sent to lab to verify seawater. At least one vent valve on each field joint was found to be "hung" in an open position. Disassembly of the Joint Protection System (JPS) indicated no moisture penetration thru this system, therefore the open vent valves become a prime suspect. Investigation continues.
(MSFC IFA No: STS-26-M-2).

- CLOSURE RATIONAL:
The outward flow function of each vent valve is verified during the joint assembly "close-out" at KSC. Reverse direction vent valve closure was not verified for STS-26. Analysis of Weatherseal Bulge contents and Vent valve assessment produced the following conclusions: 1. STS-26 Field Joint Weatherseals ingested Seawater. 2. Structural damage was found in some recovered STS-26 valves. 3. Aluminum Oxide and cork were identified as trapped debris.

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IFA NUMBER> STS-26-M-03
TITLE:FRETTING OF RSRM CASE FIELD JOINT CAPTURE FEATURE SURFACES
GOUGES, PITS AND/OR SCRATCHES NOTED ON RECOVERED SEGMENTS

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 12/19/1988
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1992-10-02
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44634
PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A11843 A DR4-5/123

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: GERALD W. SMITH
2:

0 DESCRIPTION:
Investigation is in preliminary stages but the phenomena apppears to be caused by fretting corrosion.

Gouges and scratches are not in any sealing surface.
Cause and time of occurrence (rollout, flight, towback, etc.) is uncertain.
.
Fretting Anomalies: Hundreds of gouges, pits and/or scratches noted on STS-26 recovered segment capture feature surfaces.
.
Typical dimensions were .04 to .06 in. dia. by 0.004 to .005 in deep. Many had axially oriented .35 in scratches from pit to beveled edge. Some discoloration was noted.
.
Numbers and circumferential location vary from joint to joint with no apparent relation to known interference values.
.
Phenomena appears to be classical fretting corrosion.
.
No constraint to flight of OV104.

- CLOSURE RATIONAL:
Cause of this condition is concluded to be "fretting". Include in the postflight refurbishment activity the hand removal of all burrs and smoothing of any raised metal on both capture feature component surfaces. Initiate a subscale study to identify mechanism, of the metal surface "fretting" phenomena and evaluate any metal fatigue concerns.

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IFA NUMBER> STS-26-T-01
TITLE:NUM 2 98% LH2 LIQUID LEVEL SENSOR SYS INDICATION BEGAN TO ALTERNATE BETWEEN WET AND DRY
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 273 : 15.38.20
IFA DATE: 09/29/1988
IFA STATUS: CLOSED : 01/20/1989 ELAPSED TIME: 000 : 00.01.20
PRACA STATUS: CLOSED : 1989-01-20 HOUSTON TIME: 10.38.20
PRCBD NUMBER: S44640 PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A11805 A E-116PF
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: A.JACKMAN/EE31
2:
0 DESCRIPTION:
At T +70 seconds in the flight of STS-26, the number two 98% LH2 liquid level sensor system indication began to alternate between wet and dry. The liquid level in the tank was lower than this sensor at the time. At T +130 seconds, and continuing until ET seapartion, the system gave a dry indication.

- CLOSURE RATIONAL:
The probable ET cause, as determined by Engineering analysis, would be an intermittent open circuit as the result of a faulty electrical connector pin/socket. The probable Orbiter cause, as determined by Rockwell International, would be an intemittent open circuit as the result of faulty wiring and/or associated connectors.

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IFA NUMBER> STS-26-V-01
TITLE:OMS Gimbal Standby Enable 1 fail (MER-01)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 273 : 06.40.00
IFA DATE: 09/29/1988

IFA STATUS: CLOSED : 12/13/1988 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 01.40.00
PRCBD NUMBER: S44601A PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	IV-6-010791	A	PV-6-114565
C	CHIT J2781	K	EPD-1071
K	IPR 29R-0023&0943,PR	M	GNC-01

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

0 DESCRIPTION:
During prelaunch, OMS Gimbal profile Test left secondary (standby) TVC did not drive actuators with RPC 1 enable. During post OMS 2 Gimbal check RPC-2 tripped off after some movement of OMS TVC which indicates RPC-2 functional. No mission impact.
.
Planned Turnaround Action: Trouble shoot to isolate the problem. Replace defective component. JSC change LCC/OMRS.

- CLOSURE RATIONAL:
The OMS gimbal drive failure was caused by an open circuit which prevented 28 VDC power from reaching the motor drivers via RPC1.

Launch commit criteria was clarified to permit loss of either primary or secondary controller on a given OMS engine. The open circuit has been repaired.

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IFA NUMBER> STS-26-V-02
TITLE:NSP-1 Frame Synchronization Unlock (Transponder-2) (MER-02)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 273 : 02.30.00
IFA DATE: 09/28/1988
IFA STATUS: CLOSED : 01/11/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 21.30.00
PRCBD NUMBER: S44602A PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
C	CHIT J2782	K	IPR 29R-0022
M	INCO-1	P	CAR 26RF17

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

0 DESCRIPTION:
During prelaunch comm c/o uplink was switched from xponder 1 to xponder 2. NSP 1 did not indicate bit or frame sync. Troubleshooting could not repeat. Could lose cross strap capability if problem repeats.
.
Planned Turnaround Action: Trouble shoot to isolate the problem.

- CLOSURE RATIONAL:
The most probable cause of this anomaly is an intermittent malfunction of the forward link data relay in transponder 2 after which subsequent cycling cleared the problem.

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IFA NUMBER> STS-26-V-03
TITLE:MS-1/PLT Suit Vent Fans Failed (MER-03)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 273 : 12.33.00
IFA DATE: 09/29/1988
IFA STATUS: CLOSED : 12/13/1988
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 07.33.00
PRCBD NUMBER: S44603
PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 26R-0946	M	MMACS-01
P	JSC EC0380	P	VJSCPR FCS-3-08-0294

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: F. MCALLISTER
2:

0 DESCRIPTION:
During prelaunch ingress both MS-1 and PLT suit fans failed. Fuses replaced with 10 amp fuses prelaunch. Crew replaced 10 amp fuses with 5 amp fuses from IFM kit.
.
Planned Turnaround Action: JSC review design and modify. KSC review VIT procedures to include SR&QA.

- CLOSURE RATIONAL:
The 3 amp fuse in the original suit fan motor power circuit design were underrated for the voltage levels that could be expected in the spacecraft while operating on fuel cells.

The suit fan motorpower circuit design has been changed to reflect replacement of the 3 amp fuses with 5 amp fuses (p/n ME451-0009-1021) on all units. Reference CCB directive G2086. A spare suit fan, cables and fuses will be available for count down operations.

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IFA NUMBER> STS-26-V-05
TITLE:Flash Evaporator System (MER-05)
ASCENT HIGH LOAD EVAPORATOR FREEZING

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 273 : 15.41.00
IFA DATE: 09/29/1988
IFA STATUS: CLOSED : 12/15/1988
ELAPSED TIME: 000 : 00.04.00
PRACA STATUS: CLOSED : 1991-07-18
HOUSTON TIME: 10.41.00
PRCBD NUMBER: S44605
PHASE: ASCENT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
C	CHIT J2776	C	CHIT J2780
K	IPR 29R-0011	K	PR ECL-0514
M	EECOM-02	P	CAR 26RF11

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: H. ROTTER
2:

0 DESCRIPTION:
Suspected high load evap freezing during ascent. FES temp adjusted to high set point (57 deg vs 38 deg F) during first night in order to warm FES. Reentry procedure developed to determine if the high load evaporator FES will be available for entry. FES shutdown occurred after initiation of OMS deorbit burn.
.
Planned Turnaround Action: Check controllers, system "A" valves, boroscope cannister. Depending on results, remove and replace.
.
IPR 29R-0011, PR ECL-0514

- CLOSURE RATIONAL:
The FES problem was most likely caused by contamination/corrosion in the Topping Evaporator. The OV-103 FES will be removed and replaced. The OV-104 FES has been boroscoped with no moisture and minimum but

acceptable contaminait0n visible.

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IFA NUMBER> STS-26-V-06
TITLE:KU-BAND ANTENNA (MER-06)A. FAILED SELF TEST; B. DID NOT FOLLOW POINTING COMMANDS; C. OSCILLATED WHEN ATTEMPTING TO STOW

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 274 : 15.15.00
IFA DATE: 09/30/1988
IFA STATUS: CLOSED : 12/13/1988
ELAPSED TIME: 000 : 23.38.00
PRACA STATUS: CLOSED : 1990-03-23
HOUSTON TIME: 10.15.00
PRCBD NUMBER: S44606
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
C	CHIT J2774	C	CHIT J2775
K	IPR 29R0025	K	IPR 29R0026
K	PR COM-122, 125	M	INCO-04125
M	INCO-05	P	CAR 26RF01

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

0 DESCRIPTION:
The antenna failed self test shortly after deployment. Also, antenna would not follow pointing commands. When antenna was manually slewed to stow position, antenna oscillations were observed. Antenna power switched to standby and oscillations ceased. Stow procedures developed and used successfully. Loss of KU band antenna will not significantly impact any mission objective. OV-104 guide lock pin operation verified.
.
Planned Turnaround Action: System test and trouble shoot. Remove DA from orbiter 102 in case we need it.
.
PR's COM-122 & 125, IPR's 29R-0025 and 0026
CHIT J2774, CHIT J2775

- CLOSURE RATIONAL:
The most probable cause of the anomaly was that the top lock arm failed to fully retract. This allowed contact between the RSA bracket and the sequencing switch protective case, thus preventing the antenna from rotating. Both the DA S/N 105 and EA-1 S/N 105 were removed and returned to the vendor for failure analysis. The OV-104 guide lock pin operation has been verified.

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IFA NUMBER> STS-26-V-07
TITLE:Gox Flow Control Valves on SSME 1 and 2 Operated Sluggishly (MER-07)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 273 : 15.37.00
IFA DATE: 09/29/1988
IFA STATUS: CLOSED : 12/16/1988
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-02-02
HOUSTON TIME: 10.37.00
PRCBD NUMBER: S44607
PHASE: ASCENT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
C	CHIT 2779	K	PR MP3-0617
M	BSTR-03	P	CAR 26RF03

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

0 DESCRIPTION:
Gox flow control valve 1 and 2 (SSME 1 and 2) operated sluggishly during first cycle. This operation did not impact ET tank

pressurization. Planned postflight inspection of valves.
.
Planned Turnaround Action: Boroscope inspection of body for contamination. Remove 3 valves and send back to vendor. Clean and send to KSC for reinstallation.
.
PR # MP3-0617

- CLOSURE RATIONAL:
The combination of contamination in GOX FCV's 1 and 2 along with deflection of the valves due to thermal gradients present during the initial cycles probably caused partial binding between the poppet and sleeve. This binding was eliminated as the valves were thermally stabilized due to continued hot gas flow.

Three valves were removed from OV-103, cleaned, and their clearances increased to 0.0010-0.0012 inches from 0.0008-0.0009 inches. The valves will be reinstalled in OV-103 and used in the next flight. The clearances on OV-102 and OV-104 valves will similarly be increased.

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IFA NUMBER> STS-26-V-08
TITLE:COAS Adapter Plate Could Not Be Mounted Properly (MER-08)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 275 : 11.02.00
IFA DATE: 10/01/1988
IFA STATUS: CLOSED : 12/15/1988 ELAPSED TIME: 001 : 19.25.00
PRACA STATUS: CLOSED : 1989-07-12 HOUSTON TIME: 05.02.00
PRCBD NUMBER: S44608 PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 29RV-0040	M	GNC-02
P	CAR 26RF02		

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: F. MC ALLISTER
2:

0 DESCRIPTION:
During COAS alignment at forward station, crew could not secure adapter plate with the hold down screw. Nut plate may be missing on panel 01.
.
Planned Turnaround Action: JSC will evaluate crew debriefing item and take corrective action.
.
IPR 29RV-0040

- CLOSURE RATIONAL:
Postflight inspection has shown that the nut plate is not missing, however the COAS knurled screw could only engage approximately 1-1/4 threads in the nut plate. Nominally the screw should engage 4 to 5 threads.

The COAS mounting problem was due to the knurled mounting screw not extending far enough into the nut plate to securely engage the nut plate threads. The COAS is being returned to JSC for further analysis.

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IFA NUMBER> STS-26-V-09
TITLE:WSB Sys 1 GN2 Relief Valve Leak (MER-09)
.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 273 : 15.11.00
IFA DATE: 09/29/1988
IFA STATUS: CLOSED : 12/16/1988
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 10.11.00
PRCBD NUMBER: S44609
PHASE: PRE-LAUNCH

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR HYD-0250 M MMACS-05
O OMI V1017/V1018

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

0 DESCRIPTION:
GN2 pressure showed a 3 psi decay over the first 15 hours on-orbit. Decay then stopped. Indicates that GN2 relief valve did not fully seat for the first 15 hours on-orbit.
.
Planned Turnaround Action: KSC Cycle valve and leak check. Remove & replace if required.

- CLOSURE RATIONAL:
The water spray boiler 1 gaseous nitrogen regulator pressure most probably decayed because of the relief valve not properly seating after ascent.

The water spray boiler 1 relief valve will be leak-tested during turnaround operations. Relief valve out-of-specification leakage will result in the removal and replacement of the valve.

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IFA NUMBER> STS-26-V-10
TITLE:Waste Collection System Fan Separator 1 Showed Indications of Flooding (MER-10)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 276 : 18.51.00
IFA DATE: 10/02/1988
IFA STATUS: CLOSED : 12/15/1988
ELAPSED TIME: 003 : 03.14.00
PRACA STATUS: CLOSED : 1991-01-08
HOUSTON TIME: 12.51.00
PRCBD NUMBER: S44610
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
C CHIT J2777 K IPR 29-010
M EECOM-6 P CAR 26RF06

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: E. WINKLER
2:

0 DESCRIPTION:
WCS fan separator 1 exhibited stall currents for 80 seconds. Inverter bus 1 current and voltage measurements verify WCS switch to fan separator 2 which is operating normally.
.
Planned Turnaround Action: Remove and replace. It comes out with potty module which is removed post flight.
.
IPR 29R-0010, CHIT J2777

- CLOSURE RATIONAL:
WCS fan separator 1 experienced flooding, which caused its motor to stall. The WCS and fan separator have been removed and sent to the vendor for analysis. Fan separator redesign is in work. A demonstration unit may be flown as early as STS-28 with the new design. The OV-104 fan separator has been flow checked.

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IFA NUMBER> STS-26-V-11
TITLE:Starboard Payload Bay Door Forward Ready to Latch Indicator "A" Talkback did not function. (MER-11)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 277 : 13.07.00
IFA DATE: 10/03/1988
IFA STATUS: CLOSED : 12/19/1988
ELAPSED TIME: 003 : 21.30.00
PRACA STATUS: CLOSED : 1989-02-02
HOUSTON TIME: 07.07.00
PRCBD NUMBER: S44611
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 29R-0013 K PR MEQ-00372
M MMACS-08 P CAR 26RF05

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: L. MOORE
2:

0 DESCRIPTION:
During payload bay door closing the starboard forward ready to latch indicator did not work.
Planned Turnaround Action: Trouble shoot to isolate fault. Remove & replace indicator if required.
.
IPR 29R-0013, PR MEQ-00372

- CLOSURE RATIONAL:
Troubleshooting detected a failure in the indicator's limit switch. The module is being reworked; the switch subassembly is being replaced and the module returned for reinstallation on the vehicle. The failed switch in the removed subassembly is being replaced with one that has been Particle Impact Noise Detection (PIND) tested. A requirement had been added to PIND test all recycled switches and put epoxy on the set screw after adjustment. The latch indicator talkback did not function due to an inoperative limit switch.

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IFA NUMBER> STS-26-V-12
TITLE:APU-3 Low Chamber Pressure/High Fuel Usage (MER-12)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 273 : 15.51.00
IFA DATE: 09/29/1988
IFA STATUS: CLOSED : 12/16/1988
ELAPSED TIME: 000 : 00.14.00
PRACA STATUS: CLOSED : 1988-11-22
HOUSTON TIME: 10.51.00
PRCBD NUMBER: S44612
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR APU-0170 K PR APU-0171
M MMACS-04 P CAR 26RF04

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

0 DESCRIPTION:
APU #3 performance indicated low chamber pressure during all APU runs.
.
Planned Turnaround Action: JCS evaluate. Remove and replace if required. A LCC revision is required to revise low chamber pressure limit.
.
PR # APU-0170 and 0171

- CLOSURE RATIONAL:
The presence of bubbles and corresponding low chamber pressures are typical occurrences during flight and are not a concern as long as the

chamber pressure recovers under load. APU 3 Pc recovered to expected values when under load, indicating it would be capable of meeting any designed load required. The fact that the Pc did not recover after the bubble seemingly disappeared may be a signature of the new "low bubble point" filter.

The high fuel consumption rate of APU 3 is a characteristic of that unit. The rate is within specifications and is acceptable for flight.

Analysis of the performance of APU 3 during the STS-26 mission has shown that it will continue to perform within specifications for the next flight of OV-103. It will not be removed from the vehicle. Both the OMRSD and the Launch Commit Criteria are being revised to reflect the minimum acceptable chamber pressure.

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IFA NUMBER> STS-26-V-13
TITLE:RT Wing TPS Damage (MER-13)

0 MISSION CONSTRAINT: SUBS
IFA STATUS: CLOSED : 12/19/1988
PRACA STATUS: CLOSED : 1989-03-09
PRCBD NUMBER: S44613
IFA TIME GMT: 273 : 15.37.52
IFA DATE: 09/29/1988
ELAPSED TIME: 000 : 00.00.52
HOUSTON TIME: 10.37.52
PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
C CHIT 32786 K PR RWNO 0703
K PR RWNO 0707 K PR RWNO 0710
K PR RWNO 0711

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

0 DESCRIPTION:
Approx. 6" X 18" X 1 1/2" TPS damage on right wing lower surface noted post flight. Possible debris during ascent.
.
Planned Turnaround Action: Inspect and repair damage to OV103 JSC/KSC review and analyze photo coverage. Trajectory analysis.
.
PR's RWNO 0703, 0707, 0708, 0710, 0711

- CLOSURE RATIONAL:
The right wing TPS damage was probably caused by SRB thermal protection debris which came loose during ascent. The late overall transition, which is attributed to the low equivalent roughness, minimized the damage caused by the debris impact.

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IFA NUMBER> STS-26-V-14
TITLE:4" LH2 ET/Orbiter Disconnect Leak. (MER-14)

0 MISSION CONSTRAINT: SUBS
IFA STATUS: CLOSED : 01/13/1989
PRACA STATUS: UNKNOWN
PRCBD NUMBER: S44614
IFA TIME GMT: 277 : 16.37.11
IFA DATE: 10/03/1988
ELAPSED TIME: 004 : 01.00.11
HOUSTON TIME: 10.37.11
PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR MPS-0038 P CAR KB0346

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: L JENKINS

2:

0 DESCRIPTION:
Internal leak occurred prelaunch 'audible' leak reported postlanding.
.
Planned Trunaround Action: Troubleshoot to isolate fault.

- CLOSURE RATIONAL:
The leak in the 4-inch Orbiter LH2 disconnect assembly was most probably caused by damage to the flapper seal which occurred when the flapper valve closed as part of the engine shutdown procedure during the STS-26 FRF. Damage to the seal was most likely caused by a trapped contaminant particle or a material flaw in the seal.

The 4-inch LH2 flapper seal was removed, replaced and returned to the vendor for failure analysis.

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IFA NUMBER> STS-26-V-15
TITLE:OPS RCDR 2 Modulation Anomaly (MER-15)

0 MISSION CONSTRAINT: SUBS
IFA STATUS: CLOSED : 12/16/1988
PRACA STATUS: UNKNOWN
PRCBD NUMBER: S44615
IFA TIME GMT: 274 : 13.42.00
IFA DATE: 09/30/1988
ELAPSED TIME: 000 : 22.05.00
HOUSTON TIME: 08.42.00
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
C	CHIT 3-2809	P	FIAR BFCE-029-F001
R	INCO-03	R	PR INS-0341

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

0 DESCRIPTION:
While repositioning OPS 2 over DKR via a rewind command DKR reported they saw modulation on the FM. Confirmed over CAN.
.
Planned Turnaround Action: Confirmed that RCDR had improper configuration. Will change configuration to conform to design.
.
CHIT 3-2809

- CLOSURE RATIONAL:
The tape recorder was improperly wired. Change-out of the recorder on OV-103 will be performed when a replacement recorder is available. The operational workaround will be to prohibit winding/rewinding the -0005 tape recorders when the parallel dump mode is in use.

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IFA NUMBER> STS-26-V-16
TITLE:Radar Altimeter Failed Off At Landing (MER-16)

0 MISSION CONSTRAINT: SUBS
IFA STATUS: CLOSED : 12/13/1988
PRACA STATUS: CLOSED : 1990-06-27
PRCBD NUMBER: S44616
IFA TIME GMT: 277 : 16.37.11
IFA DATE: 10/03/1988
ELAPSED TIME: 004 : 01.00.11
HOUSTON TIME: 10.37.11
PHASE: ENTRY/LANDING

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
C	CHIT 32789	K	PR COM-0123
K	PR COM-0124	P	CAR 26RF09

0 CLOSURE INITIATED BY:

RESPONSIBLE MANAGERS 1: R. NUSS
2:

0 DESCRIPTION:
Pilot reported "off" flag on pilot and commander's radar altimeter at about 30 ft.
.
Planned Turnaround Action: PR COM-123 PR-124. Pulled and sent to vendor for gain readjust. 8 days at vendor.
.
PR's COM-0123 and 0124, CHIT 32789

- CLOSURE RATIONAL:
The receiver is designed with a dynamic sensitivity capability that permits automatic gain adjustment as a function of altitude and time in order to avoid nosewheel lock-on and to eliminate ground reflections that may bounce off the gear.

The most probable cause for Radar Altimeter loss-of-lock was incorrect low-altitude receiver gain sensitivity settings. The Radar Altimeter units for OV-103 and OV-104 were returned to the vendor to test and readjust the low-altitude receiver gain sensitivity settings. The OV-104 units have been returned to service.

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IFA NUMBER> STS-26-V-19
TITLE:WSB System 1 GN2 Tank Leak (MER-19)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 273 : 15.50.34
IFA DATE: 09/29/1988
IFA STATUS: CLOSED : 12/16/1988
ELAPSED TIME: 000 : 00.13.34
PRACA STATUS: CLOSED : 1989-02-02
HOUSTON TIME: 10.50.34
PRCBD NUMBER: S44619
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
M	MMACS-05	P	CAR 26RF12

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: W. TUTHILL
2: M. SWARTZ

0 DESCRIPTION:
System 1 had a slow GN2 leak of approximately 0.85 psi/hr throughout the mission.
.
Planned Turnaround Action: Evaluate and Troubleshoot

- CLOSURE RATIONAL:
Water spray boiler 1 experienced a GN2 leak at a hardware component upstream of the N2 isolation valve. Based upon results of analysis, the unit may be repaired or removed and replaced.

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IFA NUMBER> STS-26-V-20
TITLE:Dedicated Display OPS 8 Checkout Discrepancies (MER-20)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 276 : 13.26.00
IFA DATE: 10/02/1988
IFA STATUS: CLOSED : 12/13/1988
ELAPSED TIME: 002 : 21.49.00
PRACA STATUS: CLOSED : 1989-06-12
HOUSTON TIME: 07.26.00
PRCBD NUMBER: S44620
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 29R-0015	M	GNC-03

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: E. DICKINSON
2:

0 DESCRIPTION:
During FCS checkout the CDR's dedicated displays showed minor discrepancies in readings as high as 20% on the ADI. Suspect LH units out of spec. Suggest using G & C OPS #8 intsead of OPS #9 of c/o.
.
Planned Turnaround Action: Evaluate and troubleshoot.

- CLOSURE RATIONAL:
The discrepancy occurred only in OPS 8 on-orbit checkout and was not evident during subsequent ground checkout. There was no evidence of any discrepancies during any of the in-flight operational modes.

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IFA NUMBER> STS-26-V-21
TITLE:DISCREPANCY OF 0.64 V BETWEEN FUEL CELL 2 AND MAIN BUS B

0 MISSION CONSTRAINT: SUBS
IFA STATUS: CLOSED : 12/13/1988
PRACA STATUS: UNKNOWN
PRCBD NUMBER: S44601
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
ELAPSED TIME: 000 : 00.00.00
HOUSTON TIME: 00.00.00
PHASE: PRE-LAUNCH

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR V070-3-07-023 P CAR KB0239-01
P CAR KB0451

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

0 DESCRIPTION:
During The Flight Readiness Firing (FRF) countdown, fuel cell 2 voltage (V45V0200A) was noted to be reading 0.64v (4 data bits) higher than main bus B voltage (V76V0200A).

- CLOSURE RATIONAL:
The telemetry portion of measurement V45V0200A is biased slightly high. This represents only a minor inconvenience for ground monitoring of fuel cell performance and does not violate launch commit criteria or compromise crew safety.

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IFA NUMBER> STS-26-V-22
TITLE:HYDRAULIC SYSTEM 2 GASEOUS NITROGEN ACCUMULATOR LEAKED

0 MISSION CONSTRAINT: SUBS
IFA STATUS: CLOSED : 12/16/1988
PRACA STATUS: UNKNOWN
PRCBD NUMBER: S44602
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
ELAPSED TIME: 000 : 00.00.00
HOUSTON TIME: 00.00.00
PHASE: PRE-LAUNCH

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
P CAR KB0239-01

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

0 DESCRIPTION:
The hydraulic system 2 bootstrap accumulator exhibited leakage before the Flight Readiness Firing (FRF). Two weeks prior to FRF, the system was recharged to 1740 psia; in those two weeks the pressure decreased

650 psia.

- CLOSURE RATIONAL:
The decay in the hydraulic system 2 GN2 accumulator pressure was most probably due to a leak in the accumulator piston asssembly. The hydraulic system 2 GN2 accumulator was removed and replaced.

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IFA NUMBER> STS-26-V-4A
TITLE:APU 3 EGT Transducer Erratic V46T0340A (MER-04A)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 273 : 14.37.00
IFA DATE: 09/29/1988
IFA STATUS: CLOSED : 01/18/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1988-11-07
HOUSTON TIME: 09.37.00
PRCBD NUMBER: S44604R1
PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	PV-6-111810	K	APU-3-08-0169
K	PR APU-0169	M	BSTR-02
M	MMACS-02	P	CAR 26RF07

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

0 DESCRIPTION:
At liftoff, the Auxiliary Power Unit (APU) number 3 Exhaust Gas temperature Number 2 measurement (V46T0340A) became erratic, cycling between 38 degrees F and 957 degrees F and failing at 44 degrees F. Postflight troubleshooting confirmed transducer failure.

- CLOSURE RATIONAL:
The transducer has been removed and replaced. Failure analysis will be tracked by CAR 26RF07. This is a criticality 3 measurement.

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IFA NUMBER> STS-26-V-4B
TITLE:RT SSME LH2 Inlet Pressure (V41P1300C) (MER-04B)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 273 : 15.45.00
IFA DATE: 09/29/1988
IFA STATUS: CLOSED : 01/18/1989
ELAPSED TIME: 000 : 00.08.00
PRACA STATUS: CLOSED : 1989-11-07
HOUSTON TIME: 10.45.00
PRCBD NUMBER: S44604R1
PHASE: ASCENT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	PV-6-119024	K	IPR 29R-0004
K	MPS-3-08-0656	M	BSTR-02
P	CAR 26RF20	P	26RF08
P	29V-0004		

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

0 DESCRIPTION:
The right SSME liquid hydrogen (LH2) inlet pressure measurement (V41P1300C) was erratic prior to SSME shutdown. At main engine cutoff (MECO), the measurement went to zero. Post flight troubleshooting confirmed transducer failure.

- CLOSURE RATIONAL:
The transducer has been removed and replaced. Failure analysis will be tracked by CAR 26RF20. This is a criticality 3 measurement.

```
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  IFA NUMBER> STS-26-V-4C
  TITLE:APU #1 EGT (V46T0142A) (MER-04C)

0 MISSION CONSTRAINT:            SUBS          IFA TIME GMT: 277 : 16.42.00
                                               IFA DATE:     10/03/1988
  IFA STATUS:   CLOSED    : 01/18/1989         ELAPSED TIME: 004 : 01.05.00
  PRACA STATUS: UNKNOWN                        HOUSTON TIME: 10.42.00
  PRCBD NUMBER: S44604R1                       PHASE:        POST LANDING
0 TYPE      TRACKING NUMBER          TYPE      TRACKING NUMBER
   A   PV-6-111509                     K   PR APU-0168
   M   BSTR-02                         M   MMACS-02
   P   26RF08
0 CLOSURE INITIATED BY:
  RESPONSIBLE MANAGERS 1: J. MILLER
                       2:
0 DESCRIPTION:
   Approximately 5 minutes after touchdown, the APU Number 1 Exhaust Gas
   Temperature Number 1 (V46T0142A) became erratic, cycling between 38
   degrees F and 950 degrees F.  Postflight troubleshooting confirmed
   transducer failure.

- CLOSURE RATIONAL:
   Failure analysis will be tracked on CAR 26RF08.  This is a criticality
   3 measurement.

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  IFA NUMBER> STS-26-V-4D
  TITLE:HYD SYS #1 "B" Supply Press-Biased (V58P0115A) (MER-04D)

0 MISSION CONSTRAINT:            SUBS          IFA TIME GMT: 276 : 16.59.00
                                               IFA DATE:     10/02/1988
  IFA STATUS:   CLOSED    : 01/18/1989         ELAPSED TIME: 003 : 01.22.00
  PRACA STATUS: CLOSED    : 1989-07-03         HOUSTON TIME: 10.59.00
  PRCBD NUMBER: S44604R1                       PHASE:        ON-ORBIT
0 TYPE      TRACKING NUMBER          TYPE      TRACKING NUMBER
   M   BSTR-02                         M   MMACS-02
   P   CAR 26RF18
0 CLOSURE INITIATED BY:
  RESPONSIBLE MANAGERS 1: J. MILLER
                       2:
0 DESCRIPTION:
   At 3:01:22 mission elapsed time, the hydraulic system number 1 "B"
   supply pressure (V58P0115A) was biased low by approximately 60 psia.

- CLOSURE RATIONAL:
   The low bias is within specification limits.  No corrective action is
   required.  This is a criticality 1R3 measurement.

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  IFA NUMBER> STS-26-V-4E
  TITLE:Circ Pump Press #3 (V58P0337A) - Biased (MER-04E)

0 MISSION CONSTRAINT:            SUBS          IFA TIME GMT: 273 : 14.37.00
                                               IFA DATE:     09/29/1988
  IFA STATUS:   CLOSED    : 01/18/1989         ELAPSED TIME: 000 : 00.00.00
```

PRACA STATUS: CLOSED : 1990-04-02 HOUSTON TIME: 09.37.00
PRCBD NUMBER: S44604R1 PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M MMACS-02 P CAR 26RF19
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. MILLER
2:
0 DESCRIPTION:
At T-1 hour prelaunch, the hydraulic system number 3 circulation pump pressure measurement (V58P0337A) was biased low by 80 psia a operating pressure.

- CLOSURE RATIONAL:
This bias is considered acceptable. No corrective actions is required. This is a criticality 3R3 measurement.

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IFA NUMBER> STS-26-V-4F
TITLE:SSME LH2 (V41P1200C) Erratic (MER-04F)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 273 : 15.37.00
IFA DATE: 09/29/1988
IFA STATUS: CLOSED : 01/18/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 10.37.00
PRCBD NUMBER: S44604R1 PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M MMACS-02 P 26RF21
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. MILLER
2:
0 DESCRIPTION:
Throughout the flight, the number 2 SSME LH2 inlet pressure measurement (V41P1200C) oscillated with a low bias of 3-5 psia.

- CLOSURE RATIONAL:
The bias and slight oscillation is considered acceptable. No corrective action is required. This is a criticality 1R3 measurement

1
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IFA NUMBER> STS-26-V-4G
TITLE:FREON LOOP 2 EVAP OUT TEMP V63T1407 DID NOT TRACK FREON LOOP 1 TDCR. (MER-04G)
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 273 : 15.40.00
IFA DATE: 09/29/1988
IFA STATUS: CLOSED : 01/18/1989 ELAPSED TIME: 000 : 00.03.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 10.40.00
PRCBD NUMBER: S44604R1 PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 29R-0012 K PR ECL-0512
M EECOM-04
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. MILLER
2:
0 DESCRIPTION:
At T+3 minutes, the Freon evaporator out temperature (V63T1407A) on Freon coolant loop number 2 lagged behind Freon coolant loop number 1 Freon evaporator out temperature (V63T1207A) by about 10 degrees F and about 5 seconds.

- CLOSURE RATIONAL:
Postflight troubleshooting confirmed a debonded sensor. The sensor has been removed and replaced. Failure analysis will be tracked by CAR 26RF10. This is a criticality 2R3 measurement.

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IFA NUMBER> STS-26-V-4H
TITLE:ET LH2 98% liquid level sensor flashing (T41X1716E) (MER-04H)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 273 : 15.38.10
IFA DATE: 09/29/1988
IFA STATUS: CLOSED : 01/18/1989
ELAPSED TIME: 000 : 00.01.10
PRACA STATUS: CLOSED : 1989-06-27
HOUSTON TIME: 10.38.10
PRCBD NUMBER: S44604R1
PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
C CHIT J2797 P CAR 26RF14
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. MILLER
2:
0 DESCRIPTION:
The 98% (#2) LH2 Level sensor reading changed from dry to wet at approximately 70 sec after T-0 and read intermittenly between wet and dry until about T+130 seconds.

- CLOSURE RATIONAL:
Troubleshooting has been completed, no anomaly detected in orbiter system, and the problem is under evaluation. There was no impact to the flight. This is a criticality 3R3 measurement.

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IFA NUMBER> STS-26-V-17A
TITLE:Government Furnished Equipment (MER-17A)
Video Casette Tapes Jammed (4 tapes)
0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE: 09/30/1988
IFA STATUS: CLOSED : 01/11/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44617A
PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M INCO-08
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: F. MCALLISTER
2:
0 DESCRIPTION:
Four tapes jammed in VCR, one required cutting tape to effect removal.
.
Planned Turnaround Action: JSC review and evaluate.

- CLOSURE RATIONAL:
The most likely cause is unwinding of the tape due to zero-g, which has occurred in past flight, or removal of the tape in less than 10 seconds after stopping the tape.

For STS-27, the crew must tension the tape by hand before inserting it into the VCR. For subsequent flight, it is recommended that an existing tape tension holder be installled on each tape prior to flight.

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IFA NUMBER> STS-26-V-17B
TITLE:Government Furnished Equipment (MER-17B)
Vacuum Cleaner Flapper Failed Open
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 09/30/1988
IFA STATUS: CLOSED : 01/11/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44617B PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* ********NONE FOUND******* * ********NONE FOUND*******
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: F. MCALLISTER
2:
0 DESCRIPTION:
Vacuum cleaner flapper would not close, rendering vacuum cleaner unusable.
.
Planned Turnaround Action: JSC review and evaluate.

- CLOSURE RATIONAL:
The vacuum cleaner flapper did not close properly. The most probable cause was the age of the rubber flapper.

Inventory will be checked, and the vacuum cleaner with the best flapper will be flown on STS-27. New flappers have been ordered and if they do not solve the problem, a new flapper design will be considered and a workaround crew procedure will be furnished.

1

IFA NUMBER> STS-26-V-17C
TITLE:Government Furnished Equipment (MER-17C)
Seat Back would not fold with parachutes attached.
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 09/30/1988
IFA STATUS: CLOSED : 01/11/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44617C PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* ********NONE FOUND******* * ********NONE FOUND*******
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: F. MCALLISTER
2:
0 DESCRIPTION:
Planned Turnaround Action: JSC review and evaluate

- CLOSURE RATIONAL:
The seats did not hold because the back rests were in the launch position when the crew attempted to store them.

The correct procedure will be provided for stowing seats with parachutes attached to crew training personnel for training of subsequent crews.

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IFA NUMBER> STS-26-V-17D
TITLE:Government Furnished Equipment (MER-17D)
ORB AFT Fuselage Gas Sampling System.
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 09/30/1988

IFA STATUS: CLOSED : 01/11/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44617D PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* ********NONE FOUND******* * ********NONE FOUND*******
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: F. MC ALLISTER
2:
0 DESCRIPTION:
PYROS in LH 2nd and 3rd bottle did not fire.
Valve on LH 1st bottle did not close
RH 2nd bottle leaked up to atmos.
.
Planned Turnaround Action: JSC review and evaluate.

- CLOSURE RATIONAL:
The left side electronics assembly, cables, and battery box have been removed from the Orbiter and underwent 3-axis vibration and acoustical testing at flight levels (using new battery packs), but the anomaly could not be duplicated. The electronics assembly is being disassembled for further testing.

The most probable cause of the left aft fuselage gas sampler system failure is an intemittent connection in the electronics assembly.

The left aft fuselage gas sampler system will be replaced with a spare unit.

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STS-026(OV-103,FLT #7)OFFICIAL INFLIGHT ANOMALY REPORT 07/07/94
PAGE 1
IFA NUMBER> STS-26-V-17E
TITLE:Government Furnished Equipment (MER-17E)
Dossimeter Reads High
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 09/29/1988
IFA STATUS: CLOSED : 01/11/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44617E PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* ********NONE FOUND******* * ********NONE FOUND*******
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: F. MC ALLISTER
2:
0 DESCRIPTION:
One dossimeter read unusually high. This is considered a common failure to this part. They are off the shelf items, some quite old. Spares redily available.

- CLOSURE RATIONAL:
The most probable cause of the high dosimeter reading is the age of the dosimeter. This is a common failure mode of old dosimeters.

The dosimeter will be replaced with an off-the-shelf spare.

1
STS-026(OV-103,FLT #7)OFFICIAL INFLIGHT ANOMALY REPORT 07/07/94
PAGE 1
IFA NUMBER> STS-26-V-18A
TITLE:Contractor Furnished Equipment (MER-18A)
Fwd Port Floodlight Failed Off
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 09/30/1988

```
  IFA STATUS:    CLOSED    : 01/11/1989        ELAPSED TIME: 000 : 00.00.00
  PRACA STATUS: UNKNOWN                        HOUSTON TIME: 00.00.00
  PRCBD NUMBER: S44618A                        PHASE:        ON-ORBIT
0 TYPE       TRACKING NUMBER          TYPE       TRACKING NUMBER
   K    IPR 29R-0034                    K    PR DDC-0050
0 CLOSURE INITIATED BY:
  RESPONSIBLE MANAGERS 1: F. MCALLISTER
                       2:
0 DESCRIPTION:
   Crew reported forward port floodlight was failed off
   .
   Planned Turnaround Action:  Remove and replace
   .
   PR DDC-0050

- CLOSURE RATIONAL:
   The cause for the forward port floodlight failure is unknown, pending
   failure analysis.  The forward port floodlight was removed and replaced.

1
         STS-026(OV-103,FLT #7  )OFFICIAL INFLIGHT ANOMALY REPORT      07/07/94
                                                                       PAGE   1
  IFA NUMBER> STS-26-V-18B
  TITLE:Contractor Furnished Equipment (MER-18B)
        FWD Bulkhead Floodlight Failed, Flickering
0 MISSION CONSTRAINT:            SUBS        IFA TIME GMT: 000 : 00.00.00
                                             IFA DATE:     09/30/1988
  IFA STATUS:    CLOSED    : 01/11/1989        ELAPSED TIME: 000 : 00.00.00
  PRACA STATUS: UNKNOWN                        HOUSTON TIME: 00.00.00
  PRCBD NUMBER: S44618B                        PHASE:        ON-ORBIT
0 TYPE       TRACKING NUMBER          TYPE       TRACKING NUMBER
   C    CHIT 32846                      K    IPR 29R-0034
0 CLOSURE INITIATED BY:
  RESPONSIBLE MANAGERS 1: F. MCALLISTER
                       2:
0 DESCRIPTION:
   Crew reported forward bulkhead floodlight was flickering at low
   intensities.
   .
   Planned Turnaround Action:  Remove and replace.
   .
   CHIT 32846

- CLOSURE RATIONAL:
   Flickering of floodlights is expected and normal for up to 15 minutes
   following activation if the floodlight has been used previously, and up
   to 5 minutes following a cold start.  The floodlight was used previously
   that day and was then activated for approximately 15 minutes during
   payload bay door closing operations before being turned off.  This
   occurrence is therefore considered to be nominal.

-JFDPO12: NORMAL TERMINATION OF PROCESSING
```

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STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 1

IFA NUMBER> STS-27-B-01
TITLE:Fragments of the Epon Shoe Shim were torn loose in varying degrees from Aft Skirt Posts 3, 4, 7, & 8.
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 12/02/1988
IFA STATUS: CLOSED : 01/27/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-01-27 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44776 PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A11928
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: W. MANN/EE11
2:
0 DESCRIPTION:
The clean bright surface is typical of water impact damage.
This problem is considered to be a refurb/reuse issue and has occurred on several other flights but never treated as an IFA.
.
No corrective action required.
Problem Report was presented at the Lv II Noon PRCB on 1/27/89.
(PRCBD # S44756).
.
Closed in MFSC PRACA on 1/27/89.
.
Status: Closed

- CLOSURE RATIONALE:
The Epon shims performed their function. Loss of Epon shim material occurred a water impact.

1

STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 2

IFA NUMBER> STS-27-B-02
TITLE:The right SRB nose cap MSA-1 material/debris has been associated with the damage to the orbiter tiles.
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 12/06/1988
IFA STATUS: CLOSED : 01/27/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-01-31 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44757 PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A11970
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: W. MANN/EE11
2:
0 DESCRIPTION:
The MSA-1 ablative material has weaker bonding/adhesive characteristics than the planned use of MSA-2 on the nosecaps for STS-29 and subsequent flights. The pull strength is improved to 40 PSI (30 PSI for MSA-1) and 33 percent increase of adhesion is realized by using MSA-2.
.
Problem report presented to LV II noon PRCB on 1/27/89.
(PRCBD# S44757).
.
Closed in the MSFC PRACA on 1/31/89.
.

Status: Closed.

- CLOSURE RATIONALE:
The use of MSA-2 in place of MSA-1 should preclude the loss of nose cap TPS.

1
STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 3

IFA NUMBER> STS-27-B-03
TITLE:The water impact shock levels exceeded qualification levels on the Left SRB TVC lower frame.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE: 12/06/1988
IFA STATUS: CLOSED : 03/01/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-03-02
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44776
PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12061

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

0 DESCRIPTION:
Postflight evaluation of DFI data surfaced the water impact shock levels as excessive. Water impact is a stress not a fatigue environment; Therefore, post-flight inspections will detect failures caused by this environment. The lower frames for STS-29 are new and certified for single mission use. No corrective action is deemed necessary. DFI will be deleted on STS-30R and subs.
.
Flight Problem Report presented to Lv. II Noon PRCB on 3/1/89. (PRCBD# S44776).
.
Closed in the MSFC PRACA on 3/1/89.
.
Status: Closed

- CLOSURE RATIONALE:
The TVC lower frames installed on STS-29 are new and certified for single mission use. The Hydraulic Reservoirs are the only lower frame LRUs being reflown on STS-29. The refurbishment procedures assure these LRUs will meet flight requirements.

1
STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 4

IFA NUMBER> STS-27-E-01
TITLE:The ME-3, S/N 2029, HPFT discharge temperature sensor Channel A failed high at 277 seconds.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 337 : 14.35.00
IFA DATE: 12/02/1988
IFA STATUS: CLOSED : 03/01/1989
ELAPSED TIME: 000 : 00.04.26
PRACA STATUS: UNKNOWN
HOUSTON TIME: 08.35.00
PRCBD NUMBER: S44776C
PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A UCR A012919 M BSTR-02

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: L. GRANT/EE21
2:

0 DESCRIPTION:
The sensor will be removed and retuned for failure analysis.
.
The inspection revealed a suspect area (resembling a fracture) located on the 0.7 mm platinum element wire. Pull tests of the element wire

proved to be inconclusive. There is no evidence of a generic condition and the probability of failure is extremely low.

.

MSFC PRACA Tracking Number: A11901

.

Closed at the SSME Level III PRB and in the MSFC PRACA system on 2/17/89.

.

Flight Problem Report presented to Lv.II Noon PRCB on 3/1/89. (PRCBD# S44776C).

.

Status: Closed

- CLOSURE RATIONALE:
Failure cause unknown. The UCR has been closed by the SSME project. The SSME Project recommends accepting this condition based on a low probability of occurrence.

1

STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 5

IFA NUMBER> STS-27-E-02
TITLE:MCC fuel injection pressure did not respond to power level changes during thrust bucket on ME-2 (engine 2030)
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 12/02/1988
IFA STATUS: CLOSED : 03/01/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44776B PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A UCR A010322
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: L. GRANT/EE21
2:
0 DESCRIPTION:
Moisture from combustion products froze in transducer sense line. Plan to dry sense line during turnaround processing.

.

The MCC fuel injector pressure is used for engineering evaluation only

.

This problem is considered a maintenance parameter instrumentation anomaly.

.

MSFC PRACA Tracking Number: A11976

.

Closed at Level III SSME PRB and in MSFC PRACA system on 2/16/89.

.

Flight Problem Report presented to Lv.II Noon PRCB on 3/1/89. (PRCBD# S44776B).

.

Status: Closed

- CLOSURE RATIONALE:
This measurement is a maintenance parameter only and is not used for engine control or redline protection. No corrective action is required.

1

STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-27-E-03
TITLE:During borescope inspection of ME-3 (S/N 2029), a crack of approximately 0.005" to 0.010" was detected at bearing #3 on the inner
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00

IFA DATE: 12/06/1988
IFA STATUS: CLOSED : 03/01/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-04-12
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44776A
PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A11925 A A11989
A EPC-1046 A 012922
A 021490

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. MOORHEAD/EE21
2:

0 DESCRIPTION:
Analysis indictes that stress corrosion may have initiated during the pump assembly and induced this anomalous condition. Examination has also revealed 3 very small cracks on the #4 bearing inner race. Data analysis indicated 3 to 6 G's synchronous vibration during mainstage on this same engine and is considered a result of the forementioned cracks.
.
A revised and approved HPOTP assembly process has been implemented and 3 pumps are undergoing green run testing to qualify for flight on the STS-29 engines.
.
Contractor Tracking Number: UCR A012922 and A021490.
.
MSFC PRACA Tracking Numbers: A11925 and A11989.
.
Deferred for STS-29 in MFSC PRACA. The problem was subsequently closed in the MSFC PRACA System for STS-30R and subs on 04/07/89. Closure based upon the approval of ECP-1046.
.
Flight Problem Report was presented to Level II Noon PRCB on 3/1/89. (PRCBD #S44776A)
.
Status: Closed

- CLOSURE RATIONALE:
Moisture trapped in the bearing during fabrication resulted in a stress corrosion crack which was accelerated by the presence of a choride contaminant. HPOTP fabrication process revised per ECP-1046. All HPOTP's for STS-29R were replaced with units built using the new fabrication procedure defined in ECP-1046

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STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 7

IFA NUMBER> STS-27-I-01
TITLE:Debris at SRB SEP

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 337 : 14.37.40
IFA DATE: 12/02/1988
IFA STATUS: CLOSED : 03/10/1989
ELAPSED TIME: 000 : 00.07.06
PRACA STATUS: UNKNOWN
HOUSTON TIME: 08.37.40
PRCBD NUMBER: S44776H
PHASE: ASCENT

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

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

0 DESCRIPTION:
The flight control team has been alerted that the RMS may be used to perform a starboard side orbiter tile survey to check for possible damage due to SRB debris during ascent.

.
Removed from the MER board on 12/6/88.
.
Flight Problem report presented to Level II noon PRCB on 3/10/89.
(PRCBD # S44776H).
.
Status: Closed

- CLOSURE RATIONALE:
After SRB separation, at T+130 seconds, two large white particles (4' - 6') were noted traveling across and away from the right hand SRB. This event was recorded on video from tracking camera from Cocoa Beach, Patrick Air Force Base and Melborne Beach. Analysis personnel from JSC provide a two-dimensional tracking assessment of these particles which places their origin at the left hand SRM nozzle. These particles are believed to be "slag" residue falling out of the motor which is a common occurrence. Review of STS-26 video shows positively that numerous particles of this size and color do exit the SRM after separation.

1
STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-27-I-02
TITLE:Telemetry Dropouts

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 337 : 14.33.00
IFA DATE: 12/02/1988
IFA STATUS: CLOSED : 10/20/1989 ELAPSED TIME: 000 : 00.02.26
PRACA STATUS: UNKNOWN HOUSTON TIME: 08.33.00
PRCBD NUMBER: S44776J PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M STDN-01
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: K. SLATTERY
2:
0 DESCRIPTION:
Intermittent loss of TLM during first 3 minutes of ascent
.
Impact: Intermittent loss of TLM
.
Resolution: Found that the GSFC-JSC MDM was overloaded due to DFRF having site data enabled. (Configuration Error) - Recovered by disable of DFRF site data.
.
Removed from the MER Board on 12/3/88.
.
Status: Closed - Standard SRB plume effects and too many station lines enabled.
.
KSC reports losing approximately seven minutes of telemetry post MECO
.
Flight Problem report approved at Lv. II Noon PRCB on 10/20/89.
(PRCBD #S44776J)
.
Status: Closed

1
STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-27-I-03
TITLE:LSEAT Dispersion Analysis

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

IFA DATE: 12/02/1988
IFA STATUS: CLOSED : 01/27/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44758 PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* ********NONE FOUND******* * ********NONE FOUND*******
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:
0 DESCRIPTION:
Wing leading edge (A1B) glitch in program - gave No Go.
.
LCC waiver LW-009 approved to violate LSEAT conditions.
.
Flight problem report approved at LV. II noon PRCB on 1/27/89.
(PRCBD #S44758)
.
Status: Closed

- CLOSURE RATIONALE:
Post-flight analysis of the problem revealed that the value displayed could occur from any indicator and that the corrected value could sometimes be higher. These results show that for the final decision balloon (7:15 est release) only the wing leading edge value was incorrect. However the earlier balloon release contained two indicators which were incorrectly reported low by five to seven percent on two indicators.

Action should be taken to correct this problem for the subsequent LSEAT analysis.

1
STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-27-K-01
TITLE:ET nose cone temp below 45 degr for 15 min

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 12/02/1988
IFA STATUS: CLOSED : 03/09/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44776D PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 27RV-0487
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:
0 DESCRIPTION:
Not an inst problem. LCC waiver LW-007 approved limit change to 40 deg F this flight attempt due to low moisture in air and, thus, low probability of ice formation. Closed as an explained condition.
.
LCC waiver (Directive S81304D) LW-007 approved to change lower limit to 40 deg F for this launch attempt only.
.
Flight Problem Report scheduled for Level II noon PRCB on 3/9/89. (PRCBD #S44776D). Report not reviewed due to time constraint. Directive will be signed out of board.
.
Status: Closed

1

IFA NUMBER> STS-27-K-02
TITLE:INTG console crashed during T-9 hold.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 337 : 14.21.00
IFA DATE: 12/02/1988
IFA STATUS: CLOSED : 03/09/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 08.21.00
PRCBD NUMBER: S44776E
PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	IV-6-012289	K	IPR 27RV-0493

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

0 DESCRIPTION:
Duplicate of CR3-2947. Closed as a duplicate. CR3-2947 still open as of 2/13/89.
.
Flight Problem Report scheduled for LV II noon PRCB 3/9/89. (PRCBD #S44776E). Report not reviewed due to time constraint. Directive will be signed out of board.
.
Status: Closed

- CLOSURE RATIONALE:
Troubleshooting continues on this console and will continue until the problem is resolved or an unexplained anomaly is deemed necessary.

1

IFA NUMBER> STS-27-K-03
TITLE:LO2 pumps, A126 and A127, bearing temperature lower limit exceedances

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE: 12/02/1988
IFA STATUS: CLOSED : 03/09/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44776F
PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 27RV-0476	K	S72-0813-00-002-0180

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

0 DESCRIPTION:
Pump A126 exceeded limit during 1st attempt; switched to back-up pump A127. Pump A127 exceeded limit during 2nd launch attempt; switched back to pump A126.
.
Measurements GLOT6228A (pump A126) and Glot7228a (pump A127) have a range of -4 to 212 deg F. As an operational policy KSC does not want to operate a pump with bearings colder than -4 deg F because of loss of temperature visibility. There is a concern about bearing oil below -40 deg F. Pump bearings were cooling down about 15 deg F per hour.
.
LOX Flow Pump testing scheduled on 12/16/88.
.
KSC Tracking numbers: IV-6-012251; PV-6-115864.
.
Flight Problem Report scheduled for Level II noon PRCB on 3/9/89. (PRCBD #S44776F). Report not reviewed due to time constraint. Directive will be signed out of board.
.

Status: Closed

- CLOSURE RATIONALE:
The low radial bearing temperature was caused by excessive LO2 leakage past the carbon seal. The carbon seal and rotating seal face have been replaced on both pumps and successfully retested. Properly functioning seals will eliminate the low bearing temperature problem from all missions.

1

IFA NUMBER> STS-27-K-04
TITLE:Left Main Landing Gear Valve Caps

0 MISSION CONSTRAINT: SUBS
IFA STATUS: CLOSED : 03/09/1989
PRACA STATUS: UNKNOWN
PRCBD NUMBER: S44776F
IFA TIME GMT: 000 : 00.00.00
IFA DATE: 12/06/1988
ELAPSED TIME: 000 : 00.00.00
HOUSTON TIME: 00.00.00
PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K GIDEP ALERT R4-A-85-05

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

0 DESCRIPTION:
Left MLG Valve Caps are of the outdated design. The right MLG valve caps were of the new design.
.
Flight Problem report scheduled for Level II noon PRCB on 3/9/89. (PRCBD #S44776G). Report not reviewed due to time constraint. Directive will be signed out of board.
.
Status: Closed

- CLOSURE RATIONALE:
Permanent deviations to the wheel buildup WAD's and the wheel installation WADs give detailed information on how to inspect the valve caps, and include steps to route all suspect valve caps to logistics for scrap. The strut valve caps will be inspected as the struts are pressurized for flight. The wheel asembly valve caps will be inspected at several points during the buildup of the assembly as well as after flight installation on an orbiter.

1

IFA NUMBER> STS-27-M-01
TITLE:Some heat damage and charring was evidenced by discoloration at two locations of both igniter heaters.

0 MISSION CONSTRAINT: SUBS
IFA STATUS: CLOSED : 01/20/1989
PRACA STATUS: UNKNOWN
PRCBD NUMBER: S44751
IFA TIME GMT: 000 : 00.00.00
IFA DATE: 12/06/1988
ELAPSED TIME: 000 : 00.00.00
HOUSTON TIME: 00.00.00
PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A DR4-5/126 A 11907

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: L. HANKS/EE51
2:

0 DESCRIPTION:
This problem appears to be the result of improperly routing Resistance Temperature Detector (RTD) wires under the igniter heaters of both

SRMs. No degradation of heater performance resulted from this condition. The installation sequence will be modified to ensure proper routing of wires on STS-29. DFI will be eliminated on STS-30 and subs.

.

MSFC PRACA Tracking Number: A11907.

.

MSFC has deferred closure of this IFA for STS-29. The problem was subsequently closed for STS-30R and subs on 4/10/89, upon the approval of ECP-1921.

.

Problem Report was presented to the LV II noon PRCB on 1/20/89. (PRCBD # S44751)

.

Status: Closed

- CLOSURE RATIONALE:
RSRM-3 (STS-29 A & B) RTD wiring routed on Igniter Flanges was removed, heaters were installed and RTD wiring reinstalled over the heaters. FEC RSRM-045 has been incorporated as corrective action.

1

STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-27-M-02
TITLE:A small unbonded area (approx 3 1/2" x 3 1/2") of cork just above the buckle on the Kevlar band was found missing during the post-
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 12/06/1988
IFA STATUS: CLOSED : 01/20/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44752 PHASE: POST LANDING

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	DR4-5/127	A	11908

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: L. HANKS/EE51
2:

0 DESCRIPTION:
Observations indicate the cork came off during flight due to the noticeable presence of soot in this area.
During ascent, trapped air expansion within the void acted to initiate bondline failure between the EPDM moisture seal and overlying JPS extruded cork, resulting in the cork debris loss.

.

Corrective Action: To implement a JPS repair procedure where by JPS extruded cork is drilled with holes in several loactions patterned to vent possible voids.

.

MSFC PRACA Tracking Number: A11908

.

This problem was closed in the MSFC PRACA system for STS-33R and subs on 11/1/89, upon approval of ECP 2047R2.

.

Problem report was reviewed at the Level II Noon PRCB on 1/20/89. (PRCBD #S44752)

.

Status: Closed

- CLOSURE RATIONALE:
Will implemnet a JPS repair procedure whereby JPS Extruded cork is drilled with holes in several locations patterned to vent possible voids.

1

STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-27-M-03
TITLE:Bolts were bent on the right SRM (0-90 degrees quadrant) at Nozzle Joint 1 of Exit Cone

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE: 12/06/1988
IFA STATUS: CLOSED : 01/20/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-02-17
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44753
PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A11910 A DR4-5/128

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: B. POWERS/EE51
2:

0 DESCRIPTION:
Investigation concluded that during splash down the loading on the bolts caused them to bend and flattened the theads. This is the first recorded instance of nozzle bolt damage in flight hardware. The bolts are expected to remain straight and withstand specified water impact loads. The damage appears to be random occurrence and no corrective action is planned at this time.
.
MSFC PRACA Tracking Number: A11910
.
IFA closed at the Level III SRM PRB on 2/13/89.
.
Closed in MSFC PRACA on 2/13/89.
.
Problem report was reviewed at the LV II noon PRCB on 1/20/89. (PRCBD # S44753).
.
Status: Closed.

- CLOSURE RATIONALE:
No corrective action is planned at this time. Results of future flight hardware inspections will be closely monitored to track any recurrence. Exit cone bolts are non-reusable hardware. There is a low probability that splashdown water impact damage of this sort may recur in the future.

1

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IFA NUMBER> STS-27-M-04
TITLE:Small amounts of seawater were found in the moisture seal on 5 of 6 Field Joints.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE: 12/06/1988
IFA STATUS: CLOSED : 01/20/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-07-24
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44754
PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A11924 A DR4-5/130

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: L. HANKS/EE51
2:

0 DESCRIPTION:
The maximum amount of seawater found in one field joint was 900 ml. Seawater leakage through the vent valves was greatly reduced in volume (compared to STS-26R) but only slightly in the number of affected field joints. Vent valve design changes are in work to

incorporate a fine mesh screen cover which should prevent entry of cork debris.

.

Problem Report was reviewed at the LV II noon PRCB on 1/20/89. (PRCBD # S44754)

.

MSFC PRACA Tracking Number: A11924.

.

MSFC has deferred closure of this IFA for STS-29. Deferred for STS-30R, STS-28R, and STS-34 based upon the approval of ECP-1173.

.

The problem was closed in the MSFC PRACA system for STS-28R and subs on 7/24/89. Closure was based on the fact that moisture is precluded from entering the moisture seal prior to flight, that moisture found under the moisture seal during postflight inspection is not a concern, and that NASA approved corrective actions (ECS SS2458) have been implemented.

.

Status: Closed

- CLOSURE RATIONALE:

Closure of the STS-29 and subsequent flight vent valves will be verified prior to roll-out. Vent valve design changes are in work to incorporate a fine mesh screen cover, denying entrance to cork debris.

1

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IFA NUMBER> STS-27-M-05
TITLE:The "capture feature" surfaces of the SRM Field Joints encountered gouges, pits and/or scratches.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE: 12/06/1988
IFA STATUS: CLOSED : 01/20/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-05-14
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44755
PHASE: POST LANDING

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	A11920	A	DR4-5/131

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: M. ROSS/EE51
2:

0 DESCRIPTION:

This problem is a recurrence from STS 26R. No scratches or damage found in any sealing surface. The fretting is similar to that of STS-26R but a little worse. The largest gouge is of 350 ml. on the right center joint. The problem is a refurb/reuse issue with no flight safety effects.

.

MSFC PRACA Tracking Number: A11920.

.

This problem has been closed in the MSFC PRACA system for STS-41 and subs on 5/14/90 and will be tracked at LV III under IFA STS-26-M-3.

.

Problem Report was presented to the Level II Noon PRCB on 1/20/89. (PRCBD #S44755)

.

Status: Closed

- CLOSURE RATIONALE:

Continue with postflight refurbishment activity of hand removal of all burrs and smoothing of any raised metal on both capture feature component surfaces. Continue subscale modelling/testing activities and joint surface lubrication studies.

1
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IFA NUMBER> STS-27-M-06
TITLE:Water was found dripping from under both Forward Center segment's Factory Joint Weather Seals during postflight inspections at KSC.
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 12/06/1988
IFA STATUS: CLOSED : 03/01/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-07-24 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44725 PHASE: POST LANDING

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	A11999	A	DR4-5/134
A	ECS-1720	A	ECS-2787

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: L. HANKS/EE51
2:

0 DESCRIPTION:
The Factory Joints have corroded somewhat due to the presence of seawater most likely ingested during towback. Unlike the Field Joints which are heavily greased, the Factory Joints have a very thin layer of grease and in some areas, such as the "hatband" of the clevis outer leg, is completely ungreased. The Factory Joints are not disassembled for several weeks after recovery. Dissection of the weatherseal clearly indicated a water path along the DFI and Thermocouple wires which are routed between the weatherseal and the case.
.
MSFC PRACA Tracking Number: A11999
.
Deferred in MSFC PRACA FOR STS-29, 30R, and 28R.
.
The problem was closed in the MSFC PRACA system for STS-28R and subs on 7/24/89. Closure was based on Engineering Change Summary (ECS) #SS-2787 and #SS-1720.
.
Flight Problem Report presented to LV. II Noon PRCB on 3/1/89. (PRCBD #S44725)
.
Status: Closed

- CLOSURE RATIONALE:
MTI has submitted planning to closeout RSRM thermocouple wire exit points using K5NA coated with Hypalon paint (effective 360L005 thru 360L008) and planning to remove insulation cure thermocouples from the factory joint weatherseal layup operation (effective 360L009). DFI is deleted from 360L004 and subsequent (except 360L004 aft). Planning is also submitted to prevent corrosion by pointing the bare metal surface under the "hatband" (effective 300L0010 or 360L0011). MTI ECS No. SS-2787, MTI ECS No. SS 1720 and MTI ECP No. 1958 have been submitted.

1
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IFA NUMBER> STS-27-M-07
TITLE:Postflight data anlysis indicated a "rise rate" delay in the igniter pressure reading from the Left SRM.
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 12/06/1988
IFA STATUS: CLOSED : 03/01/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44726 PHASE: POST LANDING

```
0 TYPE      TRACKING NUMBER          TYPE      TRACKING NUMBER
   A   DR4-5/135
0 CLOSURE INITIATED BY:
  RESPONSIBLE MANAGERS 1: J. TRENKLE/EE51
                       2:
0 DESCRIPTION:
   CEI ignition specifications were met, but the in-house spec
   (STW3-3176) was not.  STW-3176 requirements specify the igniter
   pressure should be 700 psi at 0.398 s but was measured as 696 psi.
   Further evaluation revealed that the data acquisition rate of 320
   samples/sec was inadequate for a valid conclusion.  When the
   parameter is analyzed at 2000 samples/sec, the data plot remains
   within all requirement specification limits.  The igniter pressure
   performance was acceptable.
   .
   Closed in the MFSC PRACA system.
   .
   Flight Problem Report presented to Lv.II Noon PRCB on 3/1/89.
   (PRCBD# S44726).
   .
   Status:  Closed.

- CLOSURE RATIONALE:
   All existing data/evidence indicates that the timing anomaly resulted
   from an inappropriate data reduction sampling rate and is not basis for
   a flight safety issue.  Use of 2000 smpl/sec igniter pressure data
   resolves the original anomaly.

1
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  IFA NUMBER> STS-27-V-02
  TITLE:Left ET umbilical door ready to latch indicator #2 (V56X3542X)
        indicated OFF/should be ON.
0 MISSION CONSTRAINT:            SUBS          IFA TIME GMT: 337 : 14.48.00
                                               IFA DATE:     12/02/1988
  IFA STATUS:   CLOSED    : 03/28/1989         ELAPSED TIME: 000 : 00.17.26
  PRACA STATUS: CLOSED    : 1990-10-01         HOUSTON TIME: 08.48.00
  PRCBD NUMBER: S44702                         PHASE:        PRE-LAUNCH
0 TYPE      TRACKING NUMBER          TYPE      TRACKING NUMBER
   K   IPR 30RV-0035                  K   PR EPD-4-04-0546
   M   MMACS-03                      P   CAR 27RF02
0 CLOSURE INITIATED BY:
  RESPONSIBLE MANAGERS 1: J. GUTHERY
                       2:
0 DESCRIPTION:
   During closure of the external tank (ET) doors.  The left umbilical
   door ready-to-latch indicator 2 (V56X3542X) indicated "off" when it
   should have indicated "on".  Correct indications were recieved for
   latches 1 and 3 and the door latched normally.  Testing at KSC
   reporduced the failure.  Upon inspection, a broken connector was
   found, the shell over the electrical wires was broken between the
   motor control assemble and the latch mechanism.  Two bare wires were
   exposed which later shorted and blew the associated fuses.
   .
   Conclusions:  The left ET umbilical door ready-to-latch indicator 2
   failed due to a broken connector which caused a subsequent short and
   blown fuses.
   .
   Corrective Action:  The broken connector has been removed and replaced
   F/A will be tracked by CAR 27RF02.  Criticality 3/3.
   .
   KSC Tracking Numbers:  IV-6-012448; PV-6-118594.
```

.
CAR Status: CAR has explained problem closeout for OV-104, flt. 5 (STS-34); OV-103, flt. 9 (STS-33); OV-102, flt. 9 (STS-32). Closeout rationale issued on 6/26/90, CAR closed on 6/27/90.
.
Flight Problem Report presented to Level II Noon PRCB on 3/28/89. (PRCBD #S44702)
.
Status: Closed
- CLOSURE RATIONALE:
The left ET umbilical door ready-to-latch indicator 2 failed due to a broken connctor backshell resulting in damaged wires which caused a subsequent short and blown fuses. The most probable sources of damage to the connector backshell are high traffic in the area and proximity to platforms

The broken connector backshell was removed and replaced. The damaged
1
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IFA NUMBER> STS-27-V-02
TITLE:Left ET umbilical door ready to latch indicator #2 (V56X3542X) indicated OFF/should be ON.
0 CLOSURE RATIONALE:(Continued from previous page).
wires were repaired and Rockwell has been directed to change all straight backshells on these connectors on all three vehicles to 90 degree backshells. A building 45 request requiring inspection of the aft ready-to-latch connectors during the aft area closeout on the pad has been processed for STS-29 and STS-30. An RCN will be processed for all flight between STS-30 and the implementation of a design change.
1
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IFA NUMBER> STS-27-V-03
TITLE:LH2 Topping valve (PV13) showed simultaneous open/closed indications during dump and vacuum inert.
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 337 : 14.42.00
IFA DATE: 12/02/1988
IFA STATUS: CLOSED : 03/01/1989 ELAPSED TIME: 000 : 00.11.26
PRACA STATUS: CLOSED : 1992-07-06 HOUSTON TIME: 08.42.00
PRCBD NUMBER: S44703 PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 30RV-0027 K PR MPS-4-04-0449
M BSTR-01,03 P CAR 27RF03
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MC MILLAN
2:
0 DESCRIPTION:
The MPS topping valve closed indication microswitch (41X1456X) indicated closed when the valve was powered open and the open indication (V41X1453E) indicated open during MPS dump. When open power was removed, both indications stayed on. When the valve was manually powered open during vacuum inert, both indications stayed on. when the switch removed power at the end of vacuum inert, the open indication was lost and only a closed indication remained. (the correct position).
.
Corrective Action: KSC troubleshooting per PR, did not repeat problem Valve removed and replaced. OV103 monitor during ground servicing. Closed. Criticallity 3/3.
.
KSC Tracking Numbers: IV-6-012333; PV-6-117348.
.

CAR Status: Closed on 6/25/90. Additional information provided on 8/13/90. Closure recinded, explained problem closeout issued for OV-102, flt# 11(STS-40), OV-103, flt# 12(STS-39), and OV-104, flt# 8 (STS-37) on 1/ 4/91.

.

Flight Problem Report presented to the Lv.II Noon PRCB on 3/1/89. (PRCBD # S44703).

.

Status: Closed

- CLOSURE RATIONALE:
The MPS LH2 topping valve functioned normally during the entire mission. The simultaneous open and closed indications of the valve were most probably the result of a lack of the position-indicator microswitches to functions properly under cryogenic condition. The MPS LH2 topping va lve was removed and returned to the vendor.

1

IFA NUMBER> STS-27-V-04
TITLE:APU #2 GG heater system malfunction

0 MISSION CONSTRAINT: SUBS

IFA TIME GMT: 337 : 21.35.00
IFA DATE: 12/02/1988
IFA STATUS: CLOSED : 03/08/1989
ELAPSED TIME: 000 : 07.04.26
PRACA STATUS: CLOSED : 1989-03-08
HOUSTON TIME: 15.35.00
PRCBD NUMBER: S44704A
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 30RV-0030	K	PR EPD-4-04-0551
M	MMACS-05	P	CAR 27RF07

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MC MILLAN
2:

0 DESCRIPTION:
APU 2 GG Bed heater system A failed to respond when switched on. Heater system B was selected when GGVM temperatures were observed to be below 60 deg F and falling. The GG bed heater system B then appeared to fail ON at MET 00:19:20:00. The crew turned heater system B off. Subsequently heater "B" was turned on and operated properly.

.

Corrective Action: KSC troubleshooting per IPR and CHIT J2866. Verified heater switch failure.

.

KSC R&R switch on panel A12 per PR. Closed. Criticality 1R3.

.

KSC Tracking Numbers: IV-6-012389; PV-6-118652.

.

Flight Problem Report presented to Lv.II Noon PRCB 3/7/89. (PRCBD # S44704A).

.

Status: Closed

- CLOSURE RATIONALE:
The APU 2 gas generator/fuel pump A system heaters did not function during the entire mission because one or two contacts in the heater switch on panel A12 did not engage as a result of an unfavorable build-up of tolerances within the suitch contact mechanism. This condition was not a switch failure. Because of the intemittent nature of this anomaly, the problem was not revealed in preflight vehicle testing.

The APU 2 Heater Gas Gen/Fuel Pump switch on panel A12 was removed and

replaced. Analysis of the switch revealed that this same anomaly could occur in similar switches. However, if such a condition should occur on a future mission, it can be rectified by cycling the switch and ensuring that it is properly in detent. No action is required affecting the current switch design.

1
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IFA NUMBER> STS-27-V-05
TITLE:Humidity separator "B" flooded.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 338 : 13.44.00
IFA DATE: 12/03/1988
IFA STATUS: CLOSED : 02/15/1989 ELAPSED TIME: 000 : 23.13.26
PRACA STATUS: CLOSED : 1991-02-25 HOUSTON TIME: 07.44.00
PRCBD NUMBER: S44705 PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	PR ECL-4-04-0324	M	EECOM-02
P	CAR 27RF01		

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

0 DESCRIPTION:
Shortly after wakeup on the second flight day (338:13:44 GMT), the crew reported that about two gallons of free water was discovered in and around the ECLSS bay. Water appeared to be coming from humidity separator B. Waste water quantity showed a corresponding two-gallon deficit compared to predictions. The crew performed in-flight maintenance to clean up the free water and switched to humidity separator A which performed normally for the remainder of the mission.
.
Both the OV-104 and OV-103 (STS-26) humidity separators were removed and sent to the vendor for testing. The OV-104 humidity separator B was found to be non-functional due to a clogged pitot tube which prevented liquid water from being pumped out of the unit. OV-104 humidity separator A functioned within specification.
.
OV-103 humidity separator B functioned within specification. The OV-103 humidity separator A was degraded (6 percent water carryover vs 1 percent specified). Check valve leaks are also suspected in OV-103 humidity separator A and may be contributing to its degradation Disassembly of this unit to determine actual component failure is in process at the vendor.
.
Corrective Action: Spare humidity separators were placed on board OV-103 and OV-104. Closed. Criticality 2R3.
.
Flight Problem Report presented to the LV II Noon PRCB on 2/15/89. (PRCBD S44705).
.
Status: Closed

- CLOSURE RATIONALE:
OV-104 humidity separator B failed due to a clogged pitot tube. OV-103 humidity separator A was degraded. Failure analysis is in process. Spare humidity separators were placed on board OV-103 for subsequent flight. Their humidity removal capability was successfully verified

1
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IFA NUMBER> STS-27-V-05
TITLE:Humidity separator "B" flooded.

0 CLOSURE RATIONALE:(Continued from previous page).
under OMRSD paragraph V61ANO.020. Identical work is in progress for OV-104. The humidity separators flown on STS-27 and STS-26 will be repaired and used as spares.

1
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IFA NUMBER> STS-27-V-06
TITLE:TAGS (Text and Graphics System) Paper Jam and TAGS OHC Status Change at image start
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 338 : 11.25.00
IFA DATE: 12/03/1988
IFA STATUS: CLOSED : 03/01/1989 ELAPSED TIME: 000 : 20.54.26
PRACA STATUS: UNKNOWN HOUSTON TIME: 05.25.00
PRCBD NUMBER: S44706 PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	IV-6-012418	A	PV-6-117332
K	IPR 30RV-0033	K	PR COM-4-04-0050
M	INCO-02	P	FIAAR-JSC-EE-646

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. SUITER
2:
0 DESCRIPTION:
At about 338:11:25 GMT, while receiving and processing Text and Graphics System (TAGS) Mode 1 images, the TAGS hardcopier experienced a paper jam. Attempts by the crew to clear the jam using the TAGS in-flight maintenance tool were unsuccessful. The TAGS hardcopier was powered off and the Teleprinter was utilized for all subsequent uplink message traffic during the mission. There was no adverse effect on the mission.
.
At about 338:01:52 GMT, while configured in the READY sate, the TAGS hardcopier spontaneously changed its status to STANDBY as a new message transmission began. The hardcopier was immediately reconfigured to READY and uplink message transmission continued. There was no mission impact and the anomaly did not recur during the flight.
.
Corrective Action: THe TAGS was removed, and replaced. Closed. F/A tracked on FIAR-JSC-EE-646. Criticality 3.
.
KSC Tracking Numbers: IV-6-012418; PV-6-117332.
.
Flight Problem Report presented to the Lv.II Noon PRCB on 3/1/89. (PRCBD # S44706).
.
Status: Closed

- CLOSURE RATIONALE:
The tags hardcopier paper jam was caused by improper automatic stacking of the processed pages in the hardcopier paper tray. The most likely cause of the improper stacking was a combination of the presence of small amounts of water given off by the paper during the heat development process and the chalky contaminant present on the paper, that when heated together in the developer created a sticky substance that caused the pages to adhere to one another. The cause of the

1
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IFA NUMBER> STS-27-V-06
TITLE:TAGS (Text and Graphics System) Paper Jam and TAGS OHC Status Change

at image start
0 CLOSURE RATIONALE:(Continued from previous page).
spontaneous hardcopier status change is unknown.

The TAGS hardcopier was removed, replaced and is undergoing failure analysis.

1
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IFA NUMBER> STS-27-V-08
TITLE:Right RCS Oxid. "B" He regulator slow response

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 339 : 14.27.00
IFA DATE: 12/04/1988
IFA STATUS: CLOSED : 02/15/1989 ELAPSED TIME: 001 : 23.56.26
PRACA STATUS: CLOSED : 1991-02-27 HOUSTON TIME: 08.27.00
PRCBD NUMBER: S44708 PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 30RV-0037	K	PR RP01-10-0326
M	PROP-01	P	CAR 27RF10

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. WELCH
2:

0 DESCRIPTION:
After switching from the helium "A" regulators to the "B" regulators, the aft right Reaction Control System (RCS) oxidizer tank pressure decreased from 249 to 242 psi. When switched back to the "A" regulators, the RCS oxidizer tank pressure rose to a nominal 249 psi.
.
A helium blowdown test was perfromed on the "B" regulators by KSC which confirmed the low pressure regulation.
.
Corrective Action: The regulator has been removed and replaced. Closed. F/A tracked by CAR 27RF10. Criticality 1R3.
.
KSC Tracking Number: PV-6-118457.
.
CAR Status: Explained closeout rationale for all vehicles, all flights was issued on 8/27/90.
.
Flight Problem Report presented to Level II Noon PRCB on 2/15/89. (PRCBD #S44708).
.
Status: Closed

- CLOSURE RATIONALE:
The aft right RCS oxidizer tank pressure decrease was caused by a failed helium "B" regulator. The cause of the failed regulator is undetermined, pending failure analysis. The regulator has been removed and replaced and the vendor is conducting a failure analysis.

1
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IFA NUMBER> STS-27-V-09
TITLE:Cabin Temp controller #2 non responsive

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 339 : 14.30.00
IFA DATE: 12/04/1988
IFA STATUS: CLOSED : 02/15/1989 ELAPSED TIME: 001 : 23.59.26
PRACA STATUS: UNKNOWN HOUSTON TIME: 08.30.00
PRCBD NUMBER: S44709 PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A IV-6-013210 K IPR 30RV-0064
M EECOM-03
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:
0 DESCRIPTION:
At approximately 339:14:30 GMT, the crew reported that the motor for cabin temperature controller 2 was frozen and would not move when the cabin temperature controller switch position was changed from controller 1 to controller 2. During the 4 to 5 minutes that controller 2 was selected, its actuator did not move from its original position and the crew reported that the actuator felt mechanically bound up. The crew then switched back to the original cabin temperature controller 1 which performed normally for the remainder of the mission. The cabin temperature controller 2 motor was retested at KSC and performed nominally.
Corrective Action: A crew procedure change is planned to alert the crew to the time required for the temperature controller to reach its normal operating position. Closed. Fly as is. Criticality 3.
.
Flight Problem Report presented to LV II Noon PRCB on 2/15/89. (PRCBD # S44709).
.
Status: Closed

- CLOSURE RATIONALE:
Cabin temperature controller 2 did not appear to respond because it was not activated for a sufficient period of time to reach a thermal steady-state and allow the motor drive to transit the actuator to its normal operating position. A crew procedure change is planned to alert the crew to the time required for the temperature controller to reach its normal operating position.

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IFA NUMBER> STS-27-V-1A
TITLE:Instrumentation - APU-1 EGT 2 Failed Low (V46T0140) Erratic

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 337 : 14.42.00
IFA DATE: 12/02/1988
IFA STATUS: CLOSED : 03/01/1989 ELAPSED TIME: 000 : 00.11.26
PRACA STATUS: UNKNOWN HOUSTON TIME: 08.42.00
PRCBD NUMBER: S44701 PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 30RV-0029 K PR APU-4-04-0129
M MMACS-02 P CAR 27RF08
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:
0 DESCRIPTION:
The auxiliary power unit (APU) 1 exhaust gas temperature 2 measurement (V46T0140) became erratic after Main Engine Cutoff (MECO). Later, the measurement failed open. Postflight troubleshooting confirmed the transducer failure.
.
Corrective Action: The transducer has been removed and replaced. Failure analysis will be tracked by CAR 27RF08. This is a criticality 2R3 measurement. Closed.
.
KSC Tracking numbers: IV-6-012388; PV-6-116304.
.

Flight Problem Report presented to the Lv.II Noon PRCB on 3/1/89.
(PRCBD# S44701).
.
Status: Closed

- CLOSURE RATIONALE:
The auxiliary

1
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IFA NUMBER> STS-27-V-1B
TITLE:Instrumentation - APU 1 GG Bed temp (V46T0122A) bias 45 deg F high

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 03/01/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44701 PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M MMACS-01
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:
0 DESCRIPTION:
The auxiliary power unit (APU) 1 gas generator (GG) bed temperature (V46T0122) had a high bias during prelaunch operations. The bias was approximately 45 deg F high at GG bed temperatures of 350 deg F. The bias was not present after APU start during the final prelaunch activities.
.
Corrective Action: This bias is considered acceptable. No corrective action is required. This is a criticality 3/3 measurement. Closed.
.
Flight Problem Report presented to the Lv.II Noon PRCB on 3/1/89.
(PRCBD #S44701).
.
Status: Closed
- CLOSURE RATIONALE:
The bias was not present after APU start during the final prelaunch activities. This bias is considered acceptable. No corrective action is required.

1
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IFA NUMBER> STS-27-V-1C
TITLE:Instrumentation - PCS O2 flow system 1 and 2 transducers biased

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 337 : 19.00.00
IFA DATE: 12/02/1988
IFA STATUS: CLOSED : 03/01/1989 ELAPSED TIME: 000 : 04.29.26
PRACA STATUS: CLOSED : 1991-05-10 HOUSTON TIME: 13.00.00
PRCBD NUMBER: S44701 PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M EECOM-01 P CAR 27RF16
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:
0 DESCRIPTION:
Oxygen flow transducer measurements 1 and 2 (V61R2105A and V61R2205A) were biased high and toggling just above the specification value of 0.25 lb/hr.

.
Corrective Action: This bias is considered acceptable. No corrective action is required. This is a criticality 3/3 measurement. Closed.
.
CAR Status: Opened 2/16/89. Explained action closeout was issued on 4/29/91. CAR submitted for closure on 5/2/91. Additional information for closeout issued on 5/20/91.
.
Flight Problem Report presented to the Lv.II Noon PRCB on 3/1/89. (PRCBD # S44701).
.
Status: Closed

- CLOSURE RATIONALE:
GSE is suspect. If transducers have shifted, bias is acceptable until panel is removed for planned cabin pressure transducer changout post STS-30. A waiver will be requested.

1
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IFA NUMBER> STS-27-V-1D
TITLE:Instrumentation - APU - 1 GG valve module T-1 temp biased

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 337 : 05.16.00
IFA DATE: 12/01/1988
IFA STATUS: CLOSED : 03/01/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 23.16.00
PRCBD NUMBER: S44701
PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* ********NONE FOUND******* * ********NONE FOUND*******
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:
0 DESCRIPTION:
The auxillary power unit (APU) 1 GG valve module T-1 temperature measurement (V46T0171A) was biased 40 to 50 deg F higher than T-2 temperature measurement which was 98 deg F during entry.
.
Corrective Action: This bias is considered acceptable. No corrective action is required. This is a criticality 2R3 measurement. Closed
.
Flight Problem Report presented to the Lv.II Noon PRCB on 3/1/89. (PRCBD # S44701).
.
Status: Closed

- CLOSURE RATIONALE:
This bias is considered acceptable. No corrective action is required.

1
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IFA NUMBER> STS-27-V-1E
TITLE:MADS RCC Chin Temperature V90T9889A erratic

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 03/01/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44701
PHASE: ENTRY/LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A IV-6-013025 K IPR 30RV-0053

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

0 DESCRIPTION:
The modular auxiliary data systems (MADS) reinforced carbon (RCC) chin temperature measurement (VO9T9889A) became erratic during entry. Postflight troubleshooting could not reproduce the anomaly. The temperature transducer and associated wiring check out within specification.
.
Corrective Action: No corrective action required. This is a development measurement and has no flight criticality. Closed.
.
Flight Problem Report presented to the Lv.II Noon PRCB on 3/1/89. (PRCBD #S44701)
.
Status: Closed

- CLOSURE RATIONALE:
The temperature transducer and associated wiring check out within specification. No corrective action is required. This is a development measurement and has no flight criticality.

1
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IFA NUMBER> STS-27-V-11
TITLE:Left OMS GN2 isolation valve coil failure

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 02/22/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44711 PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A IV-6-012462 K IPR 30RV-0036
M PROP-02

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. WELCH
2:

0 DESCRIPTION:
The left Orbital Maneuvering System (OMS) gaseous nitrogen (GN2) tank showed a pressure rise from coil heat of about one-half of the rise normally seen. Troubleshooting at KSC revealed no anomalies in the valve or power to the valve. Review of data indicates this was seen on previous flights. No impact during the missions.
.
Corrective Action: None. Closed. Criticality 1R3.
.
Flight Problem Report presented to Lv.II Noon PRCB on 2/22/89. (PRCBD #S44711)
.
Status: Closed

- CLOSURE RATIONALE:
No functional dispcrepancies have been found. The discrepancy is considered to result from the variablilty of individual GN2 isolation valves and engines rather than an indication of a valve or orbiter power problem.

1
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IFA NUMBER> STS-27-V-12

TITLE:FCP #2 ALT H2O LINE ERRATIC TEMPERATURE

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 339 : 15.16.00
IFA DATE: 12/04/1988
IFA STATUS: CLOSED : 02/22/1989
ELAPSED TIME: 002 : 00.45.26
PRACA STATUS: CLOSED : 1989-09-27
HOUSTON TIME: 09.16.00
PRCBD NUMBER: S44712A
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
C	CHIT J2864	K	IPR 30RV-0032
M	EECOM-04	P	CAR 27RF14

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

0 DESCRIPTION:
Fuel cell #2 alternate water line temperature cycled erratically between 100 deg F and 125 deg F after the line heaters were switched from the "A" circuit to the "B" circuit at approximately 339:15:16 GMT The normal control range is 70 to 90 deg F. The erratic behavior ceased when the line heaters were switched back to the "A" circuit. Potential causes of this problem were isolated to either an erratic thermostat "B" or a small leak in the alternate water line check valve which allowed a trickle flow of hot water through the line. Troubleshooting at KSC could not duplicated the problem, with the thermostat "B" controlling within specification and the alternate water line check valve exhibiting no leakage.
.
Corrective Action: The thermostat has been removed and replaced. Failure analysis will be tracked via CAR 27RF14. Closed. Criticality 3/3.
.
Flight Problem Report presented to Lv.II Noon PRCB on 2/22/89. (PRCBD #S44712A).
.
KSC Tracking Numbers: PR FCP-4-04-0104; IV-6-012417; PV-6-119676.
.
Status: Closed

- CLOSURE RATIONALE:
The problem was most likely caused by transient errantic behavior of the fuel cell 2 alternate line heater B thermostat. The thermostat has been removed and will be sent to the vendor for analysis.

1

IFA NUMBER> STS-27-V-13
TITLE:LH2 Dump Manifold Pressurization Response

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 337 : 14.41.12
IFA DATE: 12/02/1988
IFA STATUS: CLOSED : 03/08/1989
ELAPSED TIME: 000 : 00.10.38
PRACA STATUS: CLOSED : 1991-02-01
HOUSTON TIME: 08.41.12
PRCBD NUMBER: S44713
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 30RV-0014	K	PR MPS-4-04-0462
M	BSTR-01	P	CAR 27RF17

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MC MILLAN
2:

0 DESCRIPTION:
At 337:14:41:12 GMT, after initiation of the main propulsion system (MPS) liquid hydrogen (LH2) dump, the liquid hydrogen 17-inch feedline manifold pressure began decreasing from approximately 51 psia. When

this pressure reached 20 psia approximately 20 seconds later, the LH2 manifold repressurization system should have begun flowing regulated helium at approximately 20 psia into the manifold. However, the manifold pressure continued to drop, reaching a value of 17 psia about 57 seconds after dump initiation. At this time, the manifold pressure suddenly increased and remained at 21 psia until commanded off. The LH2 manifold repressurization system includes two 2-way solenoid valves (LV42, 43) which provide series isolation of the MPS pneumatic regulated helium supply from the 20 psi regulator. The valves are commanded open by the general purpose computers at the start of the MPS dump. Helium flow into the manifold is subsequently controlled by the 20-psi regulator (PR6), which is referenced to the manifold through an external sense line. Helium flow initiation is confirmed by the simultaneous increase in the pneumatic helium supply pressure decay rate and the GH2 pressurization system pressure. Data rewiew established the initiation of the helium flow into the manifold was delayed for 57 seconds. Once the manifold repressuriztion helium hegan flowing, the system operated nominally for the remainder of the mission, providing helium for the duration of the post-MECO dump and during entry. The failure had no impact on the mission.
Troubleshooting could not duplicate anomaly.

.

Corrective Action: The MPS LH2 manifold repressurization system will undergo additional troubleshooting or regulator replacement during turnaround operations at KSC. Closed. Criticality Nominal 3/3; Abort 1.

.

KSC Tracking Numbers: IV-6-012558; PV-6-116486

.

CAR Status: Received explained closeout rational on 3/23/90 for STS-35 (OV-102, Flt #10), STS-31R (OV-103, Flt #10), and STS-38 (OV-104, Flt #7).

1

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IFA NUMBER> STS-27-V-13
TITLE:LH2 Dump Manifold Pressurization Response

0 DESCRIPTION: (Continued from previous page).

.

Flight Problem Report presented to Level II Noon PRCB on 3/7/89. (PRCBD #S44713)

.

Status: Closed

- CLOSURE RATIONALE:
Initiation of the 20-psia helium flow into the manifold was delayed. The delay was most probably caused by a sluggish regulator which subsequently cleared. Postflight troubleshooting of the MPS LH2 manifold repressurization system at KSC did not reveal a malfunctioning componenet.

1

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IFA NUMBER> STS-27-V-14
TITLE:HYD System 2 Accum low

0 MISSION CONSTRAINT: SUBS

IFA TIME GMT: 337 : 14.24.48
IFA DATE: 12/02/1988
ELAPSED TIME: 000 : 00.00.00
HOUSTON TIME: 08.24.48

IFA STATUS: CLOSED : 03/01/1989
PRACA STATUS: CLOSED : 1989-10-07

PRCBD NUMBER: S44714 PHASE: PRE-LAUNCH

	TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
0	K	IPR 30RV-0040	K	PR HYD-4-04-0162
	M	MMACS-07	P	CAR 27RF06

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MC MILLAN
2:

0 DESCRIPTION:
When hydraulic system 2 main pump pressure switch was put to the "Normal" position during prelaunch operations at 337:14:24:48 GMT, the bootstrap accumulator pressure lagged the main pump pressure by approximately 15 seconds. The bootstrap pressure then instantaneously rose to equal the main pump pressure. No lag should have occurred in the equalization of these pressures. Similarly, when the hydraulic system 2 main pump pressure was brought to "Normal" for entry at 341:22:52:49 GMT, the bootstrap accumulator pressure lagged the main pump pressure by approximately 5 minutes 25 seconds before rapidly equalizing with the main pump pressure. In both instances, when the bootstrap accumulator pressure was equal to the main pump pressure, bootstrap accumulator pressure performance remained nominal for the remainder of the auxiliary power unit operation.
Flight DATA indicated that the hydraulic system 2 accumulator pressure and reservoir pressure tracked each other in both instances during the period before and after the lagging occurred, which implies that a check valve internal to the priority valve was sluggish to open. The occurrence of this problem had no impact on the mission.
.
Corrective Action: The hydraulic system 2 priority valve was removed and replaced. A failure anlysis will be performed and will be tracked by CAR 27RF06 - 10. Closed; Criticality 1R2.
.
Flight Problem Report presented to the Lv.II Noon PRCB on 3/1/89. (PRCBD #S44714).
.
KSC Tracking Numbers: IPR IV-6-012558; PR PV-6-116968.
.
Status: Closed

1
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IFA NUMBER> STS-27-V-14
TITLE:HYD System 2 Accum low

0
- CLOSURE RATIONALE:
The delay in hydraulic system 2 accumulator pressure matching the associated main pump pressure was most probably the result of a restriction in the movement of the check valve internal to the priority valve. The hydraulic system 2 priority valve was removed and replaced. A failure analysis will be performed to determine the cause of the problem.

1
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IFA NUMBER> STS-27-V-15
TITLE:KU-Band Channel 2 OPS Recorder Dumps

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 340 : 15.20.00
IFA DATE: 12/05/1988
IFA STATUS: CLOSED : 03/01/1989 ELAPSED TIME: 003 : 00.49.26
PRACA STATUS: UNKNOWN HOUSTON TIME: 09.20.00

PRCBD NUMBER: S44715 PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER

M INCO-05

0 CLOSURE INITIATED BY:

RESPONSIBLE MANAGERS 1: D. SUITER

2:

0 DESCRIPTION:

OPS recorder dumps via KU-band CH2 couldn't be recovered when KU in stand-by. With KU-band on in COMM mode, CH3 must be activated for dumps to work on CH2. CH3 then deactivated, dumps still worked on CH2.

.

Corrective Action: None. Ground procedure problem. Closed.

.

Flight Problem Report presented to the Lv.II Noon PRCB on 3/1/89. (PRCBD #S44715).

.

Status: Closed

- CLOSURE RATIONALE:

Configuration misunderstanding resulted in operational recorder dumps being unsuccessful. Hardware performed as designed. A constraint will be added to the Shuttle Ops Data Book to state that when the Ku-band communications system is commanded on via an uplink command, a valid channel 3 selection must be made.

1

IFA NUMBER> STS-27-V-16

TITLE:PLBD Ready to Latch indicator hung up.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 337 : 15.59.00

IFA DATE: 12/02/1988

IFA STATUS: CLOSED : 03/01/1989 ELAPSED TIME: 000 : 01.28.26

PRACA STATUS: CLOSED : 1989-03-03 HOUSTON TIME: 09.59.00

PRCBD NUMBER: S44716 PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER

K PR MEQ-4-04-0209 M MMACS-04

P CAR 26RF04

0 CLOSURE INITIATED BY:

RESPONSIBLE MANAGERS 1: J. GUTHERY

2:

0 DESCRIPTION:

During opening of starboard payload bay door at approximately 337:15:59 GMT, the starboard forward ready-to-latch indicator B (V37X3436Y) remained on while indicators A and C went off as designed. Within a few minutes, the B indicator also went off. No further problems were experienced with the indicator for the remainder of the mission. Testing at KSC could not reproduce the failure.

.

Corrective Action: None. Switch module removed and replaced. Closed Criticality: Switch module 1R2; measurement 3/3.

.

Flight Problem Report presented the the Lv.II Noon PRCB on 3/1/89. (PRCBD #S44716).

.

Status: Closed

- CLOSURE RATIONALE:

Failure could not be reproduced on the ground, but may have been due to out-of-specification freeplay resulting from utilization of the old

rigging procedure. The module was removed from the vehicle and sent to the contractor for testing to obtain additional engineering data on these switches. All switches in the subassembly were replaced with PIND-tested switches.

1

IFA NUMBER> STS-27-V-17
TITLE:TACAN #1 Prelaunch lock-on problem

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 337 : 09.42.00
IFA DATE: 12/02/1988
IFA STATUS: CLOSED : 02/15/1994
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-06-27
HOUSTON TIME: 03.42.00
PRCBD NUMBER: S44717
PHASE: PRE-LAUNCH

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 30RV-0031 K PR COM-4-04-0057
M GNC-01 P CAR 27RF18

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

0 DESCRIPTION:
During prelauch navigation aids activation, at 9:34 GMT, TACAN 1 was initially powered up (MODE switch to T/R) with channel thumbwheels set to 90X for the blanking test. Approximately 2 minutes later, the channel thumbwheels were set to 59Y to acquire the KSC ground station. Automatic gain control (AGC) remained at 5.09 Vdc (indicating no signal at the receiver), and range and bearing remained in the search mode. After approximately 6 minutes, the MODE switch was cycled to OFF then back to T/R, at which time AGC went to approximately 3Vdc (indicating signal at the receiver), and range and bearing locked on at 3.95 nmi, and 268 degrees, respectively. These operational conditions were not in violation of Launch Commit Criteria (2 of 3 TACAN's required), and no further TACAN 1 anomalies were observed for the remainder of the flight. Data analysis indicate all MODE switch and thumbwheel contracts were good. Postflight troubleshooting failed to reporduce the anomaly.
.
Corrective Action: None, pending recurrence of the failure. Closed Criticality 1R3.
.
Flight Problem Report presented to LV II Noon PRCB on 2/15/89 (PRCBD # S44717).
.
KSC Tracking Numbers: IV-6-012281; PV-6-120853.
.
Status: Closed

- CLOSURE RATIONALE:
The cause of this anomaly on TACAN serial number 15068 is unknown. It most probably resulted from a failure of the TACAN to correctly recognize channel commands on initial selection.

1

IFA NUMBER> STS-27-V-19
TITLE:Headset Interface Unit (HIU)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 02/15/1989
ELAPSED TIME: 000 : 00.00.00

PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44719 PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
P FIAR-JSC-EE-0647

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

0 DESCRIPTION:
During seat egress following the STS-27 scrub, Mission Specialist 2 (MS-2) received a tingle in the left ear while touching the headset interface unit (HIU) when other crewmembers were talking. This problem was repeated in the laboratory after the mission. The earphone-low signal was internally shorted to the metal faceplate and when MS-2 touched the HIU, the circuit was completed to ground. When other crewmembers spoke, a voltage was present on the earphone-low line which caused the problem. At a thumbwheel setting of 5, the voltage present is 16 Vrms. At the maximum volume control setting, the voltage present is 30 Vrms. At 30 Vrms the circuit current is only 1-2 ma. While these levels of voltage and current can be felt, there is no electrical hazard for the crew.
.
Corrective Action: The transducer will be removed, replaced, and subjected to failure analysis. The results of this activity will be tracked by FIAR-JSC-EE-0647. A continuity test for detecting shorts will be performed on each unit prior to flight. Closed.
Criticality: 3R2.
.
Flight Problem Report presented to LV II Noon PRCB on 2/15/89. (PRCBD # S44719).
.
Status: Closed

- CLOSURE RATIONALE:
An internal short within the earphone transducer caused the slight tingling sensed by the MS-2 in the left ear. The transducer will be removed, replaced, and subjected to failure analysis. A continuity test for detecting shorts will be performed on each unit prior to flight.

1
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IFA NUMBER> STS-27-V-21
TITLE:SPI Rudder Indicator Biased

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 02/15/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-10-11 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44721 PHASE: ENTRY/LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 30RV-0041 K PR DIG-4-04-0123
P CAR 27RF11

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

0 DESCRIPTION:
The flight crew reported that during entry, the surface position indicator (SPI) "OFF" flag was visible and the rudder position indicator appeared stationary at approximately four degrees left. The flag is driven by fault circuitry which detects a difference between commanded and actual indicator position. Postflight troubleshooting at KSC failed to reproduct the anomaly. The unit will be removed and sent to the Rockwell Services Center for additional testing.

Disassembly of the unit is not planned unless a hard failure can be isolated.

.

Corrective Action: None, pending hard failure. Closed.
Criticality 3/3

.

Flight Problem Report presented to the LV II noon PRCB on 2/15/89. (PRCBD # S44721)

.

KSC Tracking Numbers: IPR IV-6-012579; PR PR-6-118405.

.

Status: Closed

- CLOSURE RATIONALE:
The most probable cause of this anomaly is intermittent stiction of the rudder position indicator. The cause of the stiction is not known.

1

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IFA NUMBER> STS-27-V-22
TITLE:Temporary Loss of OPS 2 Telemery

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 337 : 14.51.00
IFA DATE: 12/02/1988
IFA STATUS: CLOSED : 03/01/1989
ELAPSED TIME: 000 : 00.20.26
PRACA STATUS: UNKNOWN
HOUSTON TIME: 08.51.00
PRCBD NUMBER: S44722
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M INCO-01 P FIAR BFCE-029-F008

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

0 DESCRIPTION:
Temporary loss of TLM from the OPS 2 RCDR track #2 during a playback dump during ascent. RCDR at 29%, no show of motion and percent tape not updating. Ground received dump modulation. When switched to track #1, it operated properly. Continued operating properly throughout flight.

.

Corrective Action: Closed; fly as is

.

Flight Problem Report presented to Lv.II Noon PRCB on 3/1/89. (PRCBD #S44722).

.

Status: Closed

- CLOSURE RATIONALE:
A shifting load on the capstan probably caused this anomaly. The load shift could have been caused by a tape pack shift on the reel, a negator spring dragging on its spool, or a mechanical anomaly in the Delta Drive assembly (capstans, drive belts, and motor).

Given the inability to reproduce this problem in-flight or on the ground, plus the low criticality of this subsystem and the fact that vendor turnaround is excessive, fly the OPS 2 recorder as-is.

1

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IFA NUMBER> STS-27-V-23
TITLE:MADS PCM 1 BITE

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 340 : 13.58.00
IFA DATE: 12/05/1988
IFA STATUS: CLOSED : 02/22/1989 ELAPSED TIME: 002 : 23.27.26
PRACA STATUS: CLOSED : 1990-09-17 HOUSTON TIME: 07.58.00
PRCBD NUMBER: S44723 PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 27RV-0380 M INCO-04
P CAR 27RF15
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: W. LEVERICH
2:
0 DESCRIPTION:
When the modular auxiliary data system (MADS) was powered up at 340:13:58 GMT, a built-in test equipment (BITE) signal (V78X9611E) was annunciated. This signal is generated by BITE circuity within the MADS Pulse Code Modulation (PCM) multiplexer unit. Power was cycled to the MADS PCM and the BITE indication was reset. It did not recur for the remainder of the mission. This anomaly had occurred previously on OV-104 during checkout of the MADS PCM switch on November 3, 1988, but could not be reproduced in subsequent troubleshooting. The decision was made at the time to fly-as-is based on the criticality of the system. During postflight troubleshooting, the anomaly was reproduced by increasing Main B bus voltage to 31 Vdc. It was further isolated to within the MADS PCM multiplexer unit. The unit was removed and replaced with the unit designated for OV-102.
.
Corrective Action: The failed unit will be returned to the vendor for failure analysis by CAR 27RF15. Closed. Criticality: 3
.
Flight Problem Report presented to Level II Noon PRCB on 2/22/89. (PRCBD # S44723).
.
KSC Tracking Numbers: IV-6-011671; PV-6-114902; UA-4-A0003.
.
Status: Closed

- CLOSURE RATIONALE:
The BITE indication was caused by an intemittent failure in the MADS PCM multiplexer unit. The failed unit will be returned to the vendor for failure analysis.

1
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IFA NUMBER> STS-27-V-24
TITLE:LH2 fill/drain valve response.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 03/01/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1992-03-16 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44724 PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 30RV-0039 K PR MPS-4-04-0461
P CAR 27RF05
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MC MILLAN
2:
0 DESCRIPTION:
The main propulsion system (MPS) liquid hydrogen (LH2) outboard fill/ drain (PV11) closure times were greater than allowed by specification during prelaunch, MPS dump, and the first vacuum inerting. The valve

functioned nominally for subsequent operations during the second vacuum inerting and postflight troubleshooting. The outboard fill/ drain valve closure response time is measured from the issuance of the close command to the closed microswitch indication. The specifiaction requires a maximum closure time of 10 seconds which was exceeded during the following mission events:

.

Lift-off - 48 sec	10.876 sec
Propellant dump	13.276 sec
First vacuum inerting	12.776 sec

.

The slow closure during the terminal count down sequencing came within 0.12 second of causing a Lauch Commit Criteria (LCC) violation.

.

Corrective Action: The actuator was removed and replaced with an actuator that exhibited rapid closure times under cryogenic conditions during acceptance tests. The removed actuator is undergoing failure analysis at the vendor and will be tracked by CAR 27RF05. An LCC change is being submitted to allow an additional 3 seconds for valve closure before declaring a violation. Close
Criticality: Nominal 3/3 Abort 1.

.

KSC Tracking Numbers: IV-6-012537; PV-6-120309.

.

CAR Status: Explained problem closeout was received on 3/23/90 for STS-31R (OV-103, Flt #10) and STS-35 (OV-102, Flt #10). Explained problem closeout issued for OV-102, flt# 11(STS-40), OV-103, flt# 12(STS-39), and OV-104, flt# 8(STS-37) on 1/4/91. Explained closeout for all vehicles/all flights issued on 6/25/91.

.

Flight Problem Report presented to Level II Noon PRCB on 3/1/89. (PRCBD# S44724).

.

1

IFA NUMBER> STS-27-V-24
TITLE:LH2 fill/drain valve response.

0 DESCRIPTION: (Continued from previous page).
Status: Closed

- CLOSURE RATIONALE:
The slowness of the LH2 outboard fill/drain valve during closure operations at cryogenic conditions was most probably caused by a sluggish actuator. The valve asembly appeared to operate normally at ambient conditions.

The actuator was removed and replaced with an actuator that exhibited rapid closure times under cryogenic conditions during acceptance tests. The removed actuator is undergoing failure analysis at the vendor and will be tracked by CAR 27RF05. An LCC change is being submitted to allow an additional three seconds for valve closure before declaring a violation.

1

IFA NUMBER> STS-27-V-25
TITLE:Uncommanded brake pressures

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

IFA STATUS: CLOSED : 04/26/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44727 PHASE: ENTRY/LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* ********NONE FOUND******* * ********NONE FOUND*******
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MC MILLAN
2:
0 DESCRIPTION:
Postflight data evaluation revealed that uncommanded brake pressures were present. The uncommanded pressures were more predominant on the brake system driven by auxiliary power unit (APU)2 than (APU)1 These pressures were marginal with respect to actually being classified as uncommanded brake pressures.
.
Flight Problem Report presented to Level II Noon PRCB on 4/26/89. (PRCBD #S44727)
.
Status: Closed

- CLOSURE RATIONALE:
Uncommanded brake pressure was experienced between MLG and NLG touchdown and after NLG touchdown as a result of planned elevon movement. The amount of pressure generated may have created a light contacting of the brake discs resulting in negligible braking torque. This condition has been observed on previous flights.

1
STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-27-V-26
TITLE:SSME #2 Hi Pressure He Check Valve Stuck Open

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 04/26/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44728 PHASE: ENTRY/LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
C CHIT J2059 C CHIT J2940
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MC MILLAN
2:
0 DESCRIPTION:
The SSME #2 hi press He supply isolation check valve (CV2) was found stuck open. The valve was replaced. Removed valve sent to supplier for f/a. Found poppet stuck and galling in bore and on poppet. Sharp edge formed on poppet inlet side. Excessive wear is cause. Reliability of other He check valves are suspect. Leak and functional tests will be performed on all OV104 MPS He check valve per JSC Chits.
.
Flight Problem Report presented to Level II Noon PRCB on 4/26/89. (PRCBD #S44728)
.
Status: Closed

- CLOSURE RATIONALE:
The MPS engine 2 high-pressure helium supply check valve (CV2) was stuck in the open position because excessive wear allowed the valve to become cocked, thereby becoming stuck in the end piece bore. The CV1, CV2, CV3, and CV4 check valves will be replaced on all vehicles. The other helium check valves will undergo leak checks prior to the next flight of each vehicle. A periodic replacment plan for the check valves will be

developed. A Launch Commit Criteria change is being considered that will verify that PD8 and CV1 through 4 are not simultaneously failed open. Because of the previous history of failures of this type of check valve, a redesign is being investigated.

1
STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-27-V-7A
TITLE:TPS Damage

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 04/13/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-06-27 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44707 PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
P CAR 27RF13
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. GUTHERY
2:
0 DESCRIPTION:
Post landing tile examination revealed approximately 250 tiles with damage greater than 1 inch in area. Most impact damage on right-side bottom of wing and fuselage.
.
250-300 tiles R&R; KSC estimate.
.
Corrective Action: Probable cause SRB Nose Cone Debris.
.
Criticality 1/1. Closed.
.
Flight Problem Report was approved at Lv.II Noon PRCB on 4/13/89. (PRCBD # S44707).
.
Status: Closed

- CLOSURE RATIONALE:
The most severe STS-27R orbiter tile damage resulted from dislodged ablative insulating material from the right-hand SRB nose cone which impacted the orbiter approximately 85 seconds into the flight. Other TPS damage was probably caused by impacts from dislodged external tank insulation as has been experienced on many previous flights. Corrective action will be to remove and replace the tiles.

1
STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-27-V-7B
TITLE:Right OMS carrier panel missing

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 04/13/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-08-03 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44707 PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-116332 K PR RP01-10-0324
P CAR 27RF09
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. GUTHERY
2:
0 DESCRIPTION:

Corrective Action:
Post flight inspection revealed bolts in place but no washers installed. Incorrect installation.
.
Criticality 1/1; Closed.
.
Flight Problem Report was approved at Lv.II Noon PRCB on 4/13/89. (PRCBD # S44707).
.
Status: Closed

- CLOSURE RATIONALE:
The carrier panel became dislodged because of an incorrect installation. The loss of the panel may have resulted in minor damage to one flexible insulation blanket aft of the panel location, but the loss did not contribute to any other TPS damage. Replace panel and verify proper hardware configuration on all vehicles.

1
STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 55

IFA NUMBER> STS-27-V-7C
TITLE:TACAN #2 lower-L-Band antenna over temp.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 04/13/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-03-23 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44707 PHASE: ENTRY/LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
C CHIT J2884 P CAR 27RF12
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. GUTHERY
2:
0 DESCRIPTION:
Antenna overheated due to missing TPS tile on Orbiter lower surface. This condition was determined by postflight thermal analysis.
.
Corrective Action: R&R antenna
.
Criticality 1R3; Closed.
.
Flight Problem Report was approved at Lv.II Noon PRCB on 4/13/89. (PRCBD # S44707).
.
Status: Closed

- CLOSURE RATIONALE:
The damage resulted from ascent debris impact which initially caused partial tile loss. Subsequent entry heating led to overheating of the remaining tile bondline and complete loss of the tile prior to the postlanding inspection. Corrective action will be to remove and replace the L-band access panel; inspect the antenna for thermal damage.

1
STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-27-V-18A
TITLE:CFE - Volume H Door Fastner

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 338 : 13.44.00
IFA DATE: 12/03/1988
IFA STATUS: CLOSED : 02/22/1994 ELAPSED TIME: 000 : 23.13.26

PRACA STATUS: UNKNOWN HOUSTON TIME: 07.44.00
PRCBD NUMBER: S44718A 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:
Following the humidity separator anomaly (reference problem STS-27-05) the crew opened the volume H door to clean up free water. After door closure, four of five of the door fasteners could not be re-engaged. The remainder of the fasteners were successfully re-engaged. After the flight, the volume H door was removed and the fasteners and receptacles were inspected. No anomalies in the fasteners or receptacles were noted. Following the inspection, the volume H door was re-closed and all of the fasteners successfully engaged.
.
Corrective Action: None, fly as is. Closed. Criticality: None.
.
Flight Problem Report presented to Lv.II Noon PRCB on 2/22/89. (PRCBD #S44718A)
.
Status: Closed

- CLOSURE RATIONALE:
Normal crew module structural deformation on-orbit because of the cabin-to-space pressure differential, coupled with stress relief from removing the volume H and volume F access panels, prevented re-engagement of all of the volume H door fasteners in-flight.

1
STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 57

IFA NUMBER> STS-27-V-18B
TITLE:CFE - Wet Trash Door and Access Hatch

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 338 : 13.44.00
IFA DATE: 12/03/1988
IFA STATUS: CLOSED : 02/15/1989 ELAPSED TIME: 000 : 23.13.26
PRACA STATUS: UNKNOWN HOUSTON TIME: 07.44.00
PRCBD NUMBER: S44718B 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:
After performing the free water cleanup in-flight maintenance procedures (reference problem STS-27-05), the crew reported that the volume F wet trash access panel required more effort than normal to close and that the volume F wet trash door latch would not engage unless the latch was pre-compressed during closure. The wet trash panel and door latch were retested at KSC and the problems could not be duplicated.
.
Corrective Action: None, fly as is. Closed. Criticality None.
.
Flight Problem Report presented to LV II noon PRCB on 2/15/89. (PRCBD # S44718B).
.
Status: Closed

- CLOSURE RATIONALE:

The most likely cause was normal crew module structural deformation on-orbit, because of the pressure differential, coupled with stress relief from removing the volume F and volume H access panels.

If the problem recurs during a future flight and is severe enough to prevent the crew from closing the wet trash door or access panel using normal procedures, the crew is provided sufficient in-flight maintenance equipment and procedures to force closure or otherwise secure these openings.

1
STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 58

IFA NUMBER> STS-27-V-18C
TITLE:GFE - Foot Restraints on Toilet

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 02/22/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44718C 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:
Foot rest on toilet difficult to deploy and stow. Crew reported evidence of galling.
.
Corrective Action: At vendor for rework.
Criticality: None; Closed.
.
Flight Problem Report presented to Lv.II Noon PRCB on 2/22/89. (PRCBD #S44718C).
.
Status: Closed

- CLOSURE RATIONALE:
The WCS footrest was difficult to deploy and stow due to a bent pin in the deploy/stow linkage. The bent pin has been removed and replaced by vendor.

1
STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 59

IFA NUMBER> STS-27-V-18D
TITLE:GFE - SPOC (carry on computer)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 02/15/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44718D PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
P FIAR-BFCE-022-F001
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:
0 DESCRIPTION:
One of the two Shuttle Portable Onboard Computer (SPOC) units onboard went to "Halt" and displayed the "Bad Pointer" fault message while executing the Center of Gravity Manager software on flight day

4. The crew followed standard procedures to reboot the SPOC and the SPOC functioned normally during the remainder of the mission.

.

Corrective Action: None. Fly as is. Closed. Criticality: None.

.

Flight Problem Report presented to the LV II noon PRCB on 2/15/89. (PRCBD # S44718D)

.

Status: Closed

- CLOSURE RATIONALE:
The problem is an unexplained anomaly. Since the problem was transient and recoverable, the SPOC will be flown as is.

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STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-27-V-18E
TITLE:GFE galley water dispenser and package in place lever problem.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 02/15/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44718E PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
P	FIAR-BFCE-023-F001	P	FIAR-BFCE-023-F002

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

0 DESCRIPTION:
The crew reported that the galley dispensed approximately 25 percent more water than the amount selected. A similar report was received from the STS-26 crew. In addition, the "package in place" microswitch failed to disengage approximately 30 percent of the times after a package was removed. Testing of the package in place lever after the flight failed to reproduce the microswitch problem.

.

Corrective Action: For the near term, fly as is. A detailed test objective (DTO) is planned for STS-30 (next OV-104 flight) to determine how much extra water is dispensed. The OV-102 galley has been recalibrated to flow less water. If the package-in-place microswitch problem is repeated, the problem can be resolved by removing and reinserting the package or by manually manipulating the microswitch.
Analysis of the dispenser problem is being tracked under FIAR BFCE-023-F001. Analysis of the package-in-place switch is being tracked under FIAR BFCE-023-F002. Closed. Criticality: None.

.

Flight Problem Report presented to LV II noon PRCB on 2/15/89. (PRCBD # S44718E).

.

Status: Closed

- CLOSURE RATIONALE:
The problem of dispensing more water than the amount selected is a known generic probem in which the actual Orbiter supply water pressure is higher than the pressure level to which the water dispenser was calibrated.

The package-in-place microswitch is an unexplained anomaly.

1

IFA NUMBER> STS-27-V-20A
TITLE:CCTV-TV Monitor 1

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 02/15/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44720A PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 30RV-0015 P FIAR-BF-CE-029-F003
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. WELCH
2:
0 DESCRIPTION:
Closed circuit television (CCTV) monitor 1 would not display video from any signal source. The crew followed malfunction procedures and cycled power to monitor 1, and the monitor then worked properly for the remainder of the mission. The monitor fault light came on while setting up for the secure CCTV detailed test objective. There was no video signal input to the monitor, but power was applied. Under these conditions, it is normal for the fault light to come on. This condition was repeated during postflight testing.
.
Corrective Action: The Flight Training Division has been notified of the procedures to be used to prevent recurrence of this behavior. Tracked by FAIR BF-CE-029-F003. Closed. Criticality: 1R3
.
Flight Problem Report presented to LV II noon PRCB on 2/15/89 (PRCBD # S44720A)
.
KSC Tracking Number: IV-6-012629.
.
Status: Closed

- CLOSURE RATIONALE:
Ground testing showed no anomalies associated with the monitor. The most probable cause of the fault light being on was that no video signal had been selected before the monitor was powerd on the first time, and this is normal operation. The most probable cause of the fault light not coming back on when the monitor was powered up again after the malfunction procedure had been followed is that a video signal was selected during the malfunction procedure.

The Flight Training Division has been notified of the procedures to be used to prevent recurrence of this behavior.

1

IFA NUMBER> STS-27-V-20B
TITLE:CCTV-Camera "A"

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 02/15/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44720B PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 30RV-0015 M INCO-06
P FIAR-BF-CE-029-F005
0 CLOSURE INITIATED BY:

RESPONSIBLE MANAGERS 1: T. WELCH
2:

0 DESCRIPTION:
The crew reported a thumping noise when attempting to focus camera A. The camera would not focus throughout the mission. Postflight testing showed no problem in focusing the camera. The thumping noise is an indicator of proper performance of the camera. The malfunction has been determined to be in the monochrome lens assembly rather than in the camera.
.
Corrective Action: A FIAR has been opened on the monochrome lens assembly and will be returned to the vendor for failure analysis. Failure analysis tracked by FIAR-BF-CE-029-F007. Closed. Criticality 1R2.
.
Flight Problem Report presented to LV II noon PRCB on 2/15/89. (PRCBD # S44720B)
.
Status: Closed

- CLOSURE RATIONALE:
The cause of the failure of the closed circuit television camera A to focus was determined to be in the monochrome lens assembly, not in the camera. This is not considered to be a generic problem. The FIAR written on the camera has been closed since the failure was determined to be in the monochrome lens assembly. A new FIAR has been opened on the monochrome lens assembly. The monochrome lens assembly will be returned to the vendor for failure analysis.

1
STS-027 (OV-104,FLT #3) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-27-V-20C
TITLE:CCTV - Wrist Camera

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 02/15/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44720C PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 30RV-0015	P	FIAR-BF-CE-029-F004

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. WELCH
2:

0 DESCRIPTION:
The remote manipulator system (RMS) wrist camera would not respond to a gamma command. Power was cycled and the camera worked properly for the remainder of the mission. Postflight testing of the camera showed normal operation.
.
Corrective Action: The Crew Training Division has been notified to advise subsequent crews of the procedures to be used to prevent recurrence of this behavior. Closed. Criticality 1R2.
.
Flight Problem Report presented to the LV II noon PRCB on 2/15/89. (PRCBD # S44720C)
.
Status: Closed

- CLOSURE RATIONALE:
The most probable cause of the failure of the RMS wrist camera to respond to a gamma command was that a switch was changed from wrist-to-elbow, then back to wrist within a 4-second interval. This is

the expected response to this sequence of events, and will not occur when using existing operational procedures. The Crew Training Division has been notified to advise subsequent crew of the procedures to be used to prevent reoccurrance of this behavior.

-JFDPO12: NORMAL TERMINATION OF PROCESSING

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1
1

STS-028 (OV-102,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 1

IFA NUMBER> STS-28-B-01
TITLE:During recovery operations, the retrieval ship reported that the aeroheat shield door on the BSM (located on the lower right position

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 08/30/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44800B PHASE: ENTRY/LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-136764 K PR RBI-028L-0001

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

0 DESCRIPTION:
The failure of the attachment ring to which the cover assembles occurred at two bolt holes. This failed attachment ring was deformed outward from its original shape, indicating that the cover had opened and subsequently experienced forces which closed it again, thus causing the ring to be deformed in the closing direction. Chemical analysis indicated that the sooty deposit on the fracture surface resulted from the burning of the cover seal which occurs post-BSM firing. The chemical analysis also concluded that there were no iron oxides on the fracture face which indicates that the fracture was not exposed to high temperatures or air for very long before being covered by soot. The physical evidence indicates that the cover came off after separation, either during descent, at water impact, or in the water due to interaction with the parachute lines. No corrective action is required.
.
Closed in the MSFC PRACA system for STS-34 and subs on 9/18/89, tracking number is A12412.
.
Flight Problem Report approved at Level II Noon PRCB on 8/30/89. (PRCBD #S44800B)
.
Status: Closed

1

STS-028 (OV-102,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 2

IFA NUMBER> STS-28-B-02
TITLE:During postflight inspection of the left SRB ETA Ring, 18 randomly located bolts were found loose (finger tight) which connect the web to

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 08/28/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044800C PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-136868 A PV-6-136869

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

0 DESCRIPTION:
All of the loose fasteners had acceptable running torque which indicated that the nut locking mechanisms were operational. No metallurgical or dimensional discrepancies have been identified for the eighteen fasteners indicating that all characteristics were within

specification. Deformation (typical depth 0.005") was identified on the washers under the bolt heads. No other deformations on the fastening components were identified. Review of similar test articles revealed similar washer deformation. Analysis of the joint (a shear pin type application) indicates that preload in the fasteners is not essential for joint function. Furthermore, the fastener assemblies are replaced after each flight. No corrective action is required.

.

MSFC PRACA Tracking Number: A12435

.

Deferred in the MSFC PRACA for STS-34, STS-33R, and STS-32R. This problem has been closed in the MSFC PRACA system as a CRIT 3 failure, for STS-41 and subs on 8/27/90.

.

Flight Problem Report presented to Level II Noon PRCB on 9/1/89 (PRCBD #S44800C). Problem remains open awaiting data from MSFC.

.

Letter received from SRB Project Office on 8/24/90. Level II PRCB OSB closure submitted on 8/27/90. PRCBD #S044800C signed OSB on 8/28/90.

.

Status: Closed

1

STS-028 (OV-102,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 3

IFA NUMBER> STS-28-B-03
TITLE:A crack was found on the TVC lower frame attachment clevis, located adjacent to rib #5 on the left SRB aft skirt S/N 09.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 10/06/1990
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-10-06
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44800T
PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12498 A PV-4-027507

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

0 DESCRIPTION:
Physical evidence indicated that this anomaly was a single failure event. This failure is attributed to water impact, as these are the only loads of sufficient magnitude to fracture the bracket. No corrective action is required. As part of the normal refurbishment process, brackets are inspected and will be replaced if damage is found.

.

Closed in the MFSC PRACA system for STS-34 and subs.

.

Flight Problem Report approved at Level II Noon PRCB on 10/6/89. (PRCBD #S44800T).
Status: Closed.

1

STS-028 (OV-102,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 4

IFA NUMBER> STS-28-B-04
TITLE:Left SRB Forward IEA Open Circuit at Internal Feed-Thru Connector Pin.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 03/27/1991
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1991-03-27
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044802A
PHASE: PRE-LAUNCH

```
0 TYPE      TRACKING NUMBER          TYPE      TRACKING NUMBER
   A   A12666                         A   BX-0601
   A   PV-4-027251
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 of CR S044801W.
   .
   During the vendor refurbishment of the left SRB forward IEA, an open
   circuit was isolated to an unlocked pin at the internal feed-thru
   connector.
   .
   A range safety battery temperature measurement occured during the
   launch countdown on the left SRB.  The anomaly occurred for a 10
   minute period approximately 1 hour following SRB power-up and
   fluctuated intermittently between 18 and 19 degrees.  The measurement
   was nominal (approx 80 deg F) thereafter.  This problem was initially
   tracked by KSC but was later determined to be a problem associated
   with the SRB forward IEA.  The IEA was returned to the vendor for
   troubleshooting, and the anomalous measurement was repeated during
   thermal cycling (cold).  An open circuit was isolated to an internal
   feed-thru connector pin, which was not correctly locked into the
   proper position.  Since this is a criticality 3 harness connector, it
   was not subjected to a pin retention test.  As corrective action, pin
   retention testing is being evaluated for all electrical components
   (regardless of criticality).  The rationale for flight consists of
   the following:  Unlocked pins that are not making electrical contact
   are detectable by ATP; All flight IEAs are subjected to pre-ATP, ATP,
   ACO, and SIT; All critical functions of the forward and aft IEAs are
   redundant (redundancy is verified at each test level).
   .
   USBI Tracking Number:  BX-0601
   .
   MSFC PRACA Tracking Number:  A12666
   .
   This problem was closed in the MSFC PRACA system for STS-37 and subs
   on 3/27/91.
   .
   Flight Problem Report approved OSB on 7/27/90 (PRCBD #S044802A).
   .
   Status: Closed

1
        STS-028 (OV-102,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT     01/31/95
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  IFA NUMBER> STS-28-K-01
  TITLE:AT T-15 seconds the MLP recorders were accidently turned off.

0 MISSION CONSTRAINT:           SUBS         IFA TIME GMT: 000 : 00.00.00
                                             IFA DATE:
  IFA STATUS:   CLOSED   : 05/23/1990        ELAPSED TIME: 000 : 00.00.00
  PRACA STATUS: UNKNOWN                      HOUSTON TIME: 00.00.00
  PRCBD NUMBER: S044801Z                     PHASE:        PRE-LAUNCH
0 TYPE      TRACKING NUMBER          TYPE      TRACKING NUMBER
   A   PV-6-136825                    M   PMS
0 CLOSURE INITIATED BY:
  RESPONSIBLE MANAGERS 1:
                       2:
0 DESCRIPTION:
   At T-15 seconds the MLP Fans are turned off.  At this time the MLP
   recorders were also turned off, S/B on.  Approximately 200 launch
   measurements were lost from T-5 seconds through T+15 minutes.
```

.
Flight Problem Report approved at Level II Noon PRCB on 5/23/90
(PRCBD# S044801Z)
.
Status: Closed

1
STS-028 (OV-102,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-28-K-02
TITLE:FSS Water Deluge System did not operate properly.

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: S044801Y PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* ********NONE FOUND******* * ********NONE FOUND*******
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:
0 DESCRIPTION:
Film reviews indicate water was not on at T-0 or following tower
clearance.
.
Flight Problem Report approved at Level II Noon PRCB on 4/18/90
(PRCBD# S044801Y).
.
Status: Closed

1
STS-028 (OV-102,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-28-K-03
TITLE:MPS-TVC Command Initialization

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: S044801V PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 28RV-0414
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:
0 DESCRIPTION:
During second transition from G9 to OPS 1 the MPS-TVC commands were
not initialized properly during the transition.
.
Returned to G9 and AFC performed AI Mode 1.
.
Flight Problem Report approved at Level II Noon PRCB on 4/18/90
(PRCBD# S044801V)
.
Status: Closed

1
STS-028 (OV-102,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-28-K-04
TITLE:LH2 chilldown valve closed during system safing.

```
0 MISSION CONSTRAINT:            SUBS          IFA TIME GMT: 000 : 00.00.00
                                               IFA DATE:
  IFA STATUS:   CLOSED   : 06/06/1990          ELAPSED TIME: 000 : 00.00.00
  PRACA STATUS: UNKNOWN                        HOUSTON TIME: 00.00.00
  PRCBD NUMBER: S044802                        PHASE:        PRE-LAUNCH
0 TYPE      TRACKING NUMBER          TYPE      TRACKING NUMBER
   *   ********NONE FOUND*******      *   ********NONE FOUND*******
0 CLOSURE INITIATED BY:
  RESPONSIBLE MANAGERS 1:
                       2:
0 DESCRIPTION:
   During LH2 replenish, the LH2 chilldown valve was manually closed
   after the stop step key was inadvertently hit on the LH2 console.
   The system was safed without acknowledgement over the comm net.  The
   chilldown line is the only line used for replenish flow, therefore
   the flow for the LH2 was stopped.  After 91 seconds,  the system was
   brought back-up, reopening the valve.  There were no effects on the
   LH2 loading.
   .
   Flight Problem Report approved at Level II Noon PRCB on 6/6/90
   (PRCBD #S044802)
   .
   Status:  Closed

1
         STS-028 (OV-102,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT     01/31/95
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  IFA NUMBER> STS-28-K-05
  TITLE:FACILITY HI POINT BLEED (GLHT4119A) IS INCORRECT.

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: S044805Q                       PHASE:        PRE-LAUNCH
0 TYPE      TRACKING NUMBER          TYPE      TRACKING NUMBER
   *   ********NONE FOUND*******      *   ********NONE FOUND*******
0 CLOSURE INITIATED BY:
  RESPONSIBLE MANAGERS 1:
                       2:
0 DESCRIPTION:
   This measurement is a ground measurement and a redundant LCC
   measurement.  The measurement has been incorrect since STS-26.
   Should the primary LCC measurement fail,  a launch could be scrubbed.
   .
   Flight Problem Report approved at Level II Noon PRCB on 4/17/90
   (PRCBD# S044805Q)
   .
   Status:  Closed

1
         STS-028 (OV-102,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT     01/31/95
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  IFA NUMBER> STS-28-M-01
  TITLE:During postflight inspection of the right SRM Igniter, a small
        depression was found at 210 degrees on the inner primary seal on the
0 MISSION CONSTRAINT:            SUBS          IFA TIME GMT: 000 : 00.00.00
                                               IFA DATE:
  IFA STATUS:   CLOSED   : 09/28/1990          ELAPSED TIME: 000 : 00.00.00
  PRACA STATUS: CLOSED   : 1990-04-13          HOUSTON TIME: 00.00.00
  PRCBD NUMBER: S44800N                        PHASE:        POST LANDING
0 TYPE      TRACKING NUMBER          TYPE      TRACKING NUMBER
```

A A12441 A PV-6-137080
A SPR DR4-5/168
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: CARRASQUILLO/EE51
2:
0 DESCRIPTION:
The crown of the inner primary seal was depressed inward and the indentation measured approximately 0.100" circumferentially by 0.025" radially. The depression was probed and apparent voids were found in the root area of the seal. The seal successfully passed the pre-flight pressure leak checks. No blowby past the inner primary seal or pressure path to the seal was found. The corrective actions are to develop an inspection technique to detect subsurface voids; design plexiglass fixture; reinvestigate N-Ray and X-Ray; and investigate ultrasonics and background scatter. This type of anomaly has only been found in "new" seals. As a result, the outer and S&A gasket seals on STS-34 were replaced on the pad. All other seals are "used" in the igniter assemblies and were considered acceptable.
.
MSFC PRACA Tracking Number: A12441
.
This problem is deferred in the MSFC PRACA system for STS-34, STS-33R, STS-32R, STS-36, and STS-31R. This problem has subsequently been closed for STS-31R and subs on 4/13/90.
.
Flight Problem Report approved at Level II Noon PRCB on 9/28/90. (PRCBD #S44800N)
.
Status: Closed

1
STS-028 (OV-102,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-28-M-02
TITLE:During postflight inspection operations at KSC, a ply separation was identified in the internal insulation of the right SRM aft center
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 10/06/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-11-30 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44800U PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12482 A SPR DR4-5/169
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. PHELPS/EE51
2:
0 DESCRIPTION:
Further inspection revealed other ply separations of varying length (3"-5"), spaced intermittently around the circumference. The dimensions of the noted separation are 11.5" circumferential length by 1.1" longitudinal length near the center of the separation, and 0.5" at the ends of the separation by 0.5" radial depth. The separation was between insulation plies and occurred after motor separation. No heat effects were detected at the exposed surfaces of the separation. The investigation indicated that the affected area failed adhesively to approximately 2 1/2", where the failure mode transitioned to a cohesive failure. This revealed that the interface area was not vulcanized to a minimum depth of 2 1/2" where normal rubber cure was observed. During insulation layup of the aft center segment, a temporary emergency bag operation was needed when the insulation started to sag before the normal vacuum debulk could be performed. The process required a methyl chloroform double wipe to remove any remaining

residue. Results indicate that this process was not adequately performed. An adhesive residue from the yellow vinyl tape used during the emergency process was identified and confirmed from test analyses. Presently, the entire temporary emergency vacuum bag operation is ceritified as being performed properly by only one buy-off, which is checked at the end of bag removal and cleanup. As corrective action, an additional buy-off (specifically for the inspection and cleanup of the yellow tape adhesive) will be added to the planning. A review of the manufacturing logs on 360L006 (STS-34) showed no similar intermediate emergency operations were performed / necessary. A similar review will be performed on all subsequent hardware processed to date.

.

This problem was closed in the MSFC PRACA system for STS-32R and subs on 11/20/89.

.

Flight Problem Report approved at Level II Noon PRCB on 10/06/89 (PRCBD #S44800U).

.

Status: Closed

1

STS-028 (OV-102,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-28-V-01
TITLE:MMU-1 Input/Output error on OPS 1 Transmission

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 220 : 11.25.00
IFA DATE: 08/08/1989
IFA STATUS: CLOSED : 09/28/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-10-17 HOUSTON TIME: 06.25.00
PRCBD NUMBER: S44800L PHASE: PRE-LAUNCH

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 32RV-0012 M DPS-01
P CAR 28RF01

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

0 DESCRIPTION:
Two I/O errors were logged against mass memory unit 1 during the first transition to OPS 1. The error was a read tape data dropout and is considered a tape anomaly. KSC recycled to OPS 9 and performed a GMEM to access area 2 for G1. The subsequent OPS 1 transitions occured without any errors logged against the MMU's.

.

KSC will dump suspected bad area of tape post-flight before the tape is erased.

.

Troubleshooting at KSC did not reproduce the problem. SPC plans to R&R MMU-1, but JSC may want to Fly-as-is.

.

Retest showed MMU OK for flight.

.

Plan to fly as is on STS-32.

.

Was KSC IPR 28RV-0413.

.

Flight Problem Report approved at Level II Noon PRCB on 9/28/89. (PRCBD #S44800L)

.

Status: Closed

- CLOSURE RATIONALE:

This failure scenario is indicative of transient contamination on the MMU tape. Although this failure has not been seen on previous fights, it has occurred on several occasions during ground turnaround. Unfortunately, when the failure has not been duplicated, the vendor has not been able to positively identify the cause. In these cases, the units were cleaned and returned to flight status (this procedure usually takes 6 to 9 months at a cost of approximaately 200K). Therefore, MMU 1 (S/N PD13) will remain in the vehicle and no further action will be taken.

1

IFA NUMBER> STS-28-V-02
TITLE:Pilots seat moved during ascent

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 220 : 12.42.00
IFA DATE: 08/08/1989
IFA STATUS: CLOSED : 11/17/1989
ELAPSED TIME: 000 : 00.05.00
PRACA STATUS: CLOSED : 1990-06-13
HOUSTON TIME: 07.42.00
PRCBD NUMBER: S44801
PHASE: ASCENT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	PV-6-138351	K	IPR 32RV-0014
K	PR FCS-2-09-0241	M	MMACS-02
P	CAR 28RF02		

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

0 DESCRIPTION:
Pilot reported that the seat held fine during the first stage. During second stage the CDR and MS noticed the pilot's seat moving aft. When he realized he could no longer reach, the A/C switches, he moved the seat forword 2 to 3 inches. After the seat was repositioned, it immediately began to drift back and drifted all the way back to its stops.

.

Crew performed IFM on the seat, and there was no indication of a short in the forward/aft positioning switch, and no problems were indicated.

.

T/S will be performed on vehicle. Engineering establishing T/S procedure.

.

OMI V6034 redlined to T/S and checkout seat. Motor brake most suspect item. 8 1/2 - 9 shift to R&R seat.

.

In-place trouble-shooting at KSC confirmed a bad motor/brake assembly. New motor assembly to be shipped from Downey to KSC on 8/25/89. R&R and retest completed on 8/30/89.

.

KSC LSOC Tracking Numbers: PV-6-138351

.

Flight Problem Report was approved at Lv. II Noon PRCB on 11/17/89. (PRCBD# S44801)

.

CAR Status: Explained problem closeout with action required received on 3/20/90 for OV-102 (Flts 10-100), OV-103 (Flts 10-100), OV-104 (Flts 7-100), OV-105 (Flts 1-100) and subs.

.

Status: Closed

1

IFA NUMBER> STS-28-V-02
TITLE:Pilots seat moved during ascent

0
- CLOSURE RATIONALE:
This motor/brake asembly failure is considered an isolated event based on the unique history of this assembly. This motor was designed for intermittent operation: however, during qualification testing, the motor/brake was subjected to continuous operation for 300 cycles. THe higher temperatures generated by this test caused deterioration of the brake pad bonding and brake-shaft-screw Locktite. Subsequent vibration testing caused the brake shaft screw to back out. Previous refurbishment requirements failed to require inspection of the motor/brake asemby prior to ureuse for flight.

The motor/brake assembly has been replaced. An OMRSD/OMI revision is being developed to insure a proper audible brake release when power is applied, and proper brake engagement when power is removed.

1

IFA NUMBER> STS-28-V-03
TITLE:Vernier Thruster F5R Annunciated fail leak

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 220 : 14.43.00
IFA DATE: 08/08/1989
IFA STATUS: CLOSED : 11/20/1989
ELAPSED TIME: 000 : 02.06.00
PRACA STATUS: CLOSED : 1991-04-04
HOUSTON TIME: 09.43.00
PRCBD NUMBER: S044800P
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 32RV-0006	K	PR FRC2-09-0235
M	PROP-02	P	CAR 28RF03

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. WELCH
2:

0 DESCRIPTION:
Vernier thruster F5R was annunciated fail leak and deselected by RCS jet RM. OX and fuel injector temps decreased below 130 deg F RM limit. FWD RCS manifold 5 is closed and vernier driver power is off.
.
Throat plug will be inserted and a manifold drain procedure performed at Dryden prior to ferry flight. Module will be removed to replace thruster at ORPA.
.
FRCS pod removed on 9/6 and sent to the ORPA. Thruster R&R complete.
.
Retest complete on 9/27/89.
.
KSC LSOC Tracking Numbers: IV-6-017334; PV-6-136627.
.
CAR Status: Explained closeout issued on 1/25/91 for OV-103 flt# 12 (STS-39). Explained closeout for all flights, all vehicles was issued on 3/25/91. CAR also was submitted for closure on 3/25/91.
.
Flight Problem Report approved at Level II Noon PRCB on 11/20/89. (PRCBD #S44800P)
.
Status: Closed

- CLOSURE RATIONALE:
The most probable cause of the RM announced leak indication on the F5R thruster was an oxidizer pilot valve stuck partially open because of contamination. The forward pod will be removed and the F5R thruster

will be removed and replaced and sent to the vendor for failure analysis.

1

IFA NUMBER> STS-28-V-04
TITLE:Nose Landing Gear weight on wheels (WOW) indication (V51X0330X) failed off.
0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 218 : 18.38.00
IFA DATE: 08/06/1989
IFA STATUS: CLOSED : 12/13/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1991-01-24
HOUSTON TIME: 13.38.00
PRCBD NUMBER: S44801L
PHASE: PRE-LAUNCH

	TYPE	TRACKING NUMBER		TYPE	TRACKING NUMBER
0	K	IPR 28RV-0403		K	PR V070-2-A0018
	M	MMACS-01		P	CAR 28RF04

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

0 DESCRIPTION:
The NLG NO WOW 1 proximity sensor discrete failed to the off condition indicating weight on nose gear during prelaunch activities. It was toggling on/off prior to failure. The WOW "on" indication recovered on-orbit. ET SEP Button will be depressed after nose gear touchdown per nominal crew procedures to eliminate WOW/WONG dilemma.
.
KSC will T/S at KSC. Rigging and electronics box will be checked.
.
Proximity switch box self-test initially was successful. Additional trouble-shooting repeated failure indication for 6 minutes but was unable to isolate.
.
KSC swapped sensors. Proximity sensor #1 box repeated failure. PR box #1 R&R complete on 9/25/89.
.
Retest on Prox. Box Output (monitoring only) completed on 10/16/89 with no problems. Additional retest with NLG/RMLG down for prox. Switch checkout complete.
.
KSC LSOC Tracking Numbers: IV-6-017237; PV-6-136312.
.
CAR Status: Explained condition for all subsequent missions. CAR remains open with action required. (11/11/89)
.
Flight Problem Report approved at Lv. II Noon PRCB on 12/13/89. (PRCBD# S44801L)
.
Status: Closed

- CLOSURE RATIONALE:
The anomaly resulted from a faulty proximity sensor electronics box number 1. The specific cause is pending fault identificaiton within the unit and failure analysis, if required. Should failure recur on subsequent missions, recovery is available via normal crew backup

1

IFA NUMBER> STS-28-V-04
TITLE:Nose Landing Gear weight on wheels (WOW) indication (V51X0330X) failed off.
0 CLOSURE RATIONALE:(Continued from previous page).
procedures.

1
STS-028 (OV-102,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-28-V-06
TITLE:Abort Light B (PNL F6) did not illuminate during prelaunch tests.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 220 : 01.40.00
IFA DATE: 08/07/1989
IFA STATUS: CLOSED : 09/11/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-11-13
HOUSTON TIME: 20.40.00
PRCBD NUMBER: S44800D
PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 32RV-0004	K	PR DDC-2-09-0032
M	EECOM-02	P	IM/28RF07

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

0 DESCRIPTION:
During prelaunch tests, two of four abort lights on panel F6 did not illuminate. Isolated to channel 31 of ACA #2.
.
KSC will T/S at KSC.
.
Trouble-shooting found bad bulb assembly.
.
KSC to R&R socket and assembly.
.
Panel recycled to RSC for repair but testing could find no problem with lamp/switch assembly. Panel returned to SPC for further ACA troubleshooting/wire harness inspection.
.
UA K0892 approval submitted.
.
Was KSC IPR 28RV-0408.
.
KSC LSOC Tracking Numbers: IV-6-017284
.
Flight Problem Report approved at Level II Noon PRCBD on 9/11/89. (PRCBD# S44800D)
.
Status: Closed.

- CLOSURE RATIONALE:
Post-flight troubleshooting at KSC revealed that one of the lamps was burnt out and the other did not illuminate due to dirty contacts. The lamps were removed and replaced.

1
STS-028 (OV-102,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-28-V-07
TITLE:Forward RCS F5L Heater Failed On

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 222 : 06.00.00
IFA DATE: 08/10/1989
IFA STATUS: CLOSED : 11/20/1989
ELAPSED TIME: 001 : 17.23.00
PRACA STATUS: CLOSED : 1989-11-13
HOUSTON TIME: 01.00.00
PRCBD NUMBER: S44800Q
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 32RV-0009	K	PR FRC2-09-0236
P	CAR 28RF08		

0 CLOSURE INITIATED BY:

RESPONSIBLE MANAGERS 1: T.WELCH
2:

0 DESCRIPTION:
No mission impact.
.
Pod will be removed to R&R thruster F5R and F5L heater will be fixed at that time.
.
FRCS pod removed on 9/6/89 and sent to the ORPA. R&R of thruster complete.
.
Retest complete on 9/27/89.
.
CAAR Tracking Numbers: IV-6-017347; PV-6-137317
.
CAR Status: Explained closeout for all flights, all vehicles issued on 12/20/90. CAR closed on 12/21/90.
.
Flight Problem Report approved at Level II Noon PRCB on 11/20/89. (PRCBD #S44800Q)
.
Status: Closed

- CLOSURE RATIONALE:
The most probable cause of the forward RCS F5L heater to fail on was the failure of the F5L heater system's thermostat. The forward pod will be removed to replace the failed leaking F5R thruster and at that time the F5L thruster will be removed, repaired at KSC, and reinstalled.

1

STS-028 (OV-102,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-28-V-08
TITLE:S-Band Power Amplifier 2 Degraded Performance

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 222 : 00.12.00
IFA DATE: 08/09/1989
IFA STATUS: CLOSED : 10/26/1989
ELAPSED TIME: 001 : 11.35.00
PRACA STATUS: CLOSED : 1991-07-10
HOUSTON TIME: 19.12.00
PRCBD NUMBER: S44800F
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 32RV-0011	M	INCO-01
P	IM/28RF09		

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

0 DESCRIPTION:
Slowing decreasing RF power output from 117 W to 68 W. No mission impact. Remained on power amp 2 until end of mission.
.
KSC will T/S at KSC and R&R if required.
.
Power Amp found bad. R&R complete on 9/25. Retest complete on 9/27/89.
.
Flight Problem Report approved at Level II Noon PRCB on 10/26/89. (PRCBD #S44800F)
.
Status: Closed

- CLOSURE RATIONALE:
The most probalbe cause of PA 2 power degradation is early degradation of the TWT cathode. The PA has been removed, replaced, and returned to

the vendor for failure analysis.

1

IFA NUMBER> STS-28-V-09
TITLE:Potable Water Dump Valve Failed Open

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 222 : 09.10.00
IFA DATE: 08/10/1989
IFA STATUS: CLOSED : 11/20/1989
ELAPSED TIME: 001 : 20.33.00
PRACA STATUS: CLOSED : 1991-07-10
HOUSTON TIME: 04.10.00
PRCBD NUMBER: S44800J
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 32RV-0010	K	PR ECL-2-09-0534
M	EECOM-04	P	CAR 28RF11

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

0 DESCRIPTION:
During a water dump the valve did not close. Dump was stopped and restarted, valve remained open. Lines were purged with air and valve still failed to close. Isolation valves were closed to terminate dump.
.
Water dump through FES for rest of mission.
.
Troublshooting at KSC found an open circuit between pins 11 and 12 of the valve connector. Valve was removed and sent to the vendor for failure analysis.
.
Valve R&R complete. Mass spec leak check/functional complete.
.
KSC Tracking Numbers: PV-6-139356
.
Flight Problem Report approved at Lv. II Noon PRCB on 11/20/89. (PRCBD# S44800J)
.
Status: Closed

- CLOSURE RATIONALE:
The supply water dump valve failed open because of an electrical command path discontinuity. The valve has been removed and replaced. If the problem recurs on a future flight, supply water dumps can be terminated either by closing the dump isolation valve or the individual tank outlet valves and further dumps performed through the FES,.

1

IFA NUMBER> STS-28-V-10
TITLE:Star Tracker - Y Press Failed Low

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 221 : 05.46.00
IFA DATE: 08/09/1989
IFA STATUS: CLOSED : 09/28/1989
ELAPSED TIME: 000 : 17.09.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 12.46.00
PRCBD NUMBER: S44800M
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	PR GNC-2-A0012	M	GNC-03
P	IM/28RF12		

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

2:

0 DESCRIPTION:
A - Y star tracker pressurization fail BITE was annunciated prelaunch. This indicates a pressure less than 14.7 PSIA, nominal pressure is 17.2 PSIA. The BITE cleared when repressurized. The BITE reappeared on-orbit.
.
KSC will remove and replace with last remaining spare. Repair at Ball Aerospace is to be limited to purge and repressurization until an additional spare is available.
.
Now plan to repressurize in-place on 9/12/89. Chit J-3098A approved on 9/6/89 and is in work.
.
In place repressurization complete.
.
Flight Problem Report approved at Level II Noon PRCB on 9/28/89. (PRCBD #S44800M)
.
- Y star tracker pressurization failed again at KSC during STS-32 flow. (PR# GNC-2-09-0056/PV-6-143899) Will probably fly STS-32 as-is.
.
Status: Closed

- CLOSURE RATIONALE:
The most probable cause of the presure failures is a leak in the large metal "C" ring seal in the head assembly of the ST. Leaks around this seal have been exerienced in the past. Since this leak does not affect ST performance and only one spare exists in inventory to support the next four flights, the -Y ST will be purged and repressurized in place to support the next flight of OV-102. This ST will be removed and repaired when more spares become available or the unit experiences an operational failure.

1

IFA NUMBER> STS-28-V-11
TITLE:MNC Utility outlet 1 teleprinter short circuit

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 224 : 15.00.00
IFA DATE: 08/12/1989
IFA STATUS: CLOSED : 12/12/1989
ELAPSED TIME: 004 : 02.23.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 10.00.00
PRCBD NUMBER: S44800Y
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 32RV-0017	K	PR-VJCS-2-09-0957
M	EECOM-09		

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

0 DESCRIPTION:
The teleprinter cable shorted out causing a 1.5 second sustained short circuit with a 51 amp peak on MNC 016. For entry, CDR, MS1, and MS2 will reroute their suit fans to the MNB 015 utility outlets.
.
KSC to pull cable and send to JSC. KSC to check utility outlet on Panel A15.
.
Cable repaired. JSC reviewing all cables connecting to orbiter outlets for acceptability and possible redesign.
.

KSC to close PR.
.
Results of JSC cable review: Teleprinter cable change 90 deg backshell, teflon wire, ready for 102 next flight. Cable survey: teleprinter cable has Kapton wire, COAS cable collapses into small bend radius-redesign in work.
.
KSC LSOC Tracking Number: PV-6-136996
.
FIAR BFCE-29F012
.
Flight Problem Report approved at Level II Noon PRCBD on 12/12/89. (PRCBD# S44800Y)
.
Status: Closed

- CLOSURE RATIONALE:
The cause of the cable short circuit was insulation damage because of repeated sharp bending of the power wires over the back edge of the connector strain relief tang. This bending subsequently allowed the two exposed conductors to come into contact.

The teleprinter cable was removed and has undergone failure analysis. As a result of the analysis the teleprinter cable has been redesigned

IFA NUMBER> STS-28-V-11
TITLE:MNC Utility outlet 1 teleprinter short circuit

0 CLOSURE RATIONALE:(Continued from previous page).
and new flight cables have been built.

IFA NUMBER> STS-28-V-12
TITLE:APU Isolation valve talkback failure

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 11/03/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44800Z PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	PR APU-2-A0019	P	IM/28RF14

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

0 DESCRIPTION:
Anomaly continued during flight. Postflight load test verified valve was open but talkback failed.
.
Fly as is, since fix would require removal of the APU. KSC to submit a waiver for next flight.
.
Waiver approved for next flight.
.
Was KSC PR APU-A0016; IPR 28RV-0372
.
Flight Problem Report approved at Level II Noon PRCB on 11/3/89. (PRCBD #S44800Z).
.

Status: Closed

- CLOSURE RATIONALE:
The APU 2 fuel isolation valve B open indication was most probably the result of swelling of the hydrazine-sensitive valve seat. The isolation valve functioned properly throughtout the mission with the exception thah low backpressure relief values were observed.

The APU 2 fuel isolation valve B indicator will display open at all times during the next flight of OV-102 (STS-32) and subsequent OV-102 fligh ts until the unit is removed and replaced.

1

IFA NUMBER> STS-28-V-13
TITLE:Supply Water Dumpline Thermostat Improper Operation

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 220 : 08.52.00
IFA DATE: 08/08/1989
IFA STATUS: CLOSED : 10/20/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-02-22
HOUSTON TIME: 03.52.00
PRCBD NUMBER: S44800W
PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 32RV-0027	K	PR ECL-2-09-0535
M	EECOM-06	P	CAR 28RF15

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

0 DESCRIPTION:
Review of data following the redundant component checkout shows that the supply H2O dumpline heater B may be operating on its overtemp thermostat. This same signature has been noted on previous flights of OV-102.
.
May R&R heater/thermostat if valve (IFA-9) is R&R'd. Under evaluation.
.
Troubleshooting thermostat/heater recreated heater B problem, R&R completed on 10/11/89.
.
KSC LSOC Tracking Number: PV-6-139566
.
Flight Problem Report approved at Level II Noon PRCB on 10/20/89. (PRCBD #S44800W)
.
CAR Status: Problem explained with action required (10/5/89).
.
Status: Closed

- CLOSURE RATIONALE:
The controlling thermostat for supply water dump line heater B failed closed. The thermostat will be removed and replaced.

1

IFA NUMBER> STS-28-V-14
TITLE:Avionics Bay 2 A smoke concentration (V62Q0609A) bias low

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 220 : 00.45.00
IFA DATE: 08/07/1989
IFA STATUS: CLOSED : 11/20/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-08-10
HOUSTON TIME: 19.45.00

PRCBD NUMBER: S44801A PHASE: PRE-LAUNCH

	TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
0	A	PV-6-137207	K	PR ECL-2-09-0530
	M	EECOM-01	P	CAR 28RF16

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

0 DESCRIPTION:
Avionics Bay 2A smoke concentration reads low. Smaller than -1000 uG/M3 vs 280 uG/M3. Self-test showed senosr to be functional. Sensor out of spec. KSC to perform S/T on sensor, if failed, then R&R.
.
R&R completed on 8/31/89, less retest.
.
CAR Status: Closed on 8/6/90.
.
Flight Problem Report approved at Lv. II Noon PRCB on 11/20/89. (PRCBD# S44801A)
.
Status: Closed

- CLOSURE RATIONALE:
The Avionics Bay 2A smoke detector exhibited a biased low smoke concentration reading, but the detector was still functional during the flight. The detector has been removed and replaced. The vendor is performing a failure analysis.

1

IFA NUMBER> STS-28-V-15
TITLE:Low Freon Flow (V63T1410A)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 224 : 01.37.00
IFA DATE: 08/11/1989
IFA STATUS: CLOSED : 12/18/1989
ELAPSED TIME: 003 : 13.00.00
PRACA STATUS: CLOSED : 1989-12-12
HOUSTON TIME: 20.37.00
PRCBD NUMBER: S44801T
PHASE: ON-ORBIT

	TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
0	K	IPR 32RV-0028	K	PR ECL-2-09-0545
	M	EECOM-08	P	CAR 28RF17

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

0 DESCRIPTION:
Freon loop radiator panel out temp dropped below -60 deg F and freon loop 2 flow degraded about 100 lb/HR (V61R1300A). Freon loop #1 flow degraded about 50lb per hour (V63R1100A). Flow returned to normal as panels reheated. Possible water contamination. KSC to sample both loops.
.
CHIT J3089 approved at 8/25/89 noon PRCB.
.
Samples of FCL 2 and FCL1 are complete. Moisture content within spec to be closed as explained condition (normal operation).
.
Pump package R&R complete.
.
Flowrate transducers R&R continuing, "brazed-in" filter replacements complete. Reservicing completed. Flow rate in spec.
.
KSC LSOC Tracking Number: PV-6-141857
.

CAR Status: Closed on 12/4/89 by referencing CAR KB0968-010.
.
Flight Problem Report approved at Lv. II Noon PRCB on 12/18/89.
(PRCBD# S44801T)
.
Status: Closed

- CLOSURE RATIONALE:
The freon flow degradation at low temperatures was most likely caused by flow restrictions within the flow control valve of the RFCA's. The RFCA for freon coolant loop 2 has been removed and replaced. The removed RFCA will be flow tested to determine if a flow restriction exists within the flow control valve. If the problem recurs on further flights of OV-102, it will have no impact on mission success or crew safety.

1

IFA NUMBER> STS-28-V-16
TITLE:Radar Altimeter 1 and 2 lost ALT Ind at 26 ft.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 225 : 13.37.08
IFA DATE: 08/13/1989
IFA STATUS: CLOSED : 11/22/1989
ELAPSED TIME: 005 : 01.00.08
PRACA STATUS: CLOSED : 1990-11-07
HOUSTON TIME: 08.37.08
PRCBD NUMBER: S44801C
PHASE: ENTRY/LANDING

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 32RV-0013	K	PR COM-2-09-0129
M	GNC-04	P	CAR 28RF20

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: W. LEVERICH
2:
0 DESCRIPTION:
On landing the radar altimeter 1 and 2 lost altitiude reading after 26 feet.
.
Trouble-shooting by vendor at KSC complete.
.
RALT's removed and at vendor for sensitivity adjustment.
.
Vendor has completed adjustment of spares. Installation and retest complete.
.
KSC LSOC Tracking Numbers: PV-6-139509; PV-6-139501 (PR COM-2-09-0130)
.
CAR Status: Problem closeout for all flights, all vehicles was issued on 10/1/90.
.
Flight Problem Report approved at Lv. II Noon PRCBD on 11/22/89.
(PRCBD# S44801C)
.
Status: Closed

- CLOSURE RATIONALE:
The loss of lock was caused by marginal low altitude gain sensitivity settings in combination with the landing attitude and lakebed-runway conditions.

1

IFA NUMBER> STS-28-V-17
TITLE:RH OMS Fuel Quantity Gage High

```
0 MISSION CONSTRAINT:            SUBS          IFA TIME GMT: 225 : 12.39.00
                                               IFA DATE:     08/13/1989
  IFA STATUS:   CLOSED    : 12/14/1989         ELAPSED TIME: 005 : 00.02.00
  PRACA STATUS: CLOSED    : 1989-11-02         HOUSTON TIME: 07.39.00
  PRCBD NUMBER: S44801N                        PHASE:        ENTRY/LANDING
0 TYPE      TRACKING NUMBER          TYPE      TRACKING NUMBER
   K   IPR 32RV-0025                  K   PR RP04-05-0255
   M   PROP-06                       P   CAR 28RF21
0 CLOSURE INITIATED BY:
  RESPONSIBLE MANAGERS 1: T. WELCH
                       2:
0 DESCRIPTION:
   The RH OMS Fuel quantity gage read 5.7% high after deorbit burn based
   on predicted values.
   .
   Evaluation indicates fuel aft probe failure.  No KSC tasks identified
   as of yet/waiver process in work.
   .
   KSC LSOC Tracking Number:  PV-6-142555
   .
   CAR Status:  Closed as same type of failure as being worked under CAR
   KB0036.  All activity will be tracked under CAR KB0036.  (11/11/89)
   .
   Flight Problem Report approved at Lv. II Noon PRCB on 12/14/89.
   (PRCBD# S44801N)
   .
   Status:  Closed

- CLOSURE RATIONALE:
   The fuel quantity indicated by the fuel gauging system at the end of the
   deorbit burn was higher than expected: however, the fact that the rate
   of fuel depletion was close to expected values implies that the aft
   probe may have developed a leak.  Post-flight troubleshooting at KSC
   revealed an anomalous output from the probe.

   During flight, the quantity can be accurately determined by use of burn
   time computations.  During ground operations, if the fuel gauging system
   fails completely, altenate loading procedures can be used during tank
   fill operations to determine the quantity.  Also, since repair of the
   fuel gauging system requires removal of the pod, no immediate action is
   recommended until the pod is removed for some other required repair or
   maintenence.
1
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  IFA NUMBER> STS-28-V-18
  TITLE:APU #1 test line temp high

0 MISSION CONSTRAINT:            SUBS          IFA TIME GMT: 225 : 13.05.00
                                               IFA DATE:     08/13/1989
  IFA STATUS:   CLOSED    : 12/11/1989         ELAPSED TIME: 005 : 00.28.00
  PRACA STATUS: CLOSED    : 1989-09-25         HOUSTON TIME: 08.05.00
  PRCBD NUMBER: S44801H                        PHASE:        ENTRY/LANDING
0 TYPE      TRACKING NUMBER          TYPE      TRACKING NUMBER
   P   IM/28RF22
0 CLOSURE INITIATED BY:
  RESPONSIBLE MANAGERS 1: S. MCMILLAN
                       2:
0 DESCRIPTION:
   APU 1 test line temperature was high (90 deg to 92 deg) and was over
   the FDA limit (90 deg) for several cycles.  Then switched to B HTRS
   following FCS checkout per plan.  B HTRS were almost to FDA limit the
```

entire period that they were on. Engineering has confirmed that heaters operated properly. CR in work to change FDA limits.
.
Flight Problem Report approved at Lv. II Noon PRCB on 12/11/89. (PRCBD# S44801H)
.
Status: Closed

- CLOSURE RATIONALE:
A BFS FDA alarm was received on the APU 1 fuel test line temperature 1 because a TMBU to increase the FAD limit from 90 deg F to 95 deg F was not performed. This limit increase is necessary because the temperaure sensor has been moved to a location where it experiences a warmer environment. A permanent FDA limit change for this measurement will be incorporated with an STS-36 effectivity.

1
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IFA NUMBER> STS-28-V-19
TITLE:Rubber grommet on Wet Trash Volume came loose

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 11/20/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44801B PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR FCS-2-09-0240
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:
0 DESCRIPTION:
The rubber grommet on the wet trash volume came loose. The crew stowed the grommet in the dry trash volume.
.
PR written to reinstall gromment. Gromment okay.
.
Gromment has been reinstalled per print.
.
Flight Problem Report approved at Lv. II Noon PRCB on 11/20/89. (PRCBD# S44801B)
.
Status: Closed

- CLOSURE RATIONALE:
The rubber grommet came loose from the Volume F opening due to the apparent exertion of off-nominal forces on the grommet or the inadequate attachment of the grommet to the Volume F opening. The grommet was reattached to the Volume F opening. Fly-as-is.

1
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IFA NUMBER> STS-28-V-20
TITLE:GFE - Iodine in Drinking Water

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 09/28/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44800K 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:
The crew measured greater than 13 PPM iodine in the drinking water through the final 3 days of the flight. Crew limited water consumption due to taste of iodine. Redesign in work for long term solution (8 months). Investigating short term fixes.
.
JSC direction required.
.
Flight Problem Report approved at Level II Noon PRCB on 9/28/89. (PRCBD #S44800K)
.
Status: Closed

1

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IFA NUMBER> STS-28-V-21
TITLE:Crew experienced sneezing

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: S44801E PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
C CHIT J3092 K IPR 32RV-0033
P IM/28RF25

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

0 DESCRIPTION:
Crew experienced eye irritation and sneezing when head close to windows W1 and W2. Biologists sent to KSC to take air samples and surface samples of windows W1 and W2. Samples taken on 8/22; additional samples after vehicle power-up on 8/23.
.
KSC to dump LIOH cannisters and send contents to JSC for analysis.
.
Samples taken; shipment to JSC week of 9/4.
.
Analysis in-work; no results yet.
.
Flight Problem Report approved at Lv. II Noon PRCB on 12/8/89. (PRCBD# S44801E)
.
Status: Closed

- CLOSURE RATIONALE:
The cause of the crew's sneezing near windows 1 and 2 is unknown. Upcoming crews will be advised to use the presently manifested air sample container to take a sample when and where the sneezing symptoms are experienced, should the problem recur. In adition, crews will be advised to mention the problem on air-to-ground communications when it occurs, so personnel can be ready to take samples immediately after landing. Medical sciences personnel will attempt to have an extra air sample container and a solid sorbent sampler manifested on future flgihts to aid in troubleshooting any similar probems.

1

IFA NUMBER> STS-28-V-22
TITLE:GFE - Umbilical well camera inoperative

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: S44801F PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* ********NONE FOUND******* * ********NONE FOUND*******
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:
0 DESCRIPTION:
The 16mm camera with 10mm lens Umbilical well camera was determined to be inoperative. Film needs advanced every 45 days. Believe film broke when operated in day 42-43. JSC to submit OMRSD change to day 30. Film is old and needs advanced periodically so it won't stick.
.
RCN in work
.
Flight Problem Report approved at Lv. II Noon PRCB on 12/8/89. (PRCBD# S44801F)
.
Status: Closed

- CLOSURE RATIONALE:
The 16mm camera acquired only 1.5 seconds of launch photography because the film broke 1.5 seconds after the camera was activated during ascent. Film for these cameras for the STS-32 mission will be loaded 30 days prior to the planned launch date to decrease the probablilty of the film developing a "set" that could result in the film breaking.

1

IFA NUMBER> STS-28-V-23
TITLE:Hyd sys #2 unloader valve operation out-of-spec

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 09/20/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1991-01-30 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44800H PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR HYD-2-09-0332 P CAR 28RF26
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. THELEN
2:
0 DESCRIPTION:
Valve cycled at 2350 psi accumulator pressure during prelaunch which is high (s/b 2100). During flight, accumulator pressure dropped sharply from 2500 psi to 2350 psi and valve cycled (out of spec). Suspect valve leakage and stiction. MC284-0438-0001 configuration has history of leakage. Attrition mod exists to change to - 0002. KSC R/R with -0002. Return to vendor for F/A.
.
R&R complete; Leak check complete.
.
CAR Status: Explained closeout for all vehicles, all flights issued on 12/7/90.

.
Flight Problem Report approved at Level II Noon PRCB on 9/20/89.
(PRCBD #S44800H)
.
Status: Closed

- CLOSURE RATIONALE:
Suspect valve leakage and striction caused by foreign particle contamination and/or valve wear caused the valve to cycle out-of-specification. The accumulator pressure decay signatures are in indication of an improperly seated pilot valve ball. This valve configuration has a history of particle contamination and pilot valve ball damage. An existing valve upgrade configuration has been approved for implementation on an attrition basis.

1
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IFA NUMBER> STS-28-V-24
TITLE:Bodyflap excessive deflection during ascent. (Camera E207)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 12/01/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1992-07-10 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44801D PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
C CHITJ3094A P CAR 28RF27
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: M. SUFFREDINI
2:
0 DESCRIPTION:
Film showed excessive deflection (+/- 9") at trailing edge tip. Frequency approximately +/- 8 hertz. Dynamic verification tests at JSC measured 12.6 hertz. The lower frequency indicates possible loss of stiffness in body flap. This failure was also seen during acoustic certification test at JSC. Saw wallowing out of spherical bearings at fuselage and body flap attach points. Recommend do modal test on body flap. Chit approved.
.
KSC modal test complete on OV102/OV103.
.
Pull OV-102 Body flap on 9/14/89 to inspect rotary actuator/attach fittings.
.
CAR Status: Explained problem closeout for all vehicles/all flights rescinded. Explained closeout rationale for STS-38 (OV-104,Flt #7) and STS-41 (OV-103,Flt #11) was issued on 6/19/90. Explained closeout for OV-103, flt#12 (STS-39) issued on 12/13/90. Explained closeout with action required for all vehicles, all flights was issued on 3/2/91. Action required is for the completion of supplier fatigue life analysis of actuator mechanism and possibly fatigue life analysis of body flap structure. Action response closeout for all vehicles/all flights issued on 7/10/91. CAR submitted for closure, by RI, on 7/11/91.
.
Flight Problem Report approved at Level II Noon PRCB on 12/1/89.
(PRCBD #S44801D)
.
Status: Closed

- CLOSURE RATIONALE:
The two port actuators were replaced with new units to save turnaround

time. The ATP was performed on the two starboard actuators, both passed and have been reinstallled on the vehicle. A detailed inspection of the attachment points did not reveal any irregularities. The three OV-102 body flap accelerometers have been reattached for

1

IFA NUMBER> STS-28-V-24
TITLE:Bodyflap excessive deflection during ascent. (Camera E207)

0 CLOSURE RATIONALE:(Continued from previous page).
STS-32 and subsequent flights.

1

IFA NUMBER> STS-28-V-25
TITLE:NSP Frame Sync Errors

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: S44801G PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 32RV-0020 P IM/28RF28
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. SUITER
2:
0 DESCRIPTION:
NPS frame sync errors were noted during prelaunch at KSC. Also seen on first pass at Bermuda and IOS. Ground problem previously suspected.
.
MILA Tape Playback noisy.
.
Data under evaluation (no conclusive results yet, but community still believes no problem with flight H/W).
.
Was KSC IPR 28RV-0416.
.
Flight Problem Report approved at Lv. II Noon PRCB on 12/8/89. (PRCBD# S44801G)
.
Status: Closed

- CLOSURE RATIONALE:
When the NSP 2 is provided with a known reliable and controlled uplink RF and data source, it responds as expected. The most problale cause of the NSP-2 frame syschronizaton error was an RF multipath condition. The possibility of a network-to-NSP generic incompatibility problem exists.

Action assigned to the Shuttle TDRSS Operating Procedures Working Group (STOPWG).

1

IFA NUMBER> STS-28-V-26
TITLE:Orbiter Structure Heat Damage

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 09/20/1989 ELAPSED TIME: 000 : 00.00.00

PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44800G PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-136987 K PR-STR-2-09-2301

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

0 DESCRIPTION:
Orbiter structure (L.O.C AFT right ET structure) shows evidence of possible burn through. JSC Thermal Subsystem Manager (J. Smith) along with KSC and Downey subsystem engineers have reviewed the evidence and are agreed that there is no burn through or overheating. A problem closeout report will be written.

.
Tile removal completed; structual inspection completed. No damage noted, tile to be reinstalled.

.
Flight Problem Report approved at Lv. II Noon PRCB on 9/20/89. (PRCBD #S44800G).

.
Status: Closed.

- CLOSURE RATIONALE:
The presence of RTV silicone deposits due to outgassing is considered a nominal occurrence in this area. This is due to the presence of the ET door thermal barrier, which is coated with RTV by design. Launch Operations at KSC indicated that most of the RTV deposits were present before the STS-28 flight. The TPS engineering community has reviewed the evidence and is in agreement that no burn through or overheating occurred. The damaged tile will be replaced.

1
STS-028 (OV-102,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-28-V-27
TITLE:Crew reported loud thump/thud at first OPS 1 transition

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 12/13/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44801K PHASE: PRE-LAUNCH

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
C J3121

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

0 DESCRIPTION:
Crew reported loud thump/thud at the exact time of the first OPS-1 transition. Crew stated that whole vehicle shook. Time coincident with aero surface null from drooped position.

.
KSC reviewing strain gage data.

.
Telcon held on 9/12; JSC/KSC/DWNY reported that review of onboard data revealed no flight control or hydraulic system abnomalities.

.
Request made to power up MADS/ACIP prior to transition for future flights in an effort to isolate cause.

.
Flight Problem Report approved at Lv. II Noon PRCB on 12/13/89. (PRCBD# S44801K)

.
Status: Closed

- CLOSURE RATIONALE:
  The cause of the thump is unknown. It was most likely related to elevon positioning, but the specific source cannot be determined from available information. The anomaly had no apparent effect on the subsequent performance of the vehicle.

1

IFA NUMBER> STS-28-V-28
TITLE:SSME 1 GH2 FCV showed sluggish response

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 12/13/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-10-12 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44801J PHASE: ASCENT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
C	CHIT J3097	K	IPR 32RV-0047
K	PR MPS-2-09-0566	P	CAR 28RF29

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

0 DESCRIPTION:
SSME 1 GH2 flow control valve indicated sluggish response during the first three minutes of ascent. Would not fully stroke. Would not respond when commanded during thrust bucket. Chit in work to test, then pull all 3 GH2 FCV's.
.
Leak checks/inspection in work. R&R scheduled for 9/9/89.
.
FCV #1 stuck open as determined by signature test. All three FCV's have been removed. Poppets at DNY/Vendor for inspection and cleaning.
.
Blowdown of system lines complete.
.
Poppets installed and leak checks/valve signatures complete.
.
KSC LSOC Tracking Numbers: PV-6-139102; PV-6-139571 (PR MPS-2-09-0565)
.
CAR Status: Explained Closeouts received for OV-103 (Flt 9; STS-33); OV-102 (Flt 9; STS-32); OV-102 (Flt 10; STS-35); OV-103 (Flt 10; STS-31) and OV-104 (Flt 6, STS-36).
.
Flight Problem Report approved at Level II Noon PRCB on 12/13/89. (PRCBD# S44801J)
.
Status: Closed

- CLOSURE RATIONALE:
  The sluggish behavior of the FCV E1 was most problably caused by a combination of contamination and an out-of-specification (too tight) sleeve-to-seal clearance. FCV's E1 and E3 were returned to the vendor where their sleeves were remachined to achieve an in-specification sleeve-to-seal clearance.

1

IFA NUMBER> STS-28-V-29
TITLE:GOX Press. Manifold slow to pressurize

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 12/18/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44801U PHASE: ENTRY/LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
P IM/28RF30
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MCMILLAN
2:
0 DESCRIPTION:
Rate of rise in pressurization manifold during entry was slow. No CHIT required. JSC will use data from standard OMI checkout to evaluate problem.
.
Flight Problem Report approved at Lv. II Noon PRCB on 12/18/89. (PRCBD# S44801U)
.
Status: Closed

- CLOSURE RATIONALE:
The apparent slow rise in pressure in the MPS GO2 prepressurization/pressurization manifold when compared to the rise in the LO2 manifold was most probalby misleading data caused by a GO2 pressure transducer bias in combination with the downlisted pressure being truncated at zero psi. The actual manifold pressure rise was nominal.

1

IFA NUMBER> STS-28-V-30
TITLE:Early Transition

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 12/14/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-02-21 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44801P PHASE: ENTRY/LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
P CAR 28RF31
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: W. LEVERICH
2:
0 DESCRIPTION:
Early transition from laminar to turbulent flow was observed during descent. Unexpected RCS and control surface activity was observed during roll reversal. TPS tile gap fillers observed extending from orbiter mold line after landing. Protruding objects would cause early transition. Flight Control System responded in nominal fashion to induced sideslip offset. Early boundary layer transition resulting from protruding gap fillers is not a flight safety issue. Turnaround impact from heat damage can be expected. Flight Control System can accomodate this condition. No RCS redline concerns.
.
Flight Problem Report approved at Lv. II Noon PRCB on 12/14/89. (PRCBD# S44801P)
.
CAR Status: Closed on 12/22/89 for all subsequent missions and vehicles.
.
Status: Closed

- CLOSURE RATIONALE:
The unanticipated flight control system behavior was a normal response to sideslip conditions induced by early boundary layer transition and resulting asymmetric drag. The flight control system operated well within design capabilites with respect to control margins and RCS usage. The eary boundary layer transition was most probably caused by the protruding TPS tile gap fillers. The cause of the missing and protruding tile gap fillers is most probably related to workmanship during gap filler installation. Early boundary layer transition is not a safety-of-flight concern as performance was well within flight control margins, and heating effects were well within thermal constraints.

1

IFA NUMBER> STS-28-V-31
TITLE:Loose foam on ET LO2 umbilical.

0 MISSION CONSTRAINT: SUBS
IFA STATUS: CLOSED : 12/14/1989
PRACA STATUS: UNKNOWN
PRCBD NUMBER: S44801Q
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
ELAPSED TIME: 000 : 00.00.00
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: D. THELEN
2:

0 DESCRIPTION:
The Orbiter ET well separation camera shows TPS along the entire forward portion of the LO2 umbilical was displaced. The displaced TPS was 18" wide by 8" long by 2" deep. It was loosely attached by the fire barrier coating. The foam is from that portion of umbilical which is GFE to the ET project.
.
Flight Problem Report approved at Lv. II Noon PRCB on 12/14/89. (PRCBD# S44801Q)
.
Status: Closed

- CLOSURE RATIONALE:
The source of the damaged foam is unknown, but umbilical foam debris is not considered a safety of flight concern. An existing enhancement which adds a protective polyurethane coating provides additional strength to the umbilical foam. This change was implemented to minimize handling damage.

1

IFA NUMBER> STS-28-V-5A
TITLE:Instrumenation: Left Engine LH2 Inlet Temp failed high (V41T1201C)

0 MISSION CONSTRAINT: SUBS
IFA STATUS: CLOSED : 07/19/1990
PRACA STATUS: CLOSED : 1989-09-18
PRCBD NUMBER: S044801M
IFA TIME GMT: 220 : 12.38.00
IFA DATE: 08/08/1989
ELAPSED TIME: 000 : 00.01.00
HOUSTON TIME: 07.38.00
PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A IV-6-017344 K IPR 32RV-0007
M BSTR-01 P CAR 28RF10

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:

2:

0 DESCRIPTION:
During ascent, the LH2 inlet temp transducer failed off scale high.
.
Transducer R&R complete, less retest (V1009).
.
Flight Problem Report approved OSB on 7/19/90 (PRCBD #S044801M).
.
Status: Closed

- CLOSURE RATIONALE:
SSME 2 LH2 inlet temperature failed offscale high during ascent (V41T1201C). KSC has removed and replaced failed transducer.

1

IFA NUMBER> STS-28-V-5B
TITLE:Instrumentation: RRCS HE OX TK PRESS 1 fail (V42P3110C)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 213 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 07/19/1990
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-07-10
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044801M
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 28RV-0384	K	PR RP04-A0016
M	PROP-01	P	CAR 28RF05

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

0 DESCRIPTION:
Prelaunch, the pressure was erratic. On-orbit, the pressure delta between the P2 measurement has decreased during flight.
.
KSC will T/S at KSC. If problem is the transducer, then R&R (1 shift), if problem is the signal conditioner, then fly as is, since fix would require removing the RH pod.
.
Was KSC PR UA-2-A0002.
.
R&R directed by PRCB on 9/8. R&R complete, retest in work.
.
CAR Status: Closeout received on 3/29/90.
.
Flight Problem Report approved OSB on 7/19/90 (PRCBD #S044801M).
.
Status: Closed

- CLOSURE RATIONALE:
Right RCS oxidizer helium tank pressure #1 failed (V42P3110C). Prelaunch, the pressure measurement was erratic. On orbit, the measurement difference between P1 and P2 decreased. KSC has removed and replaced the failed transducer.

1

IFA NUMBER> STS-28-V-5C
TITLE:Instrumentation: FCP 1 H2 Flow Erratic (V45R0170A)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 221 : 01.30.00
IFA DATE: 08/08/1989

IFA STATUS: CLOSED : 07/19/1990 ELAPSED TIME: 000 : 12.53.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 20.30.00
PRCBD NUMBER: S044801M PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR FCP-2-09-0222 M EECOM-03
P IM/28RF06

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

0 DESCRIPTION:
Fuel cell 1 H2 flowmeter output began to drift high at MET 12:30 and exhibited subsequent erratic behavior with intermittent upper limit indications. No mission or turnaround impact.
.
KSC to submit an exception.
.
Fly as is, since fix would require the removal of the fuel cell.
.
NASA/KSC agrees to defer to next planned FCP R&R.
.
Flight Problem Report approved OSB on 7/19/90 (PRCBD #S044801M).
.
Status: Closed

- CLOSURE RATIONALE:
Fuel Cell #1 H2 flowmeter output began to drift high at M.E.T. 12:30 and exhibited subsequent erratic behavior with intemittent upper limit indications. It has been determined acceptable to fly as is. KSC will submit exception.

1

IFA NUMBER> STS-28-V-5D
TITLE:Instrumentation: SSME 3 GH2 Outlet temp erratic (V41T1361A)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 220 : 12.38.00
IFA DATE: 08/08/1989
IFA STATUS: CLOSED : 07/19/1990 ELAPSED TIME: 000 : 00.01.00
PRACA STATUS: CLOSED : 1989-08-30 HOUSTON TIME: 07.38.00
PRCBD NUMBER: S044801M PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 32RV-0008 K PR MPS-2-09-0572
M BSTR-02 P CAR 28RF13

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

0 DESCRIPTION:
During ascent the GH2 outlet temperature was erratic.
.
Transducer R&R complete, less retest (V1009).
.
KSC LSOC Tracking Numbers: IV-6-017345; PV-6-140588
.
Flight Problem Report approved OSB on 7/19/90 (PRCBD #S044801M).
.
Status: Closed

- CLOSURE RATIONALE:
During ascent, the GH2 outlet temperature measurement (V41T1361A) was erratic. KSC has removed and replaced the failed transducer.

1

IFA NUMBER> STS-28-V-5E
TITLE:Instrumentation: Supply water tank B quantity was erratic (V62Q0420A)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 223 : 08.28.00
IFA DATE: 08/11/1989
IFA STATUS: CLOSED : 07/19/1990
ELAPSED TIME: 002 : 19.51.00
PRACA STATUS: CLOSED : 1989-07-24
HOUSTON TIME: 03.28.00
PRCBD NUMBER: S044801M
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 32RV-0026	M	EECOM-10
P	IM/29RF18		

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

0 DESCRIPTION:
Supply water tank B quantity MSMT was randomly erratic throughout mission.
.
System leak check in work.
.
Trouble-shooting to date has not repeated failure.
.
SPC to follow JSC recommendation to close as explained condition (Ground data processing problem).
.
Flight Problem Report approved OSB on 7/19/90 (PRCBD #S044801M).
.
Status: Closed

- CLOSURE RATIONALE:
All postlanding test results show that the orbiter hardware is working properly. This is a criticality 3 measurement. This problem is closed as inadvertent listing as an IFA through misidentification of data dropouts as a spacecraft transducer problem.

1

IFA NUMBER> STS-28-V-5F
TITLE:Instrumentations: OI Measurements miswired.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 07/19/1990
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1993-02-01
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044801M
PHASE:

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
C	CHIT J3095	K	IPR 32RV-0059
P	IM/29RF19		

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

0 DESCRIPTION:
During STS-28 mission it was determined that the following measurements were miswired:
1. V58T0130 Sys. 1 LH2 Retract ACTR Return Line.
.
2. V58T0169 Sys. 1 Body Flap Return Line.
.
3. V58T0269 Sys. 2 Body Flap Return Line.
.
4. V58T0369 Sys. 3 Body Flap Return Line.
.

5. V58T0384 Sys. 3 RSB Hyd. Return Line.

.

CHIT in-work.

.

SPC plans to disposition that insulation is per print.

.

Flight Problem Report approved OSB on 7/19/90 (PRCBD #S044801M).

.

Status: Closed

- CLOSURE RATIONALE:
It has been determined that it is technically acceptable to fly these erratic measurements as is. An Orbiter and GFE Projects Office decision has been made to fly as is.

-JFDP012: NORMAL TERMINATION OF PROCESSING

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STS-029 (OV-103,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-29-B-01
TITLE:Extensive damage to the left SRB TVC components was found during the postflight inspection.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 04/11/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44950
PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PV-6-124593

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

0 DESCRIPTION:
The TVC components' damage is attributed to the entrainment of SRM exhaust products and the subsequent hydrazine fire. The TVC subsystem was exposed to temperatures which exceeded the auto-ignition point of the hydrazine, resulting in detonation of the fuel components. Hydrazine fires have occurred during descent phase only.
.
MSFC PRACA Tracking Number: A12103.
.
Closed in the MSFC PRACA system.
.
Flight Problem Report approved at Level II Noon Board 4/11/89. (PRCBD #S44950)
.
Status: Closed

- CLOSURE RATIONALE:
The TVC subsystem was exposed to temperatures which exceeded the auto-ignition point of the hydrazine contained in the fuel system resulting in detonation of fuel components. This is partially attributable to nozzle extension jettison at apogee. This damage is attributed to the entrainment of SRM exhaust products and the subsequent hydrazine fire. Hydrazine fires have occurred during descent phase only.

1

STS-029 (OV-103,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 2

IFA NUMBER> STS-29-B-02
TITLE:A structural crack of about 3 inches was found in the left Aft Skirt intermediate ring cap near HDP #8.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 04/11/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-04-17
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44951
PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12104

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

0 DESCRIPTION:
Inspection revealed several areas of missing foam around the intermediate ring. The ring cap crack completely penetrated at the filet radius runout. Damage is attributed to the greater than usual

water impact loads of the left SRB. A metallurgical examination of the fractured surface also indicated the fracture occurred due to impact loading.

.

Closed in the MSFC PRACA system.

.

Flight Problem Report approved at Level II Noon PRCB on 4/11/89. (PRCBD #S44951)

.

Status: Closed

- CLOSURE RATIONALE:
This crack is attributable to water impact loads. A metallurgical examination of the fractured surface indicates that the fracture occurred due to impact loading. We have experienced similar damage on earlier flights prior to the use of three large main parachutes. There is no generic corrective action required.

1

STS-029 (OV-103,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 3

IFA NUMBER> STS-29-B-03
TITLE:Extensive damage to the right SRB TVC components was found during the postflight inspection.
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 04/11/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44952 PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PV-6-124599
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R. HENRY/EE11
2:
0 DESCRIPTION:
The TVC components' damage is attributed to the entrainment of SRM exhaust products and the subsequent hydrazine fire. The TVC subsystem was exposed to temperatures which exceeded the auto-ignition point of the hydrazine, resulting in detonation of the fuel components. Hydrazine fires have occurred duing descent phase only.

.

MSCF PRACA Tracking Number: A12105.

.

Closed in the MSFC PRACA system.

.

Flight Problem Report approved at LV II noon PRCB on 4/11/89. (PRCBD #S44952)

.

Status: Closed

- CLOSURE RATIONALE:
The TVC subsystem was exposed to temperature which exceeded the auto-ignition point of the hydrazine contained in the fuel system resulting in detonation of fuel components. This is partially attributable to nozzle extension jettison at apogee.

1

STS-029 (OV-103,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-29-B-04
TITLE:The Debris Containment System (DCS) plunger did not properly seat at HDP #8 during liftoff.
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:

IFA STATUS: CLOSED : 04/20/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-07-06 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44953 PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12147
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: W. MANN/EE11
2:
0 DESCRIPTION:
Postflight inspection of HDP #8 identified several debris chunks missing; most of the NSI Booster Cartridge and three large slivers of the Frangible Nut. Follow-up inspection at the pad found debris in the post #8 sand pit similar to the description of the missing pieces, although the total weight of the debris discovered was only 1.6 ounces. (Please note that it cannot be determined if the debris found in the sand pit is from STS-29 since the sand pit was not cleaned following the STS-26R and STS-27R missions.) No corrective action is nessessary at this time.
.
MSFC has deferred this IFA in their PRACA system for STS-30R, STS-28R and STS-34. Subsequently closed for STS-28 and subs, on 7/6/89, based on design enhancements, responding to the recurrence of this anomaly on STS-30R (IFA STS-30-B-2).
.
Flight Problem Report presented to Level II Noon PRCB on 4/13/89. A rewrite was requested. Rewrite was received on 4/18 and submitted for approval and signature out of board. Approved on 4/20/90 (PRCBD #S44953).
.
Status: Closed

- CLOSURE RATIONALE:
All eight of the STS-27 blast containers functioned properly containing virtually all debris and seven of the STS-29 blast containers functioned properly containing virtually all debris. We will continue to carefully evaluate this design, but do not feel that changes are warrented at this time.

1
STS-029 (OV-103,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-29-B-05
TITLE:Super Light Ablator (SLA) 220 was missing from the sloped face of the RSS antenna away from the orbiter (-z axis) of the left SRB.
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 04/13/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-04-10 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44954 PHASE: ENTRY/LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12148
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: W. MANN/EE11
2:
0 DESCRIPTION:
A 6 1/2 in X 5 1/8 in area accounting for 75% of total missing material is due to an adhesive failure. An additional 25% of the SLA 220 failed cohesively. A small area of substrate had minor sooting present, although the majority was clean (indicative of water impact failure). The sooting most likely occurs during reentry as the SRB is "burping" from remaining fuel consumption. Not an Ascent issue.
.
This problem was closed in the MSFC PRACA system for STS-31R and Subs

on 4/10/90. Closure was based on a new released procedure (10PRC-0572) for the application and repair of RSS antenna thermal protection.

.

Flight Problem Report approved at Level II Noon PRCB on 4/13/89. (PRCBD #S44954)

Status: Closed

- CLOSURE RATIONALE:

The characteristics of this damage are almost identical to the STS-26 antenna SLA damage which was dispositioned as water impact. This is not an ascent issue since the loss occurred during descent. The range safety antenna had performed properly during flight.

1

STS-029 (OV-103,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 6

IFA NUMBER> STS-29-B-06

TITLE:The SRB Back Up Ring (to Ordnance Ring Mounting fasteners) had missing and fractured nuts on both SRB's.

0 MISSION CONSTRAINT: SUBS

IFA TIME GMT: 000 : 00.00.00
IFA DATE:

IFA STATUS: CLOSED : 04/13/1989
PRACA STATUS: CLOSED : 1989-04-17
PRCBD NUMBER: S44955

ELAPSED TIME: 000 : 00.00.00
HOUSTON TIME: 00.00.00
PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER

A A12149

0 CLOSURE INITIATED BY:

RESPONSIBLE MANAGERS 1: R. RUNKLE/EE11
2:

0 DESCRIPTION:

The following damage occurred on the Right and Left SRBs: Right - 2 nuts missing and 1 cracked (all nuts are 5/16"); Left - 1 nut missing and 1 cracked (all nuts 5/16"). The damaged nuts were approximately 180 degrees apart on both SRBs. There are 120 fasteners installed on this mounting ring. Damage to these fasteners has been recorded on 7 of 54 frustums flown. The damage does not affect the function of frustum separation.

.

Closed in the MSFC PRACA system.

.

Flight Problem Report approved at Level II noon PRCB on 4/13/89. (PRCBD #S44955)

.

Status: Closed

- CLOSURE RATIONALE:

This damage is well within our experience base. The damage does not affect the function of frustum separation. It is not a flight issue as it occurs at frustum separation, nor is it a reuse issue as all related hardware is used for only one mission.

1

STS-029 (OV-103,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 7

IFA NUMBER> STS-29-B-07

TITLE:A foreign object was seen while watching the film of the main parachute deployment.

0 MISSION CONSTRAINT: SUBS

IFA TIME GMT: 000 : 00.00.00
IFA DATE:

IFA STATUS: CLOSED : 04/13/1989
PRACA STATUS: CLOSED : 1989-04-17
PRCBD NUMBER: S44956

ELAPSED TIME: 000 : 00.00.00
HOUSTON TIME: 00.00.00
PHASE: ENTRY/LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12150
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R. RUNKLE/EE11
2:
0 DESCRIPTION:
Postflight review of the parachute deployment from the Forward Skirt Dome mounted camera identified the following sequence of events. Approximately 0.25 second after initiating frustum separation command and during main parachute deployment, a foreign object was observed to cross the camera field of view. The object is visible for approximately 0.04 second. It first appears in the lower right corner of the field of view at an estimated height of ten feet above the Forward Skirt Dome. The object is cylindrical (and hollow) in shape. Evaluation of the film has determined that the object is a parachute deployment bag lacing grommet. Examination of the deployment bags revealed that one grommet was missing. The location of the missing grommet correlates with the flight direction of the object in the film. Grommets are damaged every flight due to the violent motion inherent in parachute deployment. This particular damage is well within the experience base. This is not an ascent issue, nor does this type of damage interfere with parachute deployment.
.
This problem is closed in the MSFC PRACA system.
.
Flight Problem Report approved at Level II Noon PRCB on 4/13/89. (PRCBD #S44956)
.
Status: Closed

- CLOSURE RATIONALE:
Grommets are damaged every flight due to the violent motion inherent in parachute deployment. This particular damage is well within our experience base. This is not an ascent issue, nor does this type of damage interfere with parachute deployment.

1
STS-029 (OV-103,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-29-D-01
TITLE:Noise on A/G downlink

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 074 : 22.25.00
IFA DATE: 03/15/1989
IFA STATUS: CLOSED : 04/13/1989 ELAPSED TIME: 002 : 07.28.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 16.25.00
PRCBD NUMBER: S44957 PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M MCC-29-01
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. BRANDENBURG
2:
0 DESCRIPTION:
Beginning 74/2225Z, during crew sleep period, noise was heard in the MCC on the A/G loops at 75/0425Z. The noise cleared with no corrective action taken in the MCC. No problems were noted with telemetry data. DR # 061047
.
Resolution: Investigation into this anomaly has revealed that the airground voice system (AGVS) in the MCC was apparently locking to a bit pattern in the OD that is within the 2-bit error tolerance of the AGVS frame sync even though a good sync pattern was present. This theory was substaniated by replaying the recorded data through the

AGVS with the bit error tolerance set to zero; the correct frame sync pattern was locked to and no noise was present. The anomaly was recreated by adjusting the frame sync tolerance back to 2. Therefore, the conclusion is that the OD contained a bit pattern that was within the 2-bit error tolerance, which the AGVS locked to, thus skewing the voice bit pickup locations within the OD. There was no impact to the ongoing operations since the crew was asleep. Further, an active voice downlink would have cleared the problem. Procedurally, the MCC COMM TECH can clear the problem by reselecting SKR/AGVS interface and cause the frame sync to the correct word. This topic was addressed at the STS/TDRSS operations and procedures working group (STOPWG) meeting held on March 28, 1989 and it was noted by the network director that all other stations except the MCC and the ESTL implemented engineering change EC 4385-4061 dated 2/10/86 to set the AGVS bit error tolerance to zero. The MCC and ESTL were not included in the EC distribution and further investigation on the failure and the EC will be conducted.

.

Flight Problem Report approved at Level II Noon PRCB on 4/13/89.
(PRCBD #S44957)
Status: Closed

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IFA NUMBER> STS-29-D-01
TITLE:Noise on A/G downlink

0
- CLOSURE RATIONALE:

Investigation into this anomaly has revealed that the AGVS in the MCC was apparently locking to a bit pattern in the OD that is within the 2-bit error tolerance of the AGVS frame sync, even though a good sync pattern was present. Post flight investigation has revealed a design problem in the frame synchronizers in the AGVS.

An operational workaround has been implemented to have the redundant AGVS string set-up with zero bit error tolerance, should the problem reocccur.

1

IFA NUMBER> STS-29-D-02
TITLE:PONCE DE LEON TELEMETRY DATA

0 MISSION CONSTRAINT: SUBS

IFA STATUS: CLOSED : 04/13/1989
PRACA STATUS: UNKNOWN
PRCBD NUMBER: S44958

IFA TIME GMT: 072 : 14.58.00
IFA DATE: 03/13/1989
ELAPSED TIME: 000 : 00.01.00
HOUSTON TIME: 08.58.00
PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M STDN-01

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

0 DESCRIPTION:

The PDL Return Link Data System (RLDS) is used to automatically detect and decode either Orbiter transponder mode (GSTDN or TDRS) and was originally designed to accommodate an early Orbiter failover to TDRSS mode. The RLDS was not used during STS-26 or 27 due to known hardware probems. During these missions the PDL telemetry bypassed the PDL RLDS. An Orbiter "fail to panel" contingency now keeps the Orbiter in the GSTDN mode since TDRSS link margins are negative until external tank

separation.

- CLOSURE RATIONALE:
PDL's RLDS experienced signal degradation following sustained intermittent pad data pre-launch. The intermittent data to PDL while the Orbiter is on the pad is not unusual since look angles are extrememly low. Degradation of TLM data was masked by the expected poor performance while on the pad. A hardware/bit synchronizer anomaly exists in the RLDS. With consideration to the "fail to open" strategy and the MIL/PDL RTLS capability, it is appropriate to bypass (permanently) the RLDS at PDL. In addition, a defective telemetry recorder reproduce module was found which complicated troubleshooting during the post flight period.

1

STS-029 (OV-103,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-29-E-01
TITLE:After landing, a leak in the MCC bond line was detected on ME-1, S/N 2031.
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 04/12/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44959 PHASE: ASCENT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	A010323	K	PV-6-124590

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: E. JACOBS/EE21
2:
0 DESCRIPTION:
Internal leakage at MCC to nozzle interface (joint G15) was discovered postflight of STS-29. Borescope inspection of the MCC bond line visually confirmed the leak location in the area of nozzle tube 630. A subsequent ultrasonic inspection shows one disbonded area of 0.4 inch wide (circumferential) by 0.09" to 0.12" forward, which intersects the aft feedslots. This delamination of the nickel plating over the copper narloy-z material reduced the structural integrity of the joint and the LH2 leak resulted. The engine has been removed and shipped to Rocketdyne.
.
Preflight leak tests and ultrasonic inspections of the Atlantis engines ensures that there are no preflight leaks or detectable disbonds which could propagate into a leak.
.
Contractor Tracking Number: UCR A010323.
.
MSFC PRACA Tracking Number: A12112.
.
This problem was closed in the MSFC PRACA system for STS-41 and subs on 8/17/90.
Flight Problem Report approved at Level II Noon PRCB on 4/12/89. (PRCBD #S44959)
Status: Closed

- CLOSURE RATIONALE:
Leak caused by liner disbond which initiated at an undetectable flaw or marginal bond region at aft end of feed slots and propagated through during transient.

1

STS-029 (OV-103,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-29-E-02
TITLE:During Disassembly of ME-1,S/N 2031, the G15 seal (MCC1, nozzle joint) was found with blue discoloration in the area between tubes 54 and 80

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 04/26/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44964
PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A UCR A013435

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

0 DESCRIPTION:
A combination of several factors including protrusion and MCC cut-back caused the bluing of the bellows seal. Evaluation of the engines for the next flight (STS-30R) indicated that all three engines are acceptable for flight.
.
MSFC PRACA Tracking Number: A12192.
.
MSFC deferred this IFA for STS-30R in their PRACA system. MSFC subsequently closed this problem on 7/13/89 for STS-28R and subs. Closure was based on ECP 1060 which addressed seal protusion and gap limits, as well as installation of a Flow Recirculation Inhibitor (FRI).
.
Flight Problem Report approved at the Level II Noon PRCB on 4/26/89. (PRCBD #S44964).
.
Status: Closed

- CLOSURE RATIONALE:
A combination of several factors including protrusion and MCC cut-back caused the bluing of hte bellows seal. Evaluation of the engines on the next flight)(STS-30) indicate that all three units are acceptable for flight.

1
STS-029 (OV-103,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 13

IFA NUMBER> STS-29-E-03
TITLE:During disassembly of HPOTP unit 4105R1 of ME-3, S/N 2028, three tip seal segments were found to have gaps greater than spec

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 04/26/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44965
PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A URC A021874

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J.M.O.SMITH/EE22
2:

0 DESCRIPTION:
Two of the tip seal segments had a 0.0020" gap and the other segment gap measured 0.0030". No screw rotation was noted. Although the possibility exists that a unit may develop a gap in flight, the gap is not expected to be greater than the current history of 0.004 inch and will not result in screw rotation or damage to the screw, retainer, or any of the associated hardware.
.
MSFC PRACA Tracking Number: A12198.

.
This problem has been deferred in the MSFC PRACA system for STS-30R through STS-38. This problem was closed in the MSFC PRACA system for STS-35 and subs on 5/1/90.
.
Flight Problem Report approved at Level II Noon PRCB on 4/26/89. (PRCBD #S44965)
.
Status: Closed

- CLOSURE RATIONALE:
Although the possibility exists that a unit may develop a gap in flight, the gap is not expected to be greater than the current history of 0.004 inch and will not result in screw rotation or damage to the screw, retainer, or any of the associated hardware.

1

IFA NUMBER> STS-29-E-04
TITLE:During disassembly of HPOTP 4105R1 on ME-3 (S/N 2028) two cup washers were found rotated past the stake.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 04/26/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44966
PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A UCR A020319

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. MOORHEAD/EE21
2:

0 DESCRIPTION:
The balance piston screw preload is not functionally required during operation and is exceeded by the pressure loads during mainstage (which seats the subassembly). This may allow cupwashers to rotate, but the limit of rotation is confined to 75 degrees or less due to frictional restraint in the undamaged portions of the screw recess wall. The mechanical interference between the cupwasher stake outer diameter and the retainer screw recess wall inner diameter will prevent further screw rotation.
.
MSFC PRACA Tracking NUmber: A12197.
.
This problem is deferred in the MSFC PRACA system through STS-35. This problem was closed in the MSFC PRACA system for STS-39 and subs on 1/25/91.
.
Flight Problem Report approved at Level II Noon PRCB on 4/26/89. (PRCBD# S44966).

- CLOSURE RATIONALE:
The balance piston screw preload is not functionally required during operation and is exceeded by the pressure loads during mainstage which seats the sub-assembly. This may allow cupwashers to rotate but the limit of rotation is confined to 75 degrees or less due to frictional restraint in the undamaged portions of the screw recess wall. The mechanical interference between the cupwasher stake outer diameter and the retainer screw recess wall inner diameter will prevent further screw rotation.

1

IFA NUMBER> STS-29-E-05
TITLE:During disassembly of HPOTP 2222R1 on ME-2 (S/N 2022), three cup washers were found rotated past the stake.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 04/26/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44967
PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A UCR A020324

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. MOORHEAD/EE21
2:

0 DESCRIPTION:
The balance piston screw preload is not functionally required during operation and is exceeded by the pressure loads during mainstage (which seats the subassembly). This may allow cupwashers to rotate, but the limit of rotation is confined to 75 degrees or less due to frictional restraint in the undamaged protions of the screw recess wall. The mechanical interference between the cupwasher stake outer diameter and the retainer screw recess wall inner diameter will prevent further screw rotation.
.
MSFC PRACA Tracking Number: A12196.
.
This problem has been deferred in the MSFC PRACA system for STS-30R through STS-35. This problem was closed in MSFC PRACA system for STS-39 and subs on 1/25/91.
.
Flight Problem Report approved at Level II Noon PRCB on 4/26/89. (PRCBD #S44967)
Status: Closed

- CLOSURE RATIONALE:
The balance piston screw preload is not functionally required during operation and is exceeded by the pressure loads during mainstage which seats the subassembly. This may allow cupwashers to rotate but the limit of rotation is confined to 75 degrees or less due to frictional restraint in the undamaged portions of the screw recess wall. The mechanical interference between the cupwasher stake outer diameter and the retainer screw recess wall inner diameter will prevent further screw rotation.

1

IFA NUMBER> STS-29-I-01
TITLE:Loss of data from multiple prelaunch balloons

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 09/07/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44969
PHASE: PRE-LAUNCH

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
O WC-89--75

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: MARV COHN
2:

0 DESCRIPTION:
Upon release of the L-14 hour balloon at 5:07 p.m. CST on March 12, 1989, the weather station received "bad data" from the radar due to

"garbage on the line." A second release was made at 5:30 p.m. CST, but the weather station received no data. A third release was made at 6:00 p.m. (00:00:00 GMT) CST with radar data coming in on both lines and both worked perfectly, however, as a result of this 53 minute delay, the Julian date rolled over, but the date in the transmission header was not changed to reflect this. The Univac system saw no ill effects from this, but the MIDDS required a real-time fix of their software to accept the data. Communications technicians checked both lines and found nothing wrong.

.

After release of the L-4.25 hour balloon at 2:52 a.m. CST on March 13, 1989, "garbage on the line" problems similar to the aboved were noted. This balloon was abondoned. Technicians cleaned and reseated circuit cards in the synchronous to asynchronous data converter. A second release was made at 3:15 a.m. CST with data flowing on both lines. No further problems of this type were experienced.

.

The L-2 hour balloon is normally dual tracked for the first 50 minutes after which, one radar drops track to pick up the L-70 minute release. Somehow the data lines were reversed so that the tracking of the L-2 hour balloon was terminated at 43,000 feet. The problem was not discovered until the L-70 minute balloon was released and no data was being received on the expected line. By the time the problem was found the L-70 minute balloon was passing 17,000 feet. A re-release at 6:35 a.m. CST was successful.

.

The balloon was dual processed on the MV7800 A and B, and program restart problems occurred on one computer. One computer worked well and data was processed on time. Had the L-2 hour and L-70 minute balloons been properly tracked, this processing problem would have caused data to have been incomplete on one balloon. This problem has been frequently observed, and apparently occurs during peak computer workloads.

.

Flight Problem Report approved at Level II Noon PRCB on 9/7/89.

1

IFA NUMBER> STS-29-I-01
TITLE:Loss of data from multiple prelaunch balloons

0 DESCRIPTION: (Continued from previous page).
(PRCBD #S44969)

.

Status: Closed

- CLOSURE RATIONALE:
Problem was caused by procedural error with equipment configuration contributing to the error. Corrections to the operating procedures implemented.

1

IFA NUMBER> STS-29-K-01
TITLE:GHE Supply reg exceeded 4500 psi

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 04/18/1994 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044901A PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER

K IPR 29RV-0293/0296 K S72-0685-01-02-046
M MPS

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

0 DESCRIPTION:
During the Launch countdown (OV 103 STS29) on 3/13/89 at (9:50:00 GMT) the T-3 hr MPS helium bottle fill to flight pressure (2000 to 4400 PSIA max) resulted in the MPS engine two helium system supply pressure indicated 4500 psia.
.
The SSME He TK 2 exceeded 4490 psi OMRSD requirement. S00FF0-070. PRESS He TKS to FLT pressure limit (4490 psia) and the engine two helium supply pressure indicated 4500 psia.
.
The pressure limit violation was caused by the MLP GSE Helium Supply panel S72-0685-1 primary regulator exceeding set pressure of 4350 psi when the demand (to FLT press) was put on it. IPR 29RV-0293 was upgraded to a PR against the panel regulator.
IPR 29RV-0293 was generated to document the GSE regulator problem and IPR 29RV-0296 was generated to document the overpressure of the flight helium tank (SSME TK 2).
.
Status: The IPR was upgraded to a PR, an OMRS waiver (WK 1042) was approved and closed prior to launch.
.
KSC LSOC Tracking Numbers: IV-6-014355
.
Flight Problem Report approved at Level II Noon PRCB on 4/18/90 (PRCBD #S044901A)
Status: Closed

- CLOSURE RATIONALE:
The GSE regulator was removed and replaced. A design change is in work to install "vespel" seats on these regulators to replce the "KEL-F-81" plastic seats which have repeatedly failed. The PR against the engine 2 tank was closed. This problem should have no effects on subsequent missions due to the procedural and LCC changes which have been implemented.

1

IFA NUMBER> STS-29-M-01
TITLE:The primary heater current to the RH Aft Field Joint heater showed no voltage and a gradient temperature decrease during the countdown.
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 04/13/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44960 PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A CPWR K IPR 29RV-0289
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:
0 DESCRIPTION:
Investigation through the roostertail (area where the systems tunnel passes over the Aft Skirt/SRM) indicated an open circuit of the primary heater. Physical examination of the voltage supply cable to the heater cable connector revealed that all four wires (2 positive, 2 negative) running from the heater to the "pigtail" connector had overheated, and a 5/8 to 1 inch area was melted away and missing.

STS-30R and subs are/will be protected by fast acting circuit breakers and updated monitoring software.

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CAAR tracking numbers : IV-6-014349, PV-6-124294

.

Contractor Tracking Numbers: SPR DR4-5/139.

.

MSFC PRACA Tracking Number: A12119.

.

MSFC has deferred this IFA for STS-30R, STS-28R, and STS-33R in their PRACA system. This problem was closed on 9/18/89, in the MSFC PRACA system, for STS-34 and subs. Closure based on corrective actions already in place and engineering redesign information and efforts already accomplished.

.

Flight Problem Report approved at Level II Noon PRCB on 4/13/89. (PRCBD #S44960)

.

Status: Closed

- CLOSURE RATIONALE:

The 25 amp circuit breaker was ineffective in sensing the failure or breaking the circuit prior to damage. An electrical short circuit occurred between the primary heater power conductor and the cable connector backshell. The electrical short-circuit and subsequent arcing resulted in heater connector damage that interrupted power to primary heater element.

1

STS-029 (OV-103,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-29-M-02

TITLE:Postflight inspection of the Left Aft Center Factory Joint revealed several adhesive unbonds of the EPDM vulcanized weather seal.

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

IFA STATUS: CLOSED : 04/12/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44961 PHASE: ENTRY/LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-124361

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. TRENKLE/EE51
2:

0 DESCRIPTION:

All unbonds of the weatherseal were adhesive failures (not cohesive). It appears that contamination is the likely mechanism which prevents an acceptable bond of the SRM case to the Chemlok (bonding agent upon which the EPDM weather seal is vulcanized). Inspection of the pin retainer band verified no damage/breakage, but the band was noted as nominally stretched. The damage is attributed to water impact.

.

Contractor Tracking Number: SPR DR4-5/140.

.

MSFC PRACA Tracking Number: A12111.

.

Closed in the MSFC PRACA system.

.

Flight Problem Report approved at Level II Noon PRCB on 4/12/89. (PRCBD #S44961)

.

Status: Closed

- CLOSURE RATIONALE:
Weatherseal damage resulted from splashdown impact, although the factory joint surface contamination and smoothness may have contributed to a reduced bond strength. Factory joint damage of this type is not considered to be a flight safety issue. It is a reuse concern because of the water intrusion into the joint (metal corrosion concern). Conscan limits that have been imposed on all factory joints and surface finish requirements are currently being reviewed.

1
STS-029 (OV-103,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-29-M-03
TITLE:The fiberglass phenolic liner was almost totally removed from the Aft Exit Cone shell of the Left SRB.
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 04/13/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44962 PHASE: ENTRY/LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A SPR DR4-5/142
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: B. POWERS/EE51
2:
0 DESCRIPTION:
The missing liner resulted in the most exposed aluminum seen on an exit cone including STS-1. Severing the nozzle extension at apogee caused increased heating of the shell, weakening of the phenolic bond line, and amplified loss of exit cone phenolies at splashdown.
.
MSFC PRACA Tracking Number: A12155.
.
Closed in the MSFC PRACA system.
.
Flight Problem Report approved at Level II Noon PRCB on 4/13/89. (PRCBD #S44962)
.
Status: Closed
- CLOSURE RATIONALE:
Shell exterior temperatures were significantly higher between 300 seconds (re-entry into atmosphere) and 400 seconds (splashdown). Severing at apogee caused increased heating of the shell, loss of bond and loss of the exit cone phenolics at splashdown. Structural analysis results show aft exit cone phenolics are in compression and will remain in the shell throughout motor burn, with conservative assumptions, including no adhesive bond strength. No processing problems are known to have affected the aft exit cone component bonding/fabrication.

STS-30 aft exit cone severance will not occur at apogee. KSC post flight engineering evaluation limits document will be revised to show that post-flight inspection findings of exit cone GCP liner and GCP insulator damage at splashdown, and small aft exit cone shell bondline voids are both acceptable and should be expected.

1
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IFA NUMBER> STS-29-M-04
TITLE:Fretting corrosion was found on both Left and Right Case Field Joint Capture Feature interference surfaces.
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:

IFA STATUS: CLOSED : 04/13/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44963 PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A SPR DR4-5/143
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: M. ROSS/EE51
2:
0 DESCRIPTION:
This problem is a recurrence from STS-26R and STS-27R. This is the first time that depths greater than 0.010" (established refurbishment specification) have been exceeded. The Right Aft Field Joint had a fretted area measuring 0.33"L X 0.22"W X 0.13" depth. Fretting remains considered a refurb issue only.
.
MSFC PRACA Tracking Number: A12158.
.
This problem was closed in the MSFC PRACA system for STS-41 and subs, on 5/14/90, and will be tracked at Lv. III under IFA STS-26-M-3.
.
Flight Problem Report approved at Level II Noon PRCB on 4/13/89. (PRCBD #S44963)
Status: Closed

- CLOSURE RATIONALE:
Continue with post flight refurbishment activity of hand removal of all burrs and smoothing of any raised metal on both capture feature component surfaces. Study/evaluate methods to pinpoint time of occurrence. Continue subscale modeling/testing activities and joint surface coating and lubrication studies. Conduct fracture mechanics analysis to predict useful life.

1

IFA NUMBER> STS-29-M-05
TITLE:Postflight inspection at MTI of the left SRM cylinder-to-cylinder factory joint (forward segment) revealed fretting.
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 07/21/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44968 PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A DR4-5/156
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: M. ROSS/EE51
2:
0 DESCRIPTION:
The fretting is similar, but less severe, than that observed in the RSRM field joints. It is characterized on the clevis by small pits on the land between the o-ring grooves and on the tang by small pits at locations corresponding to those on the clevis. The pitting is 0.005 inch deep or less. Deferral rationale consits of the following: (1) Fretting in this area is not a sealing issue. (2) Fracture mechanics evaluation of the safe-life in the fretted areas of the factory joint after one use is greater than four additional missions. Since the factory joint loading which could produce fretting is less severe than that in the field joint, the factory joint safe-life will be even greater. (3) There is no stress corrosion susceptibility after stacking due to assembly stresses.
.
MSFC PRACA Tracking Number: A12320.

.
This problem has been deferred in the MSFC PRACA system for STS-28R through STS-35. This problem was closed in the MSFC PRACA system for STS-37 and subs on 3/11/91.
.
Flight Problem Report approved at Level II Noon PRCB on 7/21/89. (PRCBD #S44968)
Status: Closed

- CLOSURE RATIONALE:
Fretting occurs at metal-to-metal contact surfaces under load and subjected to vibration and slip. Current shim sizing technique would indicate that joint gap was over shimmed and subsequent line-to-line metal contact existed on this joint.

1
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IFA NUMBER> STS-29-T-01
TITLE:Excessive fluid was seen in the External Tank/Orbiter LH2 umbilical AREA DURING THE PRELAUNCH. *** SEE ALSO STS-29-V-6 ***
0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 072 : 14.57.00
IFA DATE: 03/13/1989
IFA STATUS: CLOSED : 09/11/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 08.57.00
PRCBD NUMBER: S44906
PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M BSTR 03 P 29RF06
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: P. MULLER/EE31
2:
0 DESCRIPTION:
During LH2 fast fill a larger than normal amount of vapor, liquid droplets, and excessive frost was observed on the LH2 Umbilical. The vapor cloud observed was most probably caused by an LH2 leak at the ET/Orbiter interface of the 4-inch LH2 recirculation valve (Orbiter-responsible hardware). This leakage was most probably the result of improper foam seepage, (verified present in the belleville spring cavity during postflight inspection) preventing the necessary angulation of the 4-inch valve assembly. The existence of a thermal leak thru a cracked foam insulation, as well as the presence of high humidity, may have contributed to the phenomenon. As corrective action the foam closeout and inspection procedures were modified to prevent recurrence of the foam seepage. Hydrogen leak detectors were added to the ET/Orbiter 17-inch umbilical area. A launch commit criteria change was approved to define go/no-go criteria using launch pad camera observations and indications from the new leak detectors.
No disposition exists in the MSFC PRACA since this problem was ultimately tracked and closed by the Orbiter Project in the JSC PRACA system.
Flight Problem Report approved by Level II Noon PRCB on 9/11/89. (PRCBD #S44906)
Status: Closed

- CLOSURE RATIONALE:
The vapor cloud observed during the prelaunch period was most probably caused by an LH2 leak at the ET/Orbiter interface of the 4-inch LH2 recirculation valve. This leakage was most probably the result of improper foam seepage preventing the necessary angulation of the 4-inch valve assembly. The existence of a thermal leak through a cracked foam insulation, as well as the presence of high humidity, may have contributed to the phenomenon.

1
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IFA NUMBER> STS-29-V-01
TITLE:RCS Jet R1U failed off during mated coast

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 072 : 15.05.00
IFA DATE: 03/13/1989
IFA STATUS: CLOSED : 09/15/1989
ELAPSED TIME: 000 : 00.08.00
PRACA STATUS: CLOSED : 1991-04-04
HOUSTON TIME: 09.05.00
PRCBD NUMBER: S44901
PHASE: ASCENT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 33RV-0023	K	PR RP03-0318
M	PROP-01	P	CAR 29RF02

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. WELCH
2:

0 DESCRIPTION:
Reaction control system jet R1U failed off during mated coast due to low chamber pressure. Thruster returned to vendor for failure analysis. Removed RH pod will be installed on OV-104.
.
Need R1U thruster, EOD 9/1.
.
KSC LSOC Tracking Number: PV-6-126066.
.
CAR Status: Explained closeout for STS-35 (OV-102, Flt #10) received on 5/9/90. Explained closeout for all vehicles, all flights issued. CAR closed on 12/10/90. Updates to the explained closeout for all vehicles, all flights was issued on 3/19/91. CAR also resubmitted for closure on 3/19/91.
.
Flight Problem Report approved at Level II Noon PRCB on 9/15/89. (PRCBD #S44901)
Status: Closed

- CLOSURE RATIONALE:
The most probable cause of thruster R1U failure to fire was due to contamination on the pilot poppet and seat caused by exposure of the thruster to moisture during ferry flight.

Thruster R1U was removed and replaced, and the vendor performed failure analysis on the thruster. An OMRSD change will be initiated to preclude the use of loose ferry flight plugs. This may require the procurement of additional plugs.

1
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IFA NUMBER> STS-29-V-03
TITLE:PRSD CYRO H2 Tank 3 Pressure High and Manifold Pressures Erratic

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 072 : 17.06.00
IFA DATE: 03/13/1989
IFA STATUS: CLOSED : 06/21/1989
ELAPSED TIME: 000 : 02.09.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 11.06.00
PRCBD NUMBER: S44903
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
M	EECOM-02	P	CAR 29RF01

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

0 DESCRIPTION:
The power reactant storage and distribution cryogenic hydrogen tank 3 pressure was erratic. Manifold pressures also indicated several pressure spikes. Similiar behavior has been observed on other flights. Tank 3 put back into operation at MET 2:00:00 and tank and manifold pressures behaved normally for reminder of flight.
.
Downey to provide analysis and written report to close problem at JSC.
.
Flight Problem Report approved at Level II Noon PRCB on 6/21/89. (PRCBD #S44903)
Status: Closed

- CLOSURE RATIONALE:
The erratic pressure signatures experienced are normal hardware responses to operating from tank 3 alone when it is near full. The flight data file procedures have been updated to prevent feeding three fuel cells and performing a fuel cell purge with a single tank at high quantity. This will eliminate the high-flow condition responsible for the erratic signature.

1

IFA NUMBER> STS-29-V-04
TITLE:GOX FCV 1 Delayed start to open and FCV 3 opened slowly

0 MISSION CONSTRAINT: SUBS
IFA STATUS: CLOSED : 07/19/1989
PRACA STATUS: UNKNOWN
PRCBD NUMBER: S44904
IFA TIME GMT: 072 : 14.57.00
IFA DATE: 03/13/1989
ELAPSED TIME: 000 : 00.00.00
HOUSTON TIME: 08.57.00
PHASE: ASCENT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
C	CHIT J2951	K	IPR 33RV-0021
K	PR-MPS-3-09-0682	M	BSTR-01

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

0 DESCRIPTION:
The oxygen flow control valves 1 & 3 had a delayed start to open and the oxygen flow control valve 3 opened slower than normal. Data showed that in subsequent cycles, the valves operated normally. Sluggish opening during the first open cycle has been observed on other flights.
.
Valves will be removed for inspection.
Chit J2951 approved 3/27/89.
Valves are scheduled for R&R on 4/12/89.
Current trace test was performed on 4/11/89.
.
Flow control valves have been removed. Valves sent to Downey for initial inspection and subsequently have been sent to the vendor (Eaton).
Valves will be installed while the vehicle is in the OMRF.
.
R&R and retest complete.
JSC/Orbiter Tracking Numbers: CAR 29RF04 and CAR 29RF08.
.
Flight Problem Report approved by Level II Noon PRCB on 7/19/89. (PRCBD #S44904)
Status: Closed

- CLOSURE RATIONALE:

The combination of GOX valve deflections due to thermal gradients present after main engine start, possible valve deflections from thrust structure loading or other contributing factors, and contamination probably caused partial binding between the poppet and sleeve. This binding was eliminated as the valves were thermally stabilized by the continued hot gas flow.

1

IFA NUMBER> STS-29-V-05
TITLE:PI Channel 1 Erroneous Reading

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 072 : 21.19.00
IFA DATE: 03/13/1989
IFA STATUS: CLOSED : 05/03/1989
ELAPSED TIME: 000 : 06.22.00
PRACA STATUS: CLOSED : 1989-07-03
HOUSTON TIME: 15.19.00
PRCBD NUMBER: S44905
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 33RV-0026	K	PR-DDC-03-09-0051
M	INCO-01	P	CAR 29RF05

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

0 DESCRIPTION:
Post TDRS deploy, the payload interrogator (PI) 1 started sweeping, which is an indication of a loss of PI Lock. The PI 1 channel 906 was reading 006 on the ground. During this time, Sunnyvale reported TDRS frame sync while the PI did not show lock, which is a known condition in the IUS CIU. Crew cycled thumbwheel for PI 1 channel, and PI locked with good data out.
.
R/R A1L panel.
Chit J2952 approved on 3/30/89.
Panel A1L is at the Rockwell Service Center (RSC).
.
Panel A1L delivery back to vehicle week of 4/12. Retest on 4/17.
.
Retest okay, will U.A. as a sticky thumb wheel.
.
Replaced with push wheel.
KSC Tracking Numbers: PV-6-125676
Flight Problem Report approved at Level II noon PRCB on 5/3/89. (PRCBD #S44905).
Status: Closed

- CLOSURE RATIONALE:
The most probable cause of the anomaly was an intermittent contact condition within the panel select thumbwheel switch that cleared when the switch was cycled. The thumbwheel switch on panel A1L was removed, replaced, and returned to the orbiter prime contractor for failure analysis.

1

IFA NUMBER> STS-29-V-06
TITLE:EXCESS VAPOR AT H2 ET/ORB UMBIL AREA PRELAUNCH ** SEE ALSO STS-29-T-01

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 072 : 14.57.00
IFA DATE: 03/13/1989
IFA STATUS: CLOSED : 09/11/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-05-14
HOUSTON TIME: 08.57.00

PRCBD NUMBER: S44906 PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
C CHIT J2954 M BSTR-03
P CAR 29RF06

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

0 DESCRIPTION:
During LH2 fast fill a larger than normal amount of vapor, liquid droplets, and excessive frost was observed on the LH2 Umbilical. The vapor cloud observed was most probably caused by an LH2 leak at the ET/Orbiter interface of the 4-inch LH2 recirculation valve (Orbiter-responsible hardware). This leakage was most probably the result of improper foam seepage. (Verified present in the belleville spring cavity during postflight inspection) preventing the necessary angulation of the 4-inch valve assembly. The existence of a thermal leak thru a cracked foam insulation, as well as the presence of high humidity, may have contributed to the phenomenon. As corrective action the foam closeout and inspection procedures were modified to prevent recurrence of the foam seepage. Hydrogen leak detectors were added to the ET/Orbiter 17-inch umbilical area. A launch commit criteria change was approved to define go/no-go criteria using launch pad camera observations and indications from the new leak detectors.

Chit J2954 approved on 3/27/89.
MSFC performing special tests. KSC to install a leak detector.
.
LCC and inspection criteria resolved and used on STS-30. Will be used on subs.
Flight Problem Report approved at Level II Noon PRCB on 9/11/89. (PRCBD #S44906)
Status: Closed

- CLOSURE RATIONALE:
The vapor cloud observed during the prelaunch period was most probably caused by an LH2 leak at the ET/Orbiter interface of the 4-inch LH2 recirculation valve. This leakage was most probably the result of improper foam seepage preventing the necessary angulation of the 4-inch valve assembly. The existence of a thermal leak through a cracked foam insulation, as well as the presence of high humidity, may have contributed to the phenomenon.

1
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IFA NUMBER> STS-29-V-08
TITLE:OPS-2 Recorder Trk 4 Inoperable

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 074 : 00.58.00
IFA DATE: 03/14/1989
IFA STATUS: CLOSED : 07/14/1989 ELAPSED TIME: 001 : 10.01.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 18.58.00
PRCBD NUMBER: S44908 PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR-INS-A0020 M INCO-04
O GFE-DR-BH930037

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

0 DESCRIPTION:
OPS-2 recorder track 4 would not acquire sync lock when data was dumped. The recorder would not dump properly in forward or reverse at more than one site. Other tracks are OK. Remove and

replace, and return recorder to JSC for T/S.
.
Recorder removed on 4/10 and shipped to JSC.
.
Install replacement recorder on 4/13.
Retest complete.
Flight Problem Report approved at Level II Noon PRCB on 7/14/89.
(PRCBD #S44908)
Status: Closed

- CLOSURE RATIONALE:
The most probable cause of the inability to dump track 4 data was a cold solder joint at the input side to the intermediate amplifier board. OPS 2 recorder removed and replaced.

1
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IFA NUMBER> STS-29-V-09
TITLE:PLBD Port B Close Indication Fail

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 077 : 10.59.00
IFA DATE: 03/18/1989
IFA STATUS: CLOSED : 07/26/1989 ELAPSED TIME: 004 : 20.02.00
PRACA STATUS: CLOSED : 1989-12-19 HOUSTON TIME: 04.59.00
PRCBD NUMBER: S44909 PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 33RV-0025	K	PR-MEQ-3-09-0412
M	MMACS-02	P	CAR 29RF07

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

0 DESCRIPTION:
Payload bay door port aft close limit switch in the ready-to-latch module failed to indicate closed.
.
Chit J2953 approved at 3/30 PRCB
Verified close indication still on.
Switch module removed on 4/12. KSC to send module to Downey.
.
Verified switch contact bad (Switch #4)
Replacement switch to KSC on 5/19/89.
Switch installation and retest complete.
.
Flight Problem Report approved by Level II Noon PRCB on 7/26/89.
(PRCBD #S44909).
CAR Status: Closed on 12/4/89.
.
Status: Closed

- CLOSURE RATIONALE:
The indicator failed to indicate properly because of a deficient switch contact. The module was removed and replaced with a module that contained PIND tested switches.

1
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IFA NUMBER> STS-29-V-10
TITLE:WSB#3 Low relief valve reseat pressure

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 072 : 14.56.00
IFA DATE: 03/13/1989

IFA STATUS: CLOSED : 07/19/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-12-18 HOUSTON TIME: 08.56.00
PRCBD NUMBER: S44910 PHASE: PRE-LAUNCH

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-125587 C CHIT J2955
K PR-HYD-3-09-0284 P CAR 29RF09

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

0 DESCRIPTION:
WSB#3 Relief Valve appears to have reseated, then developed a slow leak approx. 10 min later. It fully reseated at 26.7 psia. S/B 28 psia file IX in flight checkout requirement.
.
Chit J2955 withdrawn.
Testing could not repeat failure. Under Engineering Evaluation.
.
Test data okay, PR to be closed.
.
Flight Problem Report approved by Level II Noon PRCB on 7/19/89. (PRCBD #S44910).
RCN to File IX, Vol. 2 OMRSD requirement V58AK0.040 has been approved. This RCN revised the relief valve reseat to 26 PSIG during flight (was 28 PSIG).
CAR Status: Closed on 12/9/89.
.
Status: Closed

- CLOSURE RATIONALE:
The water spray boiler 3 GN2 relief valve most probably reseated at a lower pressure due to the dynamic conditions present during ascent. The relief valve is considered to have been functioning properly. The water spray boiler 3 relief valve will be leak-tested during turnaround operations. Out-of-specification leakage will result in the removal and replacement of the valve. A File IX OMRSD change to allow a minimum reseat pressure of 26.0 psia has been initiated.

1
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IFA NUMBER> STS-29-V-11
TITLE:WSB#1 leak

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 072 : 15.11.07
IFA DATE: 03/13/1989
IFA STATUS: CLOSED : 07/05/1989 ELAPSED TIME: 000 : 00.14.07
PRACA STATUS: CLOSED : 1990-07-13 HOUSTON TIME: 09.11.07
PRCBD NUMBER: S44911 PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-125588 H CHIT J2955
P CAR 29RF10 R PR-MPS-3-09-0285

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

0 DESCRIPTION:
WSB#1 exceeded spec leak rate of .04 psi/hr. Subsequently, leak stopped.
.
Chit J2955 withdrawn
KSC will checkout during OMI V1017 testing.
.
RCN OV9029 to revise spec to Level II SIR on 8/10.
.

Decay test in process. Relief valve crack pressure slightly low.
Under evaluation.
Decay test okay, PR to be closed.
CAR Status: Explained closeout for program issued on 6/7/90.
.
Flight Problem Report approved at Level II Noon PRCB on 7/5/89.
(PRCBD #S44911)
Status: Closed

- CLOSURE RATIONALE:
This condition has been seen on previous missions where it was attributed to the GN2 relief valve not properly seating after ascent. The water spray boiler 1 relief valve will be leak-tested during turnaround operations. Out-of-specification leakage will result in the removal and replacement of the valve.

1

IFA NUMBER> STS-29-V-12
TITLE:17 inch Disconnect leak

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 07/19/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-10-07
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44912
PHASE: POSTLANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
C CHIT J2954 K PR MPS-3-09-0673
P CAR 29RF11

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

0 DESCRIPTION:
Inspection discovered audible leak on 17 inch LH2 disconnect. Found nick on flapper seat. Black streak and small nicks on inner bore.
Chit J2954 approved on 3/27/89.
Inspection complete. Evaluation in process.
.
Leak rate at 1086 SCM; Cycled valve, leak rate went to 209 SCM.
.
Caused by dry lube build up on flapper.
.
Flight Problem Report approved by the Level II Noon PRCB on 7/19/89.
(PRCBD #S44912)
Status: Closed.

- CLOSURE RATIONALE:
Contamination on the sealing surface of the flapper valve combined with the slower valve closure rate due to the presence of cryogenic fluid most probably caused the leakage. The sealing surfaces of the flapper valve were cleaned. A subsequent leak check produced results well within requirements.

1

IFA NUMBER> STS-29-V-13
TITLE:LH2 4 Inch Disconnect slow to close

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 072 : 15.05.00
IFA DATE: 03/13/1989
IFA STATUS: CLOSED : 08/18/1989
ELAPSED TIME: 000 : 00.08.00

PRACA STATUS: CLOSED : 1990-02-21 HOUSTON TIME: 09.05.00
PRCBD NUMBER: S44913 PHASE: ASCENT

	TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
0	C	CHIT J2954	K	IPR 33RV-0028
	M	BSTR-04	P	CAR 29RF12

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

0 DESCRIPTION:
The time from closed power (V41X1439E) applied to closed MSMT (V41X1420E) was approx. 5 sec spec is 1.2 sec. max.
.
Chit J2954 approved.
KSC has chit in work.
Bellville spring inspection good. R&R disconnect on 4/20 and ship to Downey. Rework and return disconnect by 6/15.
.
Found bad actuator at cryo temps. Rework and return 8/15.
.
Valve returned from Downey, installation on hold due to a cracked isolator.
Flight Problem Report approved at Level II Noon PRCB on 8/18/89. (PRCBD #S44913)
CAR Status: Explained rational for STS-32.
.
Status: Closed

- CLOSURE RATIONALE:
The failure of the LH2 4-inch disconnect valve to pneumatically close was probably due to a thermally induced problem with the valve actuator. The LH2 4-inch disconnect valve was removed and replaced. The suspect actuator will undergo failure analysis.

1

IFA NUMBER> STS-29-V-14
TITLE:FES Primary Controller "B" Outlet Oscillation.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 077 : 10.40.00
IFA DATE: 03/18/1989
IFA STATUS: CLOSED : 07/19/1989 ELAPSED TIME: 004 : 19.43.00
PRACA STATUS: CLOSED : 1990-04-05 HOUSTON TIME: 04.40.00
PRCBD NUMBER: S44914 PHASE: ON-ORBIT

	TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
0	K	IPR 33RV-0029	K	PR ECL-3-09-0618
	M	EECOM-04	P	CAR 29RF13

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

0 DESCRIPTION:
During 3 different startups on-flight the FES control temperature oscillated between 38 deg and 41 deg and damped out in approximately 6 cycles. Probable cause lies in the FES Primary B Control or midpoint temp sensors. This phenomena contributed to momentary FES shutdown during entry.
Chit J2961A approved 3/31/89.
Ramp tests perfomed on 3 mid point sensors. Pri. A lagged by 0.4 sec.
Repacked and reinstalled sensors. Will retest. "B" side OK.
Retest in-work on 4/19/89.
Additional retest on 5/1/89.
Repacked and reinstalled sensors.
Works ok now.

Flight Problem Report approved at Level II Noon PRCB on 7/19/89.
(PRBCD #S44914).
Status: Closed

- CLOSURE RATIONALE:
The FES primary B controller temperature oscillations were most probably caused by a thermal lag in the modified OV-103 midpoint sensor block. The OV-103 FES midpoint temperature sensors were repacked in thermal grease and copper beads at a higher pressure to improve the response time of the sensors. The OV-103 midpoint sensor block will be flown as-is with the repacked sensors. Data from the next OV-103 mission will be analyszed to determine if the modifed sensor block exhibits any oscillation with the repacked sensors.

1

IFA NUMBER> STS-29-V-15
TITLE:Plus X COAS Calibration Discrepancies

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 076 : 19.37.00
IFA DATE: 03/17/1989
IFA STATUS: CLOSED : 11/03/1989
ELAPSED TIME: 004 : 04.40.00
PRACA STATUS: CLOSED : 1990-02-05
HOUSTON TIME: 13.37.00
PRCBD NUMBER: S44915
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M GNC-01 P CAR 29RF15
P FIAR BFCE-211-F001

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

0 DESCRIPTION:
A + X COAS Calibration was performed on flight day 3. Three + X calibrations were also performed on flight day 5 during DTO 790 using Vega, Denebola, and Arcturus. The three calibrations from flight day 5 differed from the flight day 3 calibration by 0.5 to 0.6 degree in the horizontal axis. Previous flight experience has shown that a COAS can be removed and remounted with essentially repeatable marks.
.
JSC COAS at DWNY for evaluation. JSC doing sun filter test.
.
Chit J2994 written to check warpage on panel. Scheduled 7/25 on TPS-FCS-357.
Flight Problem Report approved at Lv. II Noon PRCB on 11/3/89. (PRCBD# S44915)
CAR Status: Closed on 1/24/90 as a duplicate to CAR 33RF14. All action has been transferred to CAR 33RF14.
.
Status: Closed

- CLOSURE RATIONALE:
The +X COAS calibration discrepancies are attributed to an interference fit between the +X COAS adapter plate and panel 01, which was caused by the guide pin holes being too small. The interference fit would not allow the +X adapter plate to fit flat against panel 01, and in fact, the plate would seat differently depending on how much and where the mounting force was applied.

The +X COAS adapter plate guide pin holes on panel 01 will be reamed according to specification.

1

IFA NUMBER> STS-29-V-16
TITLE:Fuel Cell #1 H2O Relief Valve Temperature Overshoot

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 074 : 08.45.00
IFA DATE: 03/15/1989
IFA STATUS: CLOSED : 07/20/1989
ELAPSED TIME: 001 : 17.48.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 02.45.00
PRCBD NUMBER: S44916
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
C	CHIT J2948	K	IPR 33RV-0009
M	EECOM-03	P	IM/29RF16

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

0 DESCRIPTION:
Crew configured fuel cell H2O relief heaters to the B auto position per the heater reconfiguration on the morning of flight day 3. The B thermostat immediately turned the heater on since its temperature was 70 deg F. The temperature rose to 130 deg before a normal cooldown of the H2O line was observed. STS-26 data on this thermostat showed that the temperature never rose above 105 deg F during its cycling when OV-103 was in a cool attitude. Thermostate was removed and replaced at KSC prior to STS-29 flight.
.
Chit J2948 approved. V1022 (PRSD system checks) will retest next week.
.
KSC to work chit the week of 4/10/89.
Swap #1 and #2 thermostat and retest week of 5/10/89.
.
After swap, retest okay. Close as explain.
.
Flight Problem Report approved at Level II Noon PRCB on 7/20/89.
(PRCBD #S44916)
Status: Closed

- CLOSURE RATIONALE:
The loose attachment of the heater B thermostat to the relief valve caused the heaters to warm the valve to a higher temperature before the thermostat could reach its turn-off temperature. This condition, coupled with the thermostat's slightly higher turn-off temperature resulted in the higher-than-anticipated fuel cell 1 water relief valve temperatures.

The fuel cell 1 water relief valve heater B thermostat was reattached to the valve.

1

IFA NUMBER> STS-29-V-17
TITLE:SSME #1 LH2 Prevalve signature anomaly

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 02/14/1990
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44917
PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
P	IM/29RF17		

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

0 DESCRIPTION:
SSME #1 LH2 prevalve signature was slow compared to previous operations.
May be sample rate problem. No KSC action required.
.
Flight Problem Report disapproved at Lv. II Noon PRCB on 11/3/89.
Chairman requested more data. (PRCBD# S44917)
.
Flight Problem Report was approved OSB on 2/14/90.
.
Status: Closed

- CLOSURE RATIONALE:
Per the OMRSD an opening response time test is performed during each vehicle flow. Additionally, the RSLS checks for an open indication 2.5 seconds after the command is issued. The SSME 1 LH2 prevalve prelaunch opening time was within the allowable limit.

1

IFA NUMBER> STS-29-V-18
TITLE:LH OMS Fuel gage ungageable quantity

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 10/05/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-07-24
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44918
PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	PR LP04-A0013	K	PR LP04-0247
P	CAR 29RF18		

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. WELCH
2:

0 DESCRIPTION:
LH fuel gage total channel output had ungageable quantity locked in during OMS-2 and OMS-3. Readings were correct after deorbit burn.
.
Defered waiver WK0914 was approved prior to STS-29 for STS-29 only
.
OMS pod removal planned. Gage will be repaired.
.
Totalizer check-out unit will be hooked up and gage tested week of 4/24 prior to pod removal.
.
Dry probe reading 8% bias. More T/S'ing in HMF.
.
Pod removed and gage changed. Temp increase on fuel tank during retest on PR.
Flight Problem Report approved at Lv. II Noon PRCB on 10/5/89.
(PRCBD #S44918).
Status: Closed

- CLOSURE RATIONALE:
The output from the forward fuel probe was apparently biased high enough that the totalizer did not receive the "dry" signal from the probe until the propellant quantity dropped well below the level of the forward probe. The Left OMS pod (LPO4) has been removed from the vehicle and the forward fuel probe has been removed and replaced.

1

IFA NUMBER> STS-29-V-19
TITLE:AFT Separation Hole Plugger did not Move Full Stroke

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 08/02/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1993-02-01 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44919 PHASE: ASCENT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	PR-PYRO-3-09-0101	K	PVR-3-09-0101
P	CAR 29RF19		

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

0 DESCRIPTION:
Postflight inspection at DFRC showed that the AFT separation hole plugger did not fully extend the piston.
.
First failure since MOD - Debris in plunger was part of initiator.
.
Downey to submit closeout to JSC.
KSC to pull and send to Downey.
Parts EOD KSC 8/1.
Flight Problem Report approved at Level II Noon PRCB on 8/2/89.
(PRCBD #S44919)
Status: Closed

- CLOSURE RATIONALE:
The aft separation hole plugger was prevented from completing its full stroke due to a piece of debris which lodged in its path during separation. However, the hole plugger did prevent debris from escaping into the umbilical cavity, therefore its function was accomplished. Fly-as-is based on the rationale that the inteference with the hole plugger is a random occurrence. The probability of a fragment preventing ET door closure is considered remote. In addition, the vehicle moves away from any escaping debris during the ET separation phase. The escaped debris must abruptly change direction perpendicular to the original trajectory and then find its place in the clevis/rod to create a jam. Door mechanisms are almost totally enclosed with minimum linkage exposed. The doors can be recycled in flight if closing or latching is impeded.

1

IFA NUMBER> STS-29-V-2A
TITLE:Instrumentation - APU-3 EGT 2 Erratic (V46T0340A)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 072 : 14.57.00
IFA DATE: 03/13/1989
IFA STATUS: CLOSED : 06/07/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-04-14 HOUSTON TIME: 08.57.00
PRCBD NUMBER: S44902 PHASE: ASCENT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	PV-6-125563	K	PR-APU-3-09-0178
M	MMACS-01	P	CAR 29RF03

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

0 DESCRIPTION:
Auxiliary power unit 3 exhaust gas temperature 2 dropped about 100 Deg during ascent, regained normal reading and dropped again post-MECO.
.

KSC will trouble-shoot and R&R if required.
.
Measurement will be verified during OMI V1019 testing on 8/23.
.
Flight Problem Report approved by Level II Noon PRCB on 6/7/89.
(PRCBD #S44902)
Status: Closed

- CLOSURE RATIONALE:
The auxiliary power unit (APU) 3 exhaust gas temperature (EGT) 2 (V46T0340A) dropped about 100 degrees during ascent, regained its normal reading, and dropped again after MECO. KSC will troubleshoot this sensor and remove and replace, if required. KSC OMI V1019 will verify proper operation. Failure analysis will be tracked by CAR 29RF02. This is a criticality 3 measurement. This problem is closed.

1

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IFA NUMBER> STS-29-V-2B
TITLE:Instrumentation - APU 1 EGT 1 Failed (V46T0142A)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 077 : 14.56.00
IFA DATE: 03/18/1989
IFA STATUS: CLOSED : 06/07/1989 ELAPSED TIME: 004 : 23.59.00
PRACA STATUS: CLOSED : 1989-04-14 HOUSTON TIME: 08.56.00
PRCBD NUMBER: S44902 PHASE: POST LANDING

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	PV-6-125578	K	PR-APU-3-09-0177
M	MMACS-03	P	CAR 29RF14

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

0 DESCRIPTION:
At APU shutdown postlanding, APU 1 exhaust gas temp. XDCR 1 became erratic, cycling between approx. 270 deg F and 930 deg F. APU 1 EGT 2 indicated normal temperature.
.
KSC will trouble-shoot and R&R if required.
.
Measurement will be verified during OMI V1019 testing on 8/23.
.
Flight Problem Report approved at Level II noon PRCB on 6/7/89.
(PRCBD #S44902)
Status: Closed

- CLOSURE RATIONALE:
At APU shutdown postlanding, the APU 1 EGT 1 (V46T0142A) sensor became erratic, cycling between 270 degrees F and 930 degrees F. APU 1 EGT 2 indicated normal temperature. KSC will troubleshoot this sensor and remove and replace, if required. KSC OMI V1019 will verify proper operation. Failure analysis will be tracked by CAR 29RF14. This a criticality 3 measurement. This problem is closed.

1

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IFA NUMBER> STS-29-V-2C
TITLE:Instrumentation - SSME-3 Power Supply Temp (E41T3150A) erratic

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 06/07/1989 ELAPSED TIME: 000 : 00.00.00

PRACA STATUS: CLOSED : 1990-04-12 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44902 PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 33RV-0022 K PR EPD-3-09-1123
P CAR 29RF27

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

0 DESCRIPTION:
SSME 3 power supply temperature erratic from SSME start to shutdown.
KSC T/S found wire pulled out of backshell of connector 5OP446.
Repair on PR.
.
Repair has been completed, PR in closure.
.
Flight Problem Report approved at Level II Noon PRCB on 6/7/89.
(PRCBD #S44902)
CAR Status: Closed on 12/6/89.
.
Status: Closed

- CLOSURE RATIONALE:
The Space Shuttle Main Engine (SSME) 3 power supply temperature was erratic from SSME start to shutdown. Troubleshooting at KSC found a wire that was pulled off the backshell of connector 5OP446. KSC will repair and retest connector per F/D E41T3150A. This is a criticality 3 measurement. This problem is closed.

1

IFA NUMBER> STS-29-V-20
TITLE:Unable to dump OPS-1 Recorder, Track 2

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 075 : 07.18.00
IFA DATE: 03/16/1989
IFA STATUS: CLOSED : 07/14/1989 ELAPSED TIME: 002 : 16.21.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 01.18.00
PRCBD NUMBER: S44920 PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
C CHIT J2968 K IPR 33RV-0008
K PR INS-3-09-0392 M INCO-07

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

0 DESCRIPTION:
Data playback of OPS-1 recorder, Track 2 through TDRS & GSTDN unsuccessful. Data on adjacent tracks are locked up on with better results. Occured again during postlanding dump of entry data. DFRF could not lock onto Track 2 data.
Chit J2968 approved at 4/4 PRCB.
KSC successfully dumped track 2. Chit in work 4/17.
.
T/S'ing on 4/25 showed normal.
Close as U.A.
Additional IPR# QA960036
Flight Problem Report approved at Level II Noon PRCB on 7/14/89.
(PRCBD #S44920)
Status: Closed

- CLOSURE RATIONALE:
The anomalies experienced are unexplained. The most probable cause is ground station data "handling" problems that have been known to occur when the recorders switch tracks during a dump.

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IFA NUMBER> STS-29-V-21
TITLE:MPS LH2 Feed Manifold Leak

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 09/28/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44921 PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
P IM/29RF21
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MCMILLAN
2:
0 DESCRIPTION:
Previous flights showed several relief valve cycles. This flight the relief valve cycled once.
Investigation in process.
Downey saw same profile last 103 flight. Providing rationale to JSC for problem closeouts.
No KSC action required.
Flight Problem Report approved at Lv. II Noon PRCB on 9/28/89. (PRCBD #S44921).
Status: Closed

- CLOSURE RATIONALE:
The operation of the LH2 feedline manifold relief valve was nominal during this flight. Fewer relief valve cycles are common on OV-103 and are most probably a function of relief flow past the LH2 prevalve.

1
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IFA NUMBER> STS-29-V-22
TITLE:RH Main landing gear strain gage harness separation

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 08/02/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-01-04 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44922 PHASE: ENTRY-LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K INS-2-08-0526 K PR-MWA-22-0012
P IM/29RF22
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. GUTHERY
2:
0 DESCRIPTION:
The RH main landing gear strain gage wiring and connector came loose and was found on runway. Suspected to have caused tile damage found on door.
.
Terminal board not properly tied down in RH wheel well. Was proper on LH gear.
KSC to replace terminal board. Reviewing tie-wrap photos.
.
Configuration per drawing. Close out photos bad. Tie wraps installed properly.
Damage repaired.
Flight Problem Report approved at Level II Noon PRCB on 8/2/89.

(PRCBD #S44922)
Status: Closed

- CLOSURE RATIONALE:
Postflight inspection determined that the terminal boards on the right wheel terminal boards had not been tie-wrapped per the drawings. Further investigation of the tie-wrap design and procedures found that the tie-wraps were too short to be properly secured by the tool used for that purpose. A design change has been implemented to increase the lengths of the tie-wraps and to use double tie-wraps instead of single.

IFA NUMBER> STS-29-V-23
TITLE:Hydraulic leak in aft compartment

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 08/22/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-07-27 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44923 PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	PV-6-125371	K	PR-HYD-3-09-0282
P	IM/29RF23		

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

0 DESCRIPTION:
Postflight inspection found hydraulic fluid in the aft compartment. Inspection found loose "B" nut in leakage collection line from SSME-1 accumulator. One half to one ounce of hydraulic fluid found. Torqued "B" nut at DFRC for ferry. Will leak check again as part of OMI.
.
KSC investigating why "B" nut loose.
Paper work shows "B" nut torqued properly.
.
Install "catch bottles", Retorqued "B" nut.
.
Flight Problem Report approved at Level II Noon PRCB on 8/22/89.
(PRCBD #S44923)
Status: Closed

- CLOSURE RATIONALE:
The free hydraulic fluid was normal hydraulic power system leakage that exited the leakage collection system through the loose "B" nut. No records of loosening the "B" nut during ground operations were found. The loose "B" nut was re-torqued and will be leak-checked during turnaround operations. If this problem should recur, only a small amount of fluid, similar to the quantity experienced, will be introduced into the aft compartment with no impact to the mission.

IFA NUMBER> STS-29-V-24
TITLE:Intermittent Aft Auto DAP Light

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 07/27/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-03-13 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44924 PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER

K IPR 33RV-0017
K PR V070-3-09-0293
P IM/29RF25

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

0 DESCRIPTION:
During crew debriefing the crew stated that on one occasion the Aft Auto Dap Light was not illuminated while the forward Auto Dap Light was illuminated. A lamp test indicated that the lamp was operational. At some point later it was noted by the crew that the Aft Auto Dap Light was illuminated.
KSC will T/S per IPR.
T/S on 4/20 and 4/21. Cycled system, couldn't recreate problem.
.
Additional troubleshooting unable to duplicate problem, will continue to monitor. Will process a U.A.
.
U.A. Approved.
KSC LSOC Tracking Numbers: PV-6-140785.
.
Flight Problem Report approved at level II Noon PRCB on 7/27/89. (PRCBD #S44924).
Status: Closed

- CLOSURE RATIONALE:
The cause of this anomaly is unknown. It was most probably caused by contamination in the lamp driver hybrid device. No corrective action. Replacement of ACA 4 in OV-103 is not considered warrented due to fact that the anomaly is not repeatable and the questionable channel carries information which is available on the forward panel, on a CRT, and on the ground via telemetry.

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IFA NUMBER> STS-29-V-25
TITLE:Aft (1307) bulkhead thermal blankets loose and excessive particulate contamination in payload bay.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 11/08/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-07-24
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44925
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER
A PV-6-125876
P IM/29RF24

TYPE TRACKING NUMBER
K PR-TCS-3-09-1158

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

0 DESCRIPTION:
KSC inspection found top (2) blankets torn on bulkhead side. Found loose snaps on top of blankets found total of (4) blankets peeled back. Two each side of upper CL. Suspected cause increase in air volume under blankets after 1307 beefup MOD. For STS-30/OV104, will install air vent screens in top two blankets. OV103 will remove all blankets and map entire 1307 bulkhead for damage and debris.
.
Twelve blankets pulled and debris mapped. Wait for any further action on OV-103 MCR 14725 Downey MOD. Complete engineering by next week. Excessive contamination cleaned up. Inspection and clean-up plan for OV-104 in work.
.
OV-104 inspection on 4/25 looked good. OV-103 material failure due to

excessive flexing, bending, folding. KSC lab report to be sent to JSC
.
Retrofit OV-104 fix to OV-103.
Flight Problem Report approved at Lv. II Noon PRCB on 11/8/89.
(PRCBD# S44925)
Status: Closed

- CLOSURE RATIONALE:
The exact cause of this problem has not been determined even though several hypotheses have been investigated by test and analysis. The redesigned blankets flown on previously demonstrates their compatibility with the existing environment. The loose snaps have no flight effect. The anomalous blankets and all others in this area have now been replaced with the redesigned blankets. This redesign adds vent screens and beta cloth addition minimizes the wear during ascent, and if the material is damaged, all of the aluminized Kapton particles will be contained. The condition of the modified blankets will be determined by inspection after each flight to assure that the blanket redesign is effective.

1

IFA NUMBER> STS-29-V-26
TITLE:HYD System 1&2 Accumulator Ascent press locked up low.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 072 : 15.11.00
IFA DATE: 03/13/1989
IFA STATUS: CLOSED : 09/25/1989
ELAPSED TIME: 000 : 00.14.00
PRACA STATUS: CLOSED : 1991-03-06
HOUSTON TIME: 09.11.00
PRCBD NUMBER: S44926
PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
C CHIT J2956 P CAR 29RF26
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MCMILLAN
2:
0 DESCRIPTION:
During STS-29 Ascent at APU shutdown, Hydraulic system #1 and #2 GN2 Accumulator pressures locked up low, 2496 psia and 2464 psia respectively and then crept up to acceptable levels (2600 psia). Chit J2956 PRCB 4/6 appd. Monitor lock up pressure during each OMI V9002 operation.
Look on 4/21 and 4/25 looked okay. Continuing observation.
.
Priority Valve leak check complete. Monitoring in work.
.
Unable to repeat problem.
CAR Status: Explained closeout for OV-102, flts 9-11, OV-103, flts 10-12, and OV-104, flts 6-8.
.
Flight Problem Report approved at Lv. II Noon PRCB on 9/25/89.
(PRCBD# S44926)
Status: Closed

- CLOSURE RATIONALE:
The hydraulic system 1 and 2 bootstrap accumulator pressures most probably locked up below specification values after APU shutdown because of acumulator piston striction or low reseat pressure of the priority valve. Postflight testing will be performed with the system pressure being cycled up and down several times. A failure of the boot strap pressure to return to specification value may result in the removal and replacement of the appropriate component.

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IFA NUMBER> STS-29-V-27
TITLE:TACAN #2 dropped lock postlanding

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 077 : 14.38.50
IFA DATE: 03/18/1989
IFA STATUS: CLOSED : 08/02/1989 ELAPSED TIME: 004 : 23.41.50
PRACA STATUS: CLOSED : 1989-08-09 HOUSTON TIME: 08.38.50
PRCBD NUMBER: S44927 PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 33RV-0007 K PR-COM-3-09-0140
P CAR 29RF28
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. SUITER
2:
0 DESCRIPTION:
TACAN #2 lost bearing and range lock postlanding. Will be R/R week of 5/18.
Flight Problem Report approved at Level II Noon PRCB on 8/2/89. (PRCBD #S44927)
CAR Status: Closed
Status: Closed

- CLOSURE RATIONALE:
The cause of the TACAN 2 loss of lock was most probably the result of a multi-path condition aggravated by a less than optium Orbiter antenna to ground station look angle. TACAN 2 unit (S/N 15069) was removed and sent to the Rockwell Services Center for failure analysis. The unit passed all functional test requirements and was returned to service.

1
STS-029 (OV-103,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 53

IFA NUMBER> STS-29-V-28
TITLE:LH2 OUTBD Fill and Drain valve slow closing at dump termination

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 072 : 15.09.51
IFA DATE: 03/13/1989
IFA STATUS: CLOSED : 09/11/1989 ELAPSED TIME: 000 : 00.12.51
PRACA STATUS: CLOSED : 1989-05-02 HOUSTON TIME: 09.09.51
PRCBD NUMBER: S44928 PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
P 27RF05 P 29RF29
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MCMILLAN
2:
0 DESCRIPTION:
LH2 outbd fill/drain valve slow close at dump termination. 11.5 actual vs 10 sec. spec. was observed in post flight data review.
.
LCC changed to 13 sec. for liftoff. Engineering review in work.
.
STS-27 had similar problem.
CAR Numbers: CAR 29RF29-1; CAR 27RF05-10
.
Flight Problem Report approved at Level II Noon PRCB on 9/11/89. (PRCBD #S44928)
Status: Closed

- CLOSURE RATIONALE:
The slowness of the LH2 outboard fill/drain valve during closure

operations following the MPS dump was most probably due to an actuator which is sluggish at cryogenic conditions. Thermal sensitivity is considered to be a charateristic of the actuator and is not a problem.

Removal and replacement of the OV-103 actuator will depend on the results of the detailed analysis of the sluggish actuator from STS-27. If no abnormalities are found on the STS-27 actuator, the STS-29 unit will not be replaced. A change will be submitted to increase the specification for allowable closure time to 14 sec, matching the LCC requirement.

1

STS-029 (OV-103,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 54

IFA NUMBER> STS-29-V-29
TITLE:Wireless Comm Set Multiple Battery Changes

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 05/17/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44929
PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
P JSC-EP-0108
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. SUITER
2:
0 DESCRIPTION:
Crew reported changing batteries too often. Batteries known to be marginal. This lot of batteries removed from flight status. Better lot available. New battery design in process.
.
No KSC action required.
Flight Problem Report approved at Level II Noon PRCB on 5/17/89.
(PRCBD #S44929)
Status: Closed

- CLOSURE RATIONALE:
Two batteries provided sub-marginal capacity, but there were no other WCCS hardware problems. Batteries containing cells with a lot date of December 1987 will be discarded. Batteries having cells with a lot date of March 1988 will be flown wntil the new higher capacity units are available.

1

STS-029 (OV-103,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 55

IFA NUMBER> STS-29-V-30
TITLE:RH Outboard Brake Rotor Crack

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 07/26/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S44930
PHASE: ENTRY/LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
P 29RF30
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. GUTHERY
2:
0 DESCRIPTION:
Post flight inspection of the RH outboard brake assembly at the vendor found a crack in the rotor. This occurred during the hard braking

DTO and was not unexpected.
.
Downey to send vendor inspection report to JSC.
.
Flight Problem Report approved at Level II Noon PRCB on 7/26/89.
(PRCBD #S44930)
Status: Closed

- CLOSURE RATIONALE:
The crack was the result of the combined thermal and structual loads at landing and was not unexpected. Replace the rotor disk. All brakes are x-rayed and visually inspected prior to refurbishment and subsequently subjected to an acceptance test program (ATP).

1
STS-029 (OV-103,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 56

IFA NUMBER> STS-29-V-7A
TITLE:TAGS Developer over heating

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 073 : 19.28.00
IFA DATE: 03/14/1989
IFA STATUS: CLOSED : 05/03/1989
ELAPSED TIME: 001 : 04.31.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 13.28.00
PRCBD NUMBER: S44907
PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR COM-3-09-0137 M INCO-03
O GFE/JSC/DR-EE649
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. SUITER
2:
0 DESCRIPTION:
An overtemp indication was received signaling a potential developer over heating. A test pattern was sent to the crew and the image revealed that the center heater was the cause of the indication. The system works nominally if powered up for use, and turned off between uses. Overtemp is expected to recur if powered up for several hours. Remove and replace and send TAGS to JSC for T/S.
.
No further KSC action required.
Flight Problem Report approved at Level II Noon PRCB on 5/3/89.
(PRCBD #S44907).
Status: Closed

- CLOSURE RATIONALE:
The most likely cause of the overtemperature indications is either transient electrical noise from the developer slip-ring or the overtemperature detection threshold in the developer control electronics being adjusted too low. The TAGS hardcopier, P/N AV14453, S/N 003 was removed, replaced, and is undergoing failure analysis.

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STS-029 (OV-103,FLT #8) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 57

IFA NUMBER> STS-29-V-7B
TITLE:TAGS mode change

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 074 : 10.15.00
IFA DATE: 03/15/1989
IFA STATUS: CLOSED : 05/03/1989
ELAPSED TIME: 001 : 19.18.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 04.15.00
PRCBD NUMBER: S44907
PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER

M INCO-05 P FIAR JSC-EE-0649

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

0 DESCRIPTION:
At 074:10:15 GMT and 074:10:28 GMT, the TAGS moded from ready to standby during two separate page uplinks. The mode changes occurred at about the midpoint of the page. The TAGS commanded to ready, and in both cases, the TAGS went back to ready. Both pages were re-uplinked successfully.
R/R TAGS. Has been shipped to JSC.
No further KSC action required.
Flight Problem Report presented to Level II Noon PRCB on 5/3/89.
(PRCBD #S44907)
Status: Closed

- CLOSURE RATIONALE:
The most likely cause of the spontaneous hardcopier status change is an oversensitive setting of the paper-empty sensor.

The TAGS hardcopier, P/N AV14453, S/N 003, ws removed, replaced, and is undergoing failure analysis.

-JFDPO12: NORMAL TERMINATION OF PROCESSING

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STS-030 (OV-104,FLT #4) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 1

IFA NUMBER> STS-30-B-01
TITLE:The number two left SRB main parachute (S/N 8045) collapsed shortly after inflation. As a result of higher loading during reentry,
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 06/22/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62051 PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-128949
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: R. RUNKLE/EE11
2:
0 DESCRIPTION:
The failure to chute #2 occurred in gore number 93 from the skirt band through the vent band and across the vent cap. The most probable cause appears to be associated with the parachute canting at an angle greater than twenty degrees. Consequently, the parachute was forced against the MPSS (Isogrid) during deployment from the parachute bag (at a velocity of greater than or equal to 300 ft/sec) resulting in distressed ribbons. This was a failure. For STS-33 and the following five flights, ripstop will be implemented on one main parachute per SRB. Ripstop is currently scheduled for implementation on all main parachutes for STS-38 and subsequent flights.
.
MSFC PRACA Tracking Number: A12232.
.
Closed in the MSFC PRACA system on 7/20/89 for STS-28R and subs.
.
Flight Problem Report approved by Lv II Noon PRCB on 6/22/89. (PRCBD #S62051).
.
Status: Closed

- CLOSURE RATIONALE:
This was a random failure precipitated by the high degree of canting of the frustum. Ripstop may have prevented total gore failure and also increased the damage tolerance capability of the remaining two parachutes. The suspension line damage occurred during deployment and is related to failure of main parachtue #2. Ripstop will be phased in beginning with STS-33. For STS-33 and the following five flights ripstop will be implemented on one main parachute per SRB. Ripstop is currently scheduled for implementation on all main parachutes for STS-38 and subsequent flights. Additional enhancements related to parachute deployment are also being evaluated.

1

STS-030 (OV-104,FLT #4) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 2

IFA NUMBER> STS-30-B-02
TITLE:The HDP DCS did not fuction properly at locations #2, #3, #5, and #7, resulting in the loss of some debris.
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 06/22/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-07-20 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62052 PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER

A A12244
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: W. MANN/EE11
2:
0 DESCRIPTION:
Varing amounts of debris were lost from each of the subject HDPs. The only debris found at the MLP was at HDP 5, totaling 4.4oz. A phased enhancement of the present design is being evaluated. Changes include the addition of a rubber shock absorber between the stud attach and plug tip and material/configuration changes on the stud attach. The present DCS is an acceptable risk for STS-28 for the following reasons: 19 of 24 HDPs have functioned since the assembly process change; most of the debris has been lost subsequent to liftoff; and the weight of the largest "piece" of potential debris is 2 to 3 oz.
.
CAAR Tracking Numbers: PV-6-129210 and PV-6-129212
.
Closed in the MSFC PRACA system on 7/20/89 for STS-28R and subs.
.
Flight Problem Report approved by Lv II Noon PRCB on 6/22/89. (PRCBD #S62052)
.
Status: Closed

- CLOSURE RATIONALE:
Four of the eight HDPS functioned properly capturing virtually all debris. Modifications are being evaluated and will be implemented on the earliest possible effectivity. A phased enhancement of the present design is being evaluated. Changes include the addition of a rubber shock absorber between the stud attach and plug tip and material/configuration changes on the stud attach.

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STS-030 (OV-104,FLT #4) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 3

IFA NUMBER> STS-30-B-03
TITLE:Four of the ETA Ring cover fasteners were sheared off near the in-harbor tow bracket of the left SRB.
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 06/22/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62053 PHASE: ENTRY/LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-128951
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: W. MANN/EE11
2:
0 DESCRIPTION:
Physical evidence on the fasteners and cover holes support the conclusion that the fasteners failed during buckling of the ring segment (see IFA no. STS-30-B-4). All four fasteners exhibited a similar shear failure mode. The ring segment is not reusable. There is no corrective action required. This is not a constraint to STS-28 or subsequent flights due to occurrence following initial water impact.
.
MSFC PRACA Tracking Number: A12245.
.
Closed in the MSFC PRACA system on 7/18/89 for STS-28R and subs.
.
Flight Problem Report approved by Level II Noon PRCB on 6/22/89. (PRCBD #S62053)

.
Status: Closed

- CLOSURE RATIONALE:
Fastener failure is attributed to ET Attach Ring buckling caused by cavity collapse loads and is related to damage on ring segment 101070-0283 which is documented on IFA STS-30-B-4. No corrective action required.

1
STS-030 (OV-104,FLT #4) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 4

IFA NUMBER> STS-30-B-04
TITLE:The left SRB ETA Ring cap and web separation continues approx 100 inches circumferentially on ring segment 283.
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 06/22/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62054 PHASE: ENTRY/LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-129209
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: W. MANN/EE11
2:
0 DESCRIPTION:
The damage is attributed to a combination of cavity collapse loads and negative internal pressure within the motor case. Furthermore, this anomaly is directly associated with the higher than normal water impact loads resulting from the left SRB main parachute failure (see IFA no. STS-30-B-1). This is a random occurrence which has been experienced on previous flights. There is no corrective action required.
.
MSFC PRACA Tracking Number: A12245.
.
Closed in the MSFC PRACA system on 7/18/89 for STS-28R and subs.
.
Flight Problem Report approved by Level II Noon PRCB on 6/22/89. (PRCBD #S62054)
.
Status: Closed

- CLOSURE RATIONALE:
This damage is attributed to a combination of cavity collapse loads and negative internal pressure within the motor case. This is a random occurrence which has been experienced on previous flights. There is no corrective action required.

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STS-030 (OV-104,FLT #4) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 5

IFA NUMBER> STS-30-E-01
TITLE:The ME-3 (S/N 2029) AFV D/S skin temperature sensor #1 failed off scale high at engine start plus 420 seconds.
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 07/21/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62041 PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 34V-0021
0 CLOSURE INITIATED BY:

RESPONSIBLE MANAGERS 1: L. GRANT/EE21
2:

0 DESCRIPTION:
The AFV skin temperature measurement is a Launch Commit Criteria (LCC) parameter, monitored from purge sequence number 3 to T-31 seconds. The requirement is that one of two channels must be operational for launch "GO". After engine start, this measurement is not used for engine control or performance monitoring. Post landing resistance checks revealed an open circuit in the channel 1 sensor. The open circuit was most likely caused by vibration of the sensing assembly during engine operation. Due to the close proximity of the channel 2 sensor, both sensing elements will be replaced per SSME Problem Report PV-6-130735. Flight and ground test experience has shown that the sensors are adequately protected from damage during LCC monitoring. Since there is no history of an open circuit failure of this measurement during LCC monitoring, redesign is not warranted at this time. The failure is considered benign due to its occurrence subsequent to its designed function.
.
Contractor Tracking Number: UCR A020052.
.
MSFC PRACA Tracking Number: A12286.
.
Closed in MSFC PRACA for STS-28R and subs.
.
KSC LSOC Tracking Numbers: IV-6-015494 and PV-6-130735 (PR# ME2029-4-05-0097).
.
Flight Problem Report approved at Level II Noon PRCB on 7/21/89. (PRCBD #S62041)
.
Status: Closed

- CLOSURE RATIONALE:
Failure of the anti-flood valve skin temperature sensor was most likely caused by the engine operating environment. The anti-flood valve skin temperature measurement is not used for engine control or performance monitoring after engine start, therefore this failure is benign.

1
STS-030 (OV-104,FLT #4) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 6

IFA NUMBER> STS-30-E-01
TITLE:The ME-3 (S/N 2029) AFV D/S skin temperature sensor #1 failed off scale high at engine start plus 420 seconds.
0 CLOSURE RATIONALE:(Continued from previous page).

1
STS-030 (OV-104,FLT #4) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 7

IFA NUMBER> STS-30-E-02
TITLE:The ME-1 (S/N 2027) HPOTP radial FASCOS accelerometer exceeded the vibration redline limit at approximately engine start plus 135 sec
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 07/21/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-11-01 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62042 PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12330
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. MOORHEAD/EE21
2:
0 DESCRIPTION:

The 135-3 accelerometer is used as a maintenance parameter only and does not affect engine performance. The two other accelerometers showed normal vibration levels, indicating this was an instrumentation anomaly only. During the fault investigation at KSC, a time domain reflectometer test, capacitance check, FASCOS pin retention test, and visual inspection of the accelerometer and cable were performed and no indication of a problem cause for the poor signal was found. Similar conditions have been observed in ground tests and are typical of a break or intermittent of the shield in the cable which connects to the accelerometer. Until the problem is better understood, the possiblitiy exists that another accelerometer/cable may experience a similar problem. This condition will not affect flight since the redline is not active and is used for information only. The accelerometer measurement is triple redundant, thus an engine cut command would not have been issued due to this condition.

.

Contractor Tracking Number: UCR A015214.

.

Deferred for STS-28R and STS-34 in the MSFC PRACA system. Problem was closed on 11/1/89, in the MSFC PRACA system, for STS-33R and subs.

.

Flight Problem Report approved at Lv. II Noon PRCB on 7/21/89. (PRCBD# S62042)

.

Status: Closed

- CLOSURE RATIONALE:

Until the problem is better understood the possibility exists that another accelerometer/cable may experience a similar probem. This condition will not affect flight since the redline is not active.

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STS-030 (OV-104,FLT #4) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-30-E-03
TITLE:ME-2 (S/N 2030) HPOTP exhibited leakage at the primary LOX drain line at the tee fitting near joint D3 during postflight inspections.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 07/21/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-05-25 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62043 PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12343

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J.M.O.SMITH/EE23
2:

0 DESCRIPTION:

The leak (5.0 X 10-5 SCIM) is in the parent metal (321 Cres material) of the fitting in the heat affected zone of weld 59. The failure cause is attributed to an inclusion stringer within the parent metal of the tee fitting. This condition is "aggravated" by the etchant attack from etch fumes/splattering during the housing rework cycle. A material change for the tee fitting to preclude chemical attack is presently being considered. Due to the low leakage rate expected from this condition and the knowledge that such a flaw will not grow during flight, the failure is considered benign. In addition, a special leak check was performed on the turbopumps of Columbia for STS-28R which verifies this condition does not exist. A similar leak check will be performed on the Atlantis engines for STS-34.

.

Contractor Tracking Number: UCR A020331.

.

Leak checks for all flight housings prior to each flight and upon turbopump disessembly are now required.

.

This problem has been closed in the MSFC PRACA system for STS-41 and subs on 5/25/90.

.

Flight Problem Report approved at Lv. II Noon PRCB on 7/21/89. (PRCBD# S62043)

.

Status: Closed

- CLOSURE RATIONALE:

Failure cause is known, leakage from an inclusion stringer within the parent material of the tee fitting. The UCR/FAR (A020331) will address recurrence control of this conditon. Due to the low leakage rate expected from conditon and the knowledge that such a flaw will not grow during flight, there is no corrective action.

1

IFA NUMBER> STS-30-I-01
TITLE:SAIL lost control of two RTLS runs

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 07/25/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62058
PHASE: PRE-LAUNCH

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

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

0 DESCRIPTION:

While verifing the alternate I-loads for Day of Launch, SAIL lost control of two RTLS runs at T + 70 secs. Problem was traced to an internal SAIL uplink problem. A successful uplink was reperformed and a RTLS run was made successfully.

.

This problem cast a shadow over the STS-30 alternate I-loads. STS-30 was launched with the nominal I-load set.

.

Flight Problem Report approved at Level II Noon PRCB on 7/25/89. (PRCBD #S62058)

.

Status: Closed

- CLOSURE RATIONALE:

The SAIL simulation loss of control was caused by a discrepancy between the SAIL laboratory NSP (Network Signal Processor) emulation and the orbiter NSP hardware. The result of this discrepancy is an intermittent possibility of losing either the first, second, or third message during a two-stage uplink. This discrepancy was isolated to a SAIL laboratory system/simulation computer. During the alternate I-load testing in SAIL on the day of launch, the SAIL uplink simulation caused a test abort because the NSP two-stage command sent only the first and third 20 words of data to the GPC. The second 20 words of data were missing, but the SAIL TOC system did not detect the compare error. IDR 8DIT96152 was generated to document this problem.

1

IFA NUMBER> STS-30-K-1A
TITLE:LH SRB FWD field joint secondary heater inadvertantly powered up for 4 minutes.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 05/02/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: CLOSED OSB
PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A EPD A IV-6-015363
A 1833E K IPR 30RV-0252

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

0 DESCRIPTION:
Explained condition. IPR is closed.
.
Status: Closed; Presented at a special corrective action briefing to Mr. Crippen on 5/2/89. No further PRCB action required. No Flight Problem Report required.

1

IFA NUMBER> STS-30-K-1B
TITLE:Activation of LO2 aft strut heaters was performed 2-3 min. later than allowable window.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 05/02/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: CLOSED OSB
PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A CPWR A IV-6-015356
A 0639E K IPR 30RV-0254

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

0 DESCRIPTION:
Waiver generated, IPR is closed.
.
Status: Closed; Presented at a special Corrective Action Briefing to Mr. Crippen on 5/2/89. No further PRCB action required. No Flight Problem Report required.

1

IFA NUMBER> STS-30-K-1C
TITLE:Aft ET LO2 hardware heaters were turned off for 3 min 9 sec approx 34 minutes after initiation.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 05/02/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: CLOSED OSB
PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A CPWR A IV-6-015358
A 0830E K IPR 30RV-0255

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

```
0 DESCRIPTION:
   Explained condition.  IPR is closed.
   .
   Status:  Closed; Presented at a special Corrective Action Briefing to
   Mr. Crippen on 5/2/89.  No further PRCB action required.  No Flight
   Problem Report required.

1
          STS-030 (OV-104,FLT #4) OFFICIAL INFLIGHT ANOMALY REPORT     01/31/95
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  IFA NUMBER> STS-30-K-1D
  TITLE:ET Bipod heaters were deactivated too soon after the LH2 98% sensors
        were dry.  Was less than 9 mins, S/B between 9 and 10 minutes.
0 MISSION CONSTRAINT:            SUBS          IFA TIME GMT: 000 : 00.00.00
                                               IFA DATE:
  IFA STATUS:   CLOSED   : 05/02/1989          ELAPSED TIME: 000 : 00.00.00
  PRACA STATUS: UNKNOWN                        HOUSTON TIME: 00.00.00
  PRCBD NUMBER: CLOSED OSB                     PHASE:        ASCENT
0 TYPE      TRACKING NUMBER          TYPE      TRACKING NUMBER
   A   CPWR                           A   IV-6-015374
   A   2139E                          K   IPR 30RV-0257
0 CLOSURE INITIATED BY:
  RESPONSIBLE MANAGERS 1:
                       2:
0 DESCRIPTION:
   Waiver - WK1118 approved.  IPR closed.
   .
   Status:  Closed; Presented at a special Corrective Action Briefing to
   Mr. Crippen on 5/2/89.  No further PRCB action required.  No Flight
   Problem Report required.

1
          STS-030 (OV-104,FLT #4) OFFICIAL INFLIGHT ANOMALY REPORT     01/31/95
                                                                       PAGE 14
  IFA NUMBER> STS-30-K-1E
  TITLE:LOX aft strut heaters deactivated 10 min after ECO sensors dry.  S/B
        4 to 5 min after sensors dry.
0 MISSION CONSTRAINT:            SUBS          IFA TIME GMT: 000 : 00.00.00
                                               IFA DATE:
  IFA STATUS:   CLOSED   : 05/02/1989          ELAPSED TIME: 000 : 00.00.00
  PRACA STATUS: UNKNOWN                        HOUSTON TIME: 00.00.00
  PRCBD NUMBER: CLOSED OSB                     PHASE:        ASCENT
0 TYPE      TRACKING NUMBER          TYPE      TRACKING NUMBER
   A   CPWR                           A   IV-6-015367
   A   1623E                          K   IPR 30RV-0261
0 CLOSURE INITIATED BY:
  RESPONSIBLE MANAGERS 1:
                       2:
0 DESCRIPTION:
   Waiver - Wk1119 approved.  IPR closed
   .
   Status:  Closed; Presented at a special Corrective Action Briefing to
   Mr. Crippen on 5/2/89.  No further PRCB action required.  No Flight
   Problem Report required.

1
          STS-030 (OV-104,FLT #4) OFFICIAL INFLIGHT ANOMALY REPORT     01/31/95
                                                                       PAGE 15
  IFA NUMBER> STS-30-K-1F
  TITLE:ET LH2 aft heaters were turned off 2 mins after low level sensor dry.
        S/B 4-5 mins.
0 MISSION CONSTRAINT:            SUBS          IFA TIME GMT: 000 : 00.00.00
                                               IFA DATE:
```

IFA STATUS: CLOSED : 05/02/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: CLOSED OSB PHASE: ASCENT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A CPWR A IV-6-015373
A 2147E K IPR 30RV-0266

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

0 DESCRIPTION:
Waiver - WK1120 approved. IPR closed.
.
Status: Closed; Presented at a special Corrective Action Briefing to Mr. Crippen on 5/2/89. No further PRCB action required. No Flight Problem Report required.

1

IFA NUMBER> STS-30-M-01
TITLE:Postflight inspection of the left SRM identified several aft edge unbonds of the factory joint weatherseals.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 06/27/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62055 PHASE: POST LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A SPR DR4-5/151

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. THORNTON/EE52
2:

0 DESCRIPTION:
The aft segment stiffener-to-stiffener factory joint weatherseal exhibited intermittent aft edge unbonds around the circumference. Also exhibiting a single, localized debond along the weatherseal aft edge were the stiffener-to-stiffener and forward-center factory joints. All unbonds are adhesive failures between the Chemlok 205 primer and the motor case. Bonding surface contamination was determined not to be the cause of the unbonds. However, case surface smoothness has been found to reduce the weatherseal bond strength. A change allowing the entire bond surface to be gritblasted is in signoff. Planning requirement being imposed for a 70 Ra minimum surface finish. Minimum conscan requirements for these surfaces are currently in place.
.
MSFC PRACA Tracking Number: A12250.
.
Deferred in the MSFC PRACA for STS-28R, STS-34, and STS-33R. Deferred through STS-40. Problem was closed for STS-39 and subs on 2/7/91.
.
CAAR Tracking Numbers: PV-6-128773 and PV-6-128775
.
Flight Problem Report approved by Level II Noon PRCB on 6/27/89. (PRCBD #S62055)
.
Status: Closed

- CLOSURE RATIONALE:
Bonding surface contamination was not the cause of the factory joint weatehrseal unbonds. Data recently collected indicate that the tensile adhesion values of structural adhesive bonds are significantly reduced when the bonding surfaces are too smooth (ref MTI document TWR-19301). Case surface smootheness, combined with the excessive splashdown

velocity, contributed to reduced weatherseal bond strength and the subsequent adhesive failures seen on the left SRM factory joints. Planning is being implemented to verify and enforce mininmum surface roughness of 70-microinches Ra to provide the surface texture necessary to ensure optinum tenslie adhesion strength.

1

IFA NUMBER> STS-30-M-01
TITLE:Postflight inspection of the left SRM identified several aft edge unbonds of the factory joint weatherseals.
0 CLOSURE RATIONALE:(Continued from previous page).

1

IFA NUMBER> STS-30-M-02
TITLE:Postflight inspection of the left SRM igniter revealed a cut at 285 degrees on the secondary seal of the outer gasket.
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 06/27/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62056 PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-129207
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. TRENKLE/EE51
2:
0 DESCRIPTION:
The nick exists on approximately 50 percent of the crown and extends radially (at a diagonal) inboard. Dimensions are approximately 0.010" long by 0.010" wide by 0.030" deep. The cut is on the gasket forward face and was not visable in the void area. The exact cause of the o-ring damage is unclear. Prior to igniter installation the gasket was visually inspected, and the igniter joint passed both the high and low pressure leak tests. During assembly two separate gouges in the metal retainer of the gasket at 230 and 248 degrees were written on a DR and dispositioned "use as is."
.
Corrective action consists of updating shipping, handling, storage, and inspection operations for new and refurbished gaskets and is in place.
.
Contractor Tracking Number: SPR DR4-5/153.
.
MSFC PRACA Tracking Number: A12260.
.
Deferred in the MSFC PRACA for STS-28R and STS-34. Problem was closed on 10/19/89, in the MSFC PRACA system, for STS-33R and subs.
.
Flight Problem Report approved by Level II Noon PRCB on 6/27/89. (PRCBD #S62056)
.
Status: Closed

- CLOSURE RATIONALE:
Although the exact source of the O-ring damage cannot be pinpointed, the forementioned assembly/handling scenario is the most reasonable/accepted conclusion. No history exists on this type of anomaly. The discussed inadequacies have been corrected by implementing improved handling/packaging/storage procedures preventing gasket damage after receiving inspection and tightening presssembly inspection requirements,

effective 360H005 (STS-28R) and subsequent flight. The re-inspection of all existing MTI gaskets has shown no discrepant parts since

1

IFA NUMBER> STS-30-M-02
TITLE:Postflight inspection of the left SRM igniter revealed a cut at 285 degrees on the secondary seal of the outer gasket.

0 CLOSURE RATIONALE:(Continued from previous page).

implementaion of these corrective action. Updated shipping, handling, packaging, storage and inspection operations for new and refurbished gaskets received from vendor are also in place.

1

IFA NUMBER> STS-30-M-03
TITLE:The left SRM Nozzle snubber ring was displaced slightly forward and wedged into the aft end ring. Nozzle is wedged out of null position.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 06/27/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62057 PHASE: ENTRY/LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-128972

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: B. NEIGHBORS/EE51
2:

0 DESCRIPTION:

All bolts connecting the snubber support ring to the forward exit cone are sheared. The support ring is displaced ten inches forward at 248 degrees and is in its normal position at 68 degrees. Snubber support ring and snubber segments are wedged between the forward exit cone and the bearing end rings causing the flex bearing to be stretched forward approximately 3/4 inch. The nozzle hardware damage and "snubbed" condition is attributed to high splahdown loads which are associated with the left SRB parachute anomaly (see IFA No. STS-30-B-1). No SRM corrective action is being considered. MTI and SPC desnub tooling and procedures called out in the KSC disassembly manual are to be omitted. All future nozzle desnubbing operations will be accomplished at MTI/ Clearfield. The nozzle damage incurred on STS-30R may limit/prevent reuse of this hardware on future flights.

.

Contractor Tracking Number: SPR DR4-5/152.

.

MSFC PRACA Tracking Number: A12259.

.

Deferred in the MSFC PRACA for STS-28R, STS-34, and STS-33R. Problem was closed on 10/24/89, in the MSFC PRACA system, for STS-33R and subs.

.

Flight Problem Report approved by Level II Noon PRCBD on 6/27/89. (PRCBD #S62057)

.

Status: Closed

- CLOSURE RATIONALE:

The STS-30R left SRM nozzle hardware damage was caused by higher than normal water impact loads due to excessive SRB descent/splashdown velocity, resulting from anomalous left SRB parachute behavior (refer to STS-30-B-1). No SRM corrective action is being considered. MTE and SPC de-snub tooling and procedure called out in the KSC disassembly manual are to be omitted. All future nozzle de-snubbing operation will

be accomplished at Clearfield. This damage may limit/prevent reuse of this nozzle hardware on future flights.

1

IFA NUMBER> STS-30-M-03
TITLE:The left SRM Nozzle snubber ring was displaced slightly forward and wedged into the aft end ring. Nozzle is wedged out of null position.

0 CLOSURE RATIONALE:(Continued from previous page).

1

IFA NUMBER> STS-30-P-01
TITLE:Magellan RF receiver unexpectedly locked-up on orbiter S-band (High Power Mode).

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 08/17/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62059 PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	IV-6-015369	K IPR	30RV-0262

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

0 DESCRIPTION:
T/S shows that if the orbiter is on its primary frequency and MILA is at high power (10KW) then Magellan will always lock up on us. If we use our secondary frequency then no Magellan lock-up, but JSC doesn't like that. So our Magellan folks would like us to stay at low power (2 KW) until the T-9 min hold.
.
For the second launch attempt the MILA station stayed at low power until T-11 min at which time it went to high power for the remainder of the count. Also the Payload went to secondary frequency (2041.9 mhz) until the first stateside pass.
.
Flight Problem Report approved at Level II Noon PRCB on 8/17/89. (PRCBD #S62059)
.
Status: Closed

- CLOSURE RATIONALE:
The Magellan receiver RF center frequency and band width was susceptable to locking up to the uplink high frequency signal, only 9.6 MHZ below the Magellan receive frequency, at the high power level from the Mila ground station. The encrypted, convoluted, 216 kilobits per second signal modulation the uplink carrier frequency, appears to be a train of random bits which exhibits a very wide bandwidth which fell into the Magellan passband. Also the Magellan receiver is extremely sensitive at -150 DBM. Changing to the Mila low uplink frequency shifted the uplink RF carrier and the sidebands 74.1 MHZ down and away from the Magellan receiver passband. Future payloads have been analyzed and those that have receivers susceptable to the problem experienced by Magellan will be protected by switching Mila uplink and orbiter ot the low frequency option.

1

IFA NUMBER> STS-30-P-02
TITLE:PI Channel Selector showed 906 onboard and on ground, but there was no indication of CIU lock onboard.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 02/12/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S062025 PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* ********NONE FOUND******* * ********NONE FOUND*******
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:
0 DESCRIPTION:
Ground does not have insite into the CIU status. Crew reported during debrief that they "fiddled" with control and immediately got a CIU lock indication.
.
Belief is that with the FM and PI both on, interference is causing the CIU not to acquire a lock. For deploy activity the FM was turned off prior to turning on the PI. This procedure change worked sucessfully. A crew procedure change, Form 482, is in work to incorporate this change into future procedures.
.
Flight Problem Report approved at Level II Noon PRCB on 2/12/90. (PRCBD #S062025)
.
Status: Closed

- CLOSURE RATIONALE:
The present consensus is that the probable cause of the CIU no lock indication is a problem in the CIU itself. It was not caused by the orbiter's S-Band Payload Interrogator (PI) or the S-Band FM transmitter. The leaking switch at the Remote Tracking Site (between the transmitter and the antenna-or-dummy load) is an unacceptable culprit because all the PI indicators were normal (phase lock, stable phase error and nominal payload signal strength).

1
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IFA NUMBER> STS-30-R-01
TITLE:During the countdown for STS-30, two problems occurred at the Central Computer Complex (CCC) which caused range to give a NO-GO for coming
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 05/06/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: CLOSED OSB PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* ********NONE FOUND******* * ********NONE FOUND*******
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:
0 DESCRIPTION:
During the T-9 min hold the RSO reported a computer failure. No estimate given on repair time. The T-9 min hold was extended an additional five minutes before a GO was received from the RSO.
.
1. The latest WINDS file, to be used in debris footprint processing, could not be transferred from Cyber B to Cyber A. This occurred at approximately T-90 minutes in the countdown. The cause of this problem was determined to be a coding error in the latest version of the Network Operating System (NOS), deadstart tape #53. A modification had been made to allow the use of ESM (Extended Semiconductor Memory) in conjunction with UEM (User Extended Memory)

for the sharing of disk files between the two Cypers. NOS deadstart tape #53 has an error in logical device assignment identification when the ESM is not present on one of the Cyber systems. ESM is not present when the Cybers are in launch configuration.

.

2. During Range Safety theoretical simulations, Cyber A failed to read the theoretical disk file. The cause of this problem was determined to be a coding error in NOS deadstart tape #53 which prevented the realtime disk driver (RIO) from being loaded into the peripheral processor (PP). A modification had been made to provide expanded memory (Megaword) for the Trident Acquisition Impact Location (TAIL) program that is currently being developed to support the first D5 ripple launch. Due to a particular sequence of events, two words in main memory were being erroneously overwritten.

.

Resolutions:

1. Both an immediate and long-term solution have been developed to prevent and to solve this problem. The immediate solution is for the Cyber operator to key-in a command to prevent utilization of UEM during periods when the CCC Cybers are in launch configuration. The long-term solution is to correct the code so that the proper logical equipment identifiers are used when the Cybers are in launch configuration.

.

2. Both an immediate and long-term solution have been developed to prevent and to solve this problem. The immediate solution is load

1

STS-030 (OV-104,FLT #4) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-30-R-01
TITLE:During the countdown for STS-30, two problems occurred at the Central Computer Complex (CCC) which caused range to give a NO-GO for coming
0 DESCRIPTION: (Continued from previous page).

and initialize all realtime tasks together, prior to executing any of these realtime tasks; and, to confirm on the Cyber console that the realtime disk driver (RIO) is loaded. The long-term solution is to correct the code so that the two words in memory are not being erroneously overwritten by the Megaword code.

.

Status: Closed; This item presented at 2nd Launch attempt L-2 Day review. No further PRCB action required. No Flight Problem Report required.

1

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IFA NUMBER> STS-30-T-01
TITLE:Visible leak detected on 4" LH2 Recirculation line during launch scrub activities.
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 05/06/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: CLOSED OSB PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 30RV-0260 K PR-ET-29-FP-0056
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:
0 DESCRIPTION:

Four inch LH2 Recirculation line was R&R'd on 4/30/89.

.

Post removal inspection found no leak in the line.

.
CAAR Tracking Numbers: IV-6-015365; PV-6-128169
.
Status: Closed; significantly briefed at the second launch attempt L-2 day review. No further PRCB action required. No Flight Problem Report required.

1
STS-030 (OV-104,FLT #4) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-30-V-01
TITLE:Cabin Pressure Transducer Failed.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 118 : 16.39.00
IFA DATE: 04/28/1989
IFA STATUS: CLOSED : 06/14/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 11.39.00
PRCBD NUMBER: S62001 PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 30RV-0256	K	PR-ECL-4-04-0337
M	EECOM-01	P	IM/30RF04

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

0 DESCRIPTION:
Cabin pressure transducer failed to register cabin pressurization properly. During turnaround found dust cap on transducer port. KSC procedures revised.
.
Deviations have been written to OMI S0007.
.
Flight Problem Report approved at Level II Noon Board on 6/14/89. (PRCBD #S62001)
.
CAAR Tracking Numbers: IV-6-015362; PV-6-128152
.
Status: Closed

- CLOSURE RATIONALE:
The cabin pressure transducer provided anomalous readings because of a cap having been inadverently placed on the transducer outlet port. The S0007 launch countdown procedures have been modified to include a visual inspection of the cabin pressure transducer ports during Waste Collection System closeout activities.

1
STS-030 (OV-104,FLT #4) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-30-V-03
TITLE:SSME-1 LH2 Recirculation pump failed

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 118 : 18.28.00
IFA DATE: 04/28/1989
IFA STATUS: CLOSED : 07/20/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-07-27 HOUSTON TIME: 13.28.00
PRCBD NUMBER: S62003 PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 30RV-0259	K	PR-MPS-4-04-0487
M	BSTR-01	P	CAR 30RF01

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

0 DESCRIPTION:

SSME #1 LH2 recirculation pump failed. Intermittent short popped phase B circuit breaker. Pump R/R and retested okay.

.

MCR 14890 Approved for OV-104

.

LCC change being submitted by JSC for STS-28 and subs. LCC will state that if problem can be determined to be a ground problem, then GO, else NO-GO.

.

CAAR Tracking Numbers: IV-6-015363; PV-6-128164

.

Flight Problem Report approved at Level II Noon PRCB on 7/20/89. (PRCBD #S62003)

.

Status: Closed

- CLOSURE RATIONALE:

The SSME-1 LH2 recirculation pump most probably ceased operating because a conductive contamination particle produced arcing in the pump power connector between the phase B pin and the housing of the motor cover. This tripped the ground-power-supply circuit breaker. The recirculation pump package was removed and replaced. An epoxy resin potting material will be applied to the connector surface to reduce the possibility of a similar arcing condition. A launch Commit Criteria change is being submitted that will permit switching to an alternate ground power supply only in the event that an LH2 recirculation pump output pressure loss is attributed to a ground power supply failure.

1

STS-030 (OV-104,FLT #4) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 29

IFA NUMBER> STS-30-V-05
TITLE:RCS jet R1U failed off post ET SEP

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 124 : 18.56.00
IFA DATE: 05/04/1989
IFA STATUS: CLOSED : 06/28/1989
ELAPSED TIME: 000 : 00.09.01
PRACA STATUS: CLOSED : 1989-06-12
HOUSTON TIME: 13.56.00
PRCBD NUMBER: S62005
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 34V-0026	K	PR RP01-11-0359
M	PROP-01	P	CAR 30RF14

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. WELCH
2:

0 DESCRIPTION:

Reaction control system jet R1U failed off post ET SEP due to low chamber pressure. KSC requested to expedite T/S and remove thruster on OV-103 and ship to vendor for failure analysis. KSC will schedule T/S on KSC-PR. KSC will expedite schedule. Trickle current test inflight and on ground showed good electrical path.

.

Chit J3001R1 signed out of board on 5/30/89.

.

Valve signature on OV-103 indicated a sluggish poppet. Showed 23 msec, S/B 12 msec, high current. Valve removed on 5/23 and shipped to the vendor.

.

OV-104 pod (RP01) sent to ORPA for repairs. Use OV-103 pod (RP03) on OV-104 for STS-34.

.

CAAR Tracking Numbers: IV-6-015550; PV-6-133123

.

Flight Problem Report approved by Level II Noon PRCB on 6/28/89.
(PRCBD #S62005)

.

Status: Closed

- CLOSURE RATIONALE:
Since the electrical checks verified proper operation, the most probable cause of the R1U thruster to fail off is contamination. During the STS-30 prelaunch flow, the manifolds on this pod were drained and the propellant tank was cooled down to reduce the leak rate on a leaking quick disconnect and make repairs. Either of these operations could have introduced contamination into the system. Thruster R1U will be removed, replaced, and sent to the vendor for failure analysis.

1

STS-030 (OV-104,FLT #4) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-30-V-06
TITLE:APU 2 GG Fuel Pump "A" Heaters inoperative

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 125 : 00.15.00
IFA DATE: 05/04/1989
IFA STATUS: CLOSED : 08/24/1989
ELAPSED TIME: 000 : 05.28.01
PRACA STATUS: CLOSED : 1990-03-30
HOUSTON TIME: 19.15.00
PRCBD NUMBER: S62006
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 34V-0025	K	PR-EPD-4-04-0551
M	MMACS-02	P	IM/30RF15

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

0 DESCRIPTION:
APU 2 GG fuel pump "A" heaters did not respond when switch operated. Switched to "B" heaters. Operating properly. T/S to include LCA and controller C/O postflight. KSC C/O per OMRSD and in accordance with Downey identified additional EPDC test procedures.

.

For Ferry Flight, use "B" heaters, KSC deviation and exception in work.

.

Exception (EK 1130) approved at noon PRCB on 5/12/89.

.

T/S'ing at KSC has been unsuccessful in recreating the problem.

.

Rational, from RI/DNY, for why the Load Control Assemblies (LCAs) are not considered the problem source has been received at JSC and KSC.

.

KSC has demated all connectors, starting forward and moving aft, and performed wiggle test and pin pull test. No discrepancies were found. Panel A12 removed on 6/14. Sent to RCS for analysis and c/o. Panel returned and reinstalled on 6/22. ALCA #2 R&R completed on 6/30/89.

.

STS-27 Tracking Numbers: IFA-STS-27-04 and IPR 30RV-0030

.

CAAR Tracking Numbers: IV-1-000042; PV-1-004134

.

Panel A12 PR# APU-4-05-0139 (PV-6-132002). APU #2 LCA PR# APU-4-05-014 (PV-6-132128).

.

Flight Problem Report approved at Level II Noon PRCB on 8/24/89.
(PRCBD #S62006)

.

CAR Status: Explained closeout for OV-102, flt. 9 (STS-32) and

OV-103, flt. 9 (STS-33). (10/30/89)
.
Status: Closed

1
STS-030 (OV-104,FLT #4) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-30-V-06
TITLE:APU 2 GG Fuel Pump "A" Heaters inoperative

0
- CLOSURE RATIONALE:
The cause of the in-flight failure of the APU 2 "A" gas generator/fuel pump heaters is unknown. All suspect electrical components in panel A12 have been replaced and verified. All electrical connectors that route the suspect circuit have been demated and inspected. The wires leading to each connector were wiggled to identify intermittent conditions. The AFT LCA 2 has been removed and replaced. The APU 2 controller has been removed and replaced.

The "B" heaters will be used if the anomaly recurs.

1
STS-030 (OV-104,FLT #4) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-30-V-07
TITLE:TAGS JAM

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 124 : 22.52.00
IFA DATE: 05/04/1989
IFA STATUS: CLOSED : 07/14/1989 ELAPSED TIME: 000 : 04.05.01
PRACA STATUS: UNKNOWN HOUSTON TIME: 17.52.00
PRCBD NUMBER: S62007 PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
C	CHIT J2999	K	PR-COM-4-05-0071
M	INCO-01	P	FIAR JSC-EE-0655

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

0 DESCRIPTION:
The onboard hardcopier (OHC) was being configured for receipt of data. This configuration requires that 20 pages of paper be advanced. Eighteen pages had been advanced and the OHC jammed on the 19th page. In flight maintenance procedure performed. No Go for mission. Chit approved for JSC TAGS personnel to T/S postflight at KSC.
.
Capstan screw found loose. T/S'ing at KSC could not remove the jammed paper. No cause for malfunction found at KSC.
.
TAGS has been shipped to JSC. Cause is possible crew procedure error in trying to clear jam. Change to crew procedures and training will be made.
.
KSC Tracking Numbers: IPR 34V-0029 (PV-6-015560)
.
Flight Problem Report approved at Level II Noon PRCB on 7/14/89. (PRCBD #S62007)
.
Status: Closed

- CLOSURE RATIONALE:
The cause of the paper jam was found to be burred and protruding screw heads in the lower surface of the paper tray at the developer exit. The

protrusions were of sufficient size to occasionally catch the leading edge of a page and to interfere with its motion out of the developer. The TAGS hardcopier was removed, replaced, has undergone failure analysis, and has been repaired. All other flight units are being examined for similar workmanship defects.

1

IFA NUMBER> STS-30-V-08
TITLE:ROMS FU total QTY gauge failed (V43Q5331C)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 124 : 19.31.00
IFA DATE: 05/04/1989
IFA STATUS: CLOSED : 08/09/1989
ELAPSED TIME: 000 : 00.44.01
PRACA STATUS: CLOSED : 1989-07-24
HOUSTON TIME: 14.31.00
PRCBD NUMBER: S62008
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	IV-6-015551	K	IPR 34V-0027
M	PROP-02	P	IM/30RF16

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. WELCH
2:

0 DESCRIPTION:
During the OMS-2 burn, the R OMS fuel total quantity gauge stopped decreasing at 49.8%. Expected to decrease to 31.4%. Normal T/S to be performed postflight, per OMRSD requirements.
.
T/S'ing will be performed in the ORPA.
.
Flight Problem Report approved at Level II Noon PRCB on 8/9/89. (PRCBD #S62008)
.
Status: Closed

- CLOSURE RATIONALE:
The most probable cause of the erroneous fuel gauge output was propellant leakage into the probe assembly. Depending on results of troubleshooting, gauge adjustment or replacement will be required to correct the problem. Ground operations will require alternate loading procedures if gauge is not repaired.

1

IFA NUMBER> STS-30-V-09
TITLE:Right RCS A-leg OX He isolation valve (LV304) failed open

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 126 : 13.45.00
IFA DATE: 05/06/1989
IFA STATUS: CLOSED : 10/05/1989
ELAPSED TIME: 001 : 18.58.01
PRACA STATUS: CLOSED : 1991-04-04
HOUSTON TIME: 08.45.00
PRCBD NUMBER: S62009
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 34V-0001	K	PR-RP01-11-0355
M	PROP-03	P	CAR 30RF17

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. WELCH
2:

0 DESCRIPTION:
The right RCS A-leg oxidizer helium isolation valve failed open when commanded to close.
.

Deviation required.
.
Valve verified open postflight. Tank blown down to ferry pressure through regulators and fill/drain valve.
.
Exception (EK1132) approved at noon PRCB on 5/12/89 to ferry with valve open.
.
Normal T/S'ing to be performed at KSC per OMRSD requirements.
.
KSC T/S'ing showed signal okay to pod connector.
.
Replacement valve to KSC on 5/26.
.
Valve worked properly when pod was removed from the vehicle. OV-104 pod (RP01) sent to ORPA for repairs. Metal chips found in P29 connector. During vacuuming of connector some pins were bent.
.
CAR Status: Explained closeout for all flights, all vehicles issued on 1/25/91. RI submitted CAR for closure on 1/29/91. Update to explained closeout issued on 3/12/91. CAR resubmitted for closure on 3/13/91.
.
Flight Problem Report approved at Level II Noon PRCB on 10/5/89. (PRBCD #S62009)
.
Status: Closed

1
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IFA NUMBER> STS-30-V-09
TITLE:Right RCS A-leg OX He isolation valve (LV304) failed open

0
- CLOSURE RATIONALE:
The most probable cause of the right RCS oxidizer helium isolation valve A to fail open is an intemittent electrical connection in the electrical path to the valve's close coil. The intermittent connection has been repaired.

1
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IFA NUMBER> STS-30-V-10
TITLE:Water spray boiler #2 nitrogen pressure decay (V58P0204A)

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 125 : 19.00.00
IFA DATE: 05/05/1989
IFA STATUS: CLOSED : 08/04/1989
ELAPSED TIME: 001 : 00.13.01
PRACA STATUS: CLOSED : 1989-07-11
HOUSTON TIME: 14.00.00
PRCBD NUMBER: S62010
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 34V-0028	K	PR HYD-4-05-0216
M	MMACS-03	P	CAR 30RF18

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

0 DESCRIPTION:
There appears to be a leak downstream of the GN2 supply valve in WSB#2 as evidenced by a 5 psi drop in the WSB regulator pressure during the first 24 hrs of flight.
.

Normal c/o by KSC per OMRSD requirements.
.
RCN OV9029 released to revise spec. Need RCN approval.
.
Additional retest shows relief valve leakage, Replacement planned.
.
Relief valve replaced by vendor on 8/26/89.
.
Retest of relief valve okay. System Pressure Decay checks completed.
.
CAAR Tracking Numbers: IV-1-000043; PV-1-004158
.
Flight Problem Report approved at Level II Noon PRCB on 8/4/89.
(PRCBD #S62010)
.
Status: Closed

- CLOSURE RATIONALE:
The water spray boiler 2 GN2 regulator pressure most probably decayed because the relief valve did not properly seat after ascent. The water spray boiler 2 relief will be leak-tested during turnaround operations. Out-of-specification leakage will result in the removal and replacement of the valve.

1

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IFA NUMBER> STS-30-V-11
TITLE:GPC 4 failed to sync

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 127 : 19.46.00
IFA DATE: 05/07/1989
IFA STATUS: CLOSED : 07/20/1989
ELAPSED TIME: 003 : 00.59.01
PRACA STATUS: CLOSED : 1990-07-18
HOUSTON TIME: 14.46.00
PRCBD NUMBER: S62011
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
C	CHIT J3035	K	IPR 34V-0030
K	PR DIG-4-05-0134	M	DPS-02
P	30RF02	P	30RF03

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

0 DESCRIPTION:
The system management GPC (4) experienced a 'failed to sync'. GPC's 1 and 2 voted against GPC 4. GPC 4 replaced with spare. KSC to remove lockers MF710 and MF21M. Ship CPU and IOP to OWEGO.
.
Interconnect cables will not be sent from KSC to OWEGO. Cables to be reinstalled in vehicle.
.
CHIT approved at Level II Noon Board on 6/15/89. Chit authorizes a wiggle test to be performed on the three CPU/IOP interface cables, while in SM2. Wiggle test of I/F cables was negative.
.
Test Complete, could not duplicate.
.
Close as Unexplained Anomaly.
.
CAAR Tracking Numbers: IV-6-015559
.
CAR Numbers: 30RF02 and 30RF03
.
CAR Status: Explained closeout on CAR 30RF02 was received. CAR

was closed on 3/29/90. Revision to Explained closeout rationale on CAR 30RF02 was issued on 5/11/90.

.

Flight Problem Report approved at Level II Noon PRCB on 7/20/89. (PRCBD #S62011)

.

Status: Closed

- CLOSURE RATIONALE:
The cause of the failure is unknown at this time. The part failures on IOP memory page S/N 18 can only explain the parity errors in sector 5. The memory in sector 6 involves different pages (i.e. multiple failures in the GPC required to expain all the errors). Testing is continuing on

1

IFA NUMBER> STS-30-V-11
TITLE:GPC 4 failed to sync

0 CLOSURE RATIONALE:(Continued from previous page).
subassemblies which are common for all of IOP memory.

GPC 4 was removed and replaced during an IFM procdure on-orbit.

1

IFA NUMBER> STS-30-V-12
TITLE:MPS SSME 3 reg outlet "B" C/V leak

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 07/20/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-02-15 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62012 PHASE: ENTRY/LANDING

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 34V-0031	K	PR-MPS-4-05-0503
M	BSTR-05	P	CAR 30RF19

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

0 DESCRIPTION:
The MPS SSME 3 regulator outlet "B" check valve (CV45) had a reverse leak when the MPS He system was configured for entry at TIG-25 minutes

.

KSC to T/S per OMRSD. Leak checks showed zero leakage on check valve. Valve will still be R&R'd due to past history of this part.

.

CV R&R completed on 8/16/89.

.

CAAR Tracking Number: PV-6-131752

.

Flight Problem Report approved at Level II Noon PRCB on 7/20/89. (PRCBD #S62012)

.

Status: Closed

- CLOSURE RATIONALE:
Postflight leak tests on CV45 did not reproduce the leak. The CV45 reverse leakage was most probably due to contamination on the valve O-ring that prevented the poppet from seating properly. The contamination apparently cleared before the postflight leak checks were performed. Due to the age of CV45, it will be removed and replaced. A

failure analysis will be performed at the vendor to determine the cause of the leak.

1

IFA NUMBER> STS-30-V-13
TITLE:MS-3 COMM Cap Headset failed.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 07/14/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62013
PHASE: ENTRY/LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
P FIAR-JSC-EC-0393

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

0 DESCRIPTION:
Mission specialist on middeck reported failure of comm cap's headset during entry.
.
R&R'd and sent to JSC.
.
JSC T/S'ing has found numerous broken wires at the connector.
.
Flight Problem Report approved at Level II Noon PRCB on 7/14/89. (PRCBD #S62013)
.
Status: Closed

- CLOSURE RATIONALE:
The loss of MS-3 LES communications was caused by broken wires that occurred because of an improperly torqued connector backshell on the HIU interface cable. Investication and inspection of several flight interface cables showed that the connector backshells were only hand-tightened during the manufacturing process. This condition allowed the connector insert to rotate with respect to the connector backshell and thus, the wires could be twisted and broken.

1

IFA NUMBER> STS-30-V-14
TITLE:Right OMS GN2 Pressure regulator regulated low

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 10/05/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62014
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 34V-0003 P IM/30RF20

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. WELCH
2:

0 DESCRIPTION:
Right OMS GN2 pressure regulator regulated 5 psia below specifications during post OMS burn purges, and during postlanding GN2 tank venting.
.
Standard c/o by OMI at the ORPA.
.

Flight Problem Report approved at Level II Noon PRCB on 10/5/89.
(PRCBD #S62014)
.
Status: Closed

- CLOSURE RATIONALE:
The GN2 regulator outlet pressure has shifted lower from STS-27 to STS-30. Since the pressure transducer downstream of the regulator was found to have been biased, the regulated pressure was within specifications.

1

IFA NUMBER> STS-30-V-15
TITLE:RH Main Landing Gear Fluid Leak

0 MISSION CONSTRAINT: SUBS
IFA STATUS: CLOSED : 08/02/1989
PRACA STATUS: UNKNOWN
PRCBD NUMBER: S62015
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
ELAPSED TIME: 000 : 00.00.00
HOUSTON TIME: 00.00.00
PHASE: POST LANDING

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	PR MEQ-4-05-0234	K	PR MEQ-4-05-0235
P	IM/30RF21	P	IM/30RF22

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

0 DESCRIPTION:
During the postlanding inspection at Edwards Air Force Base approximately four to eight ounces of red fluid were discovered to have leaked onto the right-hand drag brace and door drive linkage. Fluid was also discovered on the left-hand strut. The source of the fluid was not apparent, possibly strut fluid or hydraulic actuator fluid. The right-hand and left-hand struts were diapered for a week at KSC, and then the diapers were weighed to determine the individual strut leak rates. The right and left main landing gear strut leak rates were calculated to be 0.90 drop per hour and 0.36 drop per hour, respectively. The maximum allowable leak rate is 1.0 drop per hour.

- CLOSURE RATIONALE:
The leaked fluid is from the main landing gear struts and the leakage rate is within specification. The strut dynamic seals may have partially dried out due to inactivity of the strut, and this condition resulted in an increased leak rate. The struts have been cycled to lubricate the dynamic seals and this should decrease the fluid leak rate. As long as the leak rate is within specification (1.0 drop per hour), the main landing gear struts will be flown as is.

1

IFA NUMBER> STS-30-V-16
TITLE:Nose Wheel Steering Enable Late

0 MISSION CONSTRAINT: SUBS
IFA STATUS: CLOSED : 08/02/1989
PRACA STATUS: CLOSED : 1989-08-07
PRCBD NUMBER: S62016
IFA TIME GMT: 128 : 19.43.00
IFA DATE: 05/08/1989
ELAPSED TIME: 004 : 00.56.01
HOUSTON TIME: 14.43.00
PHASE: ENTRY/LANDING

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
C	CHITJ3033A	K	PR-MED-4-05-0238
P	IM/30RF23		

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

0 DESCRIPTION:
Crew reported lateral acceleration following nose gear touchdown. Data confirmed 1/4g lateral acceleration, and about 4 second delay from nose gear touchdown to nose wheel steering enable.
.
Chit J3020 approved for OV-102 only.
.
Chit J3033A approved on 6/9 to check-out WOW switches on OV-104.
.
KSC T/S'ing found RH NLG sensor out of adjustment. Switch re-rigging completed. Retest completed.
.
Flight Problem Report approved at Level II Noon PRCB on 8/2/89. (PRCBD #S62016)
.
Status: Closed

- CLOSURE RATIONALE:
The casue of the delay in nosewheel steering activation was a slight vehicle pitch up after NWOW 1 deactivation resulting in NWOW 2 not deactivating within 320 milliseconds. The excessive time between NWOW 1 and NWOW 2 deactivation caused a dilemma in the landing SOP preventing nosewheel steering. It is highly probable, however, that had the NWOW switches been rigged according to the specifications both would have deactivatied withn the required time and nosewheel steering enabled. The NWOW switches were rerigged according to specification. In addition, the landing SOP has been modified to increase the allowable time between NWOW 1 and NWOW 2 deactivation to 3.04 seconds before a dilemma is declared.

1
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IFA NUMBER> STS-30-V-17
TITLE:Ding on Forward Window #6

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 07/26/1994
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62017
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	PV-6-128814	K	PR-STR-4-05-1575
P	IM/30RF24		

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:

0 DESCRIPTION:
Ding is larger than allowable specifications. KSC to R&R week of 5/29. Pit 11 1/2 mills deep.
.
Window R&R complete.
.
Flight Problem Report approved at Level II Noon PRCB on 7/26/89. (PRCBD #S62017)
.
Status: Closed

- CLOSURE RATIONALE:
The window chip was probably caused by particle impact in orbit.

During the postflight inspection at Edwards Air Force Base, an impact crater was discovered in the right-hand side windshield thermal pane. After return of the vehicle to KSC, the chip was measured using a mold impression and a microscope. The maximum diameter dimension of the pit was 0.1017 inch with a maximum depth of 0.0115 inch, both of which exceeded the allowable specifications (calculated margin of safety was -0.070). The window was removed and replaced. The pitted window will be returned to JSC for further evaluation to determine the origins of the projectile that caused the damage.

1

IFA NUMBER> STS-30-V-18
TITLE:ET LO2 Umbilical Yoke and Detonators

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 08/22/1994 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-07-05 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62018 PHASE: POST LANDING

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	PR PYR-4-05-0073	K	PR PYR-4-05-0075
P	CAR 30RF25		

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

0 DESCRIPTION:
A pyro retainer clip, RH outboard, fell out of the umbilical cavity when the ET Umbilical doors were opened. Two LO2 umbilical detonators, one from RH AFT and one from RH Inboard, were missing and were not found on the runway. Concern is that debris could prevent ET umbilical doors from closing while on orbit. Rockwell and JSC are investigating.
.
MCR 11960 to CCB week on 7/21/89. RI Logic states safe to fly. OV-104 fly as is.
.
CAAR Tracking Numbers: PV-6-128858 and PV-6-129131
.
Flight Problem Report approved at Level II Noon PRCB on 8/2/89. (PRCBD #S62018)
.
Status: Closed

- CLOSURE RATIONALE:
During the postflight inspection of the runway surface at Edwards Air Force Base, separation hardware was found on the runway under the LO2 external tank (ET) doors. The hardware was identified as a yoke from the right-hand ET unbilical plate separation bolt assembly. Two LO2 umbilical detonators were missing and were not found on the runway. One was missing from the right-hand aft location and one from the right-hand inboard location. The aft unbilical plate debris canisters can allow debris to escape.

1

IFA NUMBER> STS-30-V-19
TITLE:Commander's AVVI reading high during FCS checkout.

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

IFA STATUS: CLOSED : 07/26/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-05-04 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62019 PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
P IM/30RF26

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

0 DESCRIPTION:
The commander's AVVI read 20,600 ft/sec during FCS checkout, should have read 20,000 ft/sec.
.
Downey review in work to determine tolerance.
.
Acceptable range to be added to Flight Data File. KSC to run standard OMI V1028 test.
.
CAR Status: Rationale for explained closeout as a UA issued on 4/12/90.
.
Flight Problem Report approved at Level II Noon PRCB on 7/26/89. (PRCBD #S62019)
.
Status: Closed

- CLOSURE RATIONALE:
The cause of this anomaly is not known. It is most probably related to the pysical properties of the tape material and is manifested the first time the tape is cycled following a period of inactivity. Environmental factors may also be a contributing cause. It is believed that cycling the tape by re-executing the "HIGH" and "LOW" tests may clear the problem.

1
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IFA NUMBER> STS-30-V-2A
TITLE:Instrumentation: APU-3 EGT-2 (V46T0340A) failed.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 118 : 18.30.00
IFA DATE: 04/28/1989
IFA STATUS: CLOSED : 07/20/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-06-05 HOUSTON TIME: 13.30.00
PRCBD NUMBER: S62002 PHASE: PRE-LAUNCH

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR-APU-A-0007 K PR-APU-4-04-0136
M MMACS-01 P CAR 30RF05

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

0 DESCRIPTION:
During APU startup APU-3 EGT 2 failed.
.
R&R of transducer is complete.
.
CAAR Tracking Number: PV-6-128137
.
Flight Problem Report approved at Level II Noon PRCB on 7/20/89. (PRCBD #S62002)
.
Status: Closed

- CLOSURE RATIONALE:

The auxiliary power unit (APU) 3 exhaust gas temperature (EGT) 2 (V46T0340A) sensor failed during prelaunch APU startup operations. KSC has removed and replaced the sensor. Failure analysis will be tracked by CAR 30RF05. This is a criticality 3 measurement.

IFA NUMBER> STS-30-V-2B
TITLE:Instrumentation: APU-1 EGT-1 (V46T0142A) failed.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 118 : 18.30.00
IFA DATE: 04/28/1989
IFA STATUS: CLOSED : 07/20/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-06-05
HOUSTON TIME: 13.30.00
PRCBD NUMBER: S62002
PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	PR-APU-A-0007	K	PR-APU-4-04-0136
M	MMACS-01	P	CAR 30RF06

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

0 DESCRIPTION:
During APU startup, APU-1 EGT 1 failed.
.
R&R of transducer is complete.
.
CAAR Tracking Number: PV-6-128137
.
Flight Problem Report approved at Level II Noon PRCB on 7/20/89. (PRCBD #S62002)
.
Status: Closed

- CLOSURE RATIONALE:
APU 1 EGT 1 (V46T0142A) sensor failed during APU startup operations. KSC has removed and replaced the sensor. Failure analysis will be tracked by CAR 30RF06.

IFA NUMBER> STS-30-V-2C
TITLE:Instrumentation: APU-2 EGT-1 (V46T0242A) failed.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 118 : 18.30.00
IFA DATE: 04/28/1989
IFA STATUS: CLOSED : 07/20/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-06-05
HOUSTON TIME: 13.30.00
PRCBD NUMBER: S62002
PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	PR-APU-A-0007	K	PR-APU-4-04-0136
M	MMACS-01	P	CAR 30RF07

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

0 DESCRIPTION:
During APU startup, APU 2 EGT 1 failed.
.
R&R of transducer complete.
.
CAAR Tracking Numbers: PV-6-128137
.

Flight Problem Report approved at Level II Noon PRCB on 7/20/89.
(PRCBD #S62002)
.
Status: Closed

- CLOSURE RATIONALE:
APU 2 EGT 1 (V46T0242A) sensor failed during APU startup operations.
KSC has removed and replaced the sensor. Failure analysis will be
tracked by CAR 30 RF07.

1
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IFA NUMBER> STS-30-V-2D
TITLE:Instrumentation: SSME #3 GH2 press sys temp (V41T1361A) failed high

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 124 : 18.49.00
IFA DATE: 05/04/1989
IFA STATUS: CLOSED : 07/20/1989 ELAPSED TIME: 000 : 00.02.01
PRACA STATUS: CLOSED : 1989-06-12 HOUSTON TIME: 13.49.00
PRCBD NUMBER: S62002 PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 34V-0024 K PR-MPS-4-05-0497
M BSTR-02 P CAR 30RF08
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:
0 DESCRIPTION:
SSME #3 GH2 press sys temp failed high prelaunch.
.
T/S'ing work at KSC has traced the problem to a bad transducer.
.
R&R of Transducer is complete. Awaiting retest.
.
CAAR Tracking Number: PV-6-130566
.
Flight Problem Report approved at Level II Noon PRCB on 7/20/89.
(PRCBD #S62002)
.
Status: Closed

- CLOSURE RATIONALE:
The SSME 3 GH2 pressure system temperature (V41T1361A) sensor failed
off-scale high. KSC has replaced the failed sensor. Failure analysis
will be tracked by CAR 30RF08.

1
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IFA NUMBER> STS-30-V-2E
TITLE:Instrumentation: Center Engine LH2 inlet pressure transducer failed
(V41P1100C)
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 124 : 18.54.00
IFA DATE: 05/04/1989
IFA STATUS: CLOSED : 07/20/1989 ELAPSED TIME: 000 : 00.07.01
PRACA STATUS: CLOSED : 1990-10-30 HOUSTON TIME: 13.54.00
PRCBD NUMBER: S62002 PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 34V-0023 K PR-MPS-4-05-0498
M BSTR-03 P CAR 30RF09
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:

0 DESCRIPTION:
The center engine LH2 inlet pressure transducer failed to about 1-2 psi during ascent.
.
T/S'ing work at KSC has traced the problem to a bad transducer.
.
R&R of transducer is complete. Awaiting retest.
.
CAAR Tracking Number: PV-6-130565
.
Flight Problem Report approved at Level II Noon PRCB on 7/20/89. (PRCBD #S62002)
.
Status: Closed
- CLOSURE RATIONALE:
The SSME 1 engine LH2 inlet pressure (V41P1100C) sensor failed. KSC ha s replaced the failed sensor. Failure analysis will be tracked on CAR 30RF09.

1
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IFA NUMBER> STS-30-V-2F
TITLE:Instrumentation: Fuel Cell #2 H2 flow meter failed.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 126 : 11.36.00
IFA DATE: 05/06/1989
IFA STATUS: CLOSED : 07/20/1989 ELAPSED TIME: 001 : 16.49.01
PRACA STATUS: UNKNOWN HOUSTON TIME: 06.36.00
PRCBD NUMBER: S62002 PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	PV-6-129544	K	PR-FCP-4-05-0107
M	EECOM-03	P	IM/30RF10

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:
0 DESCRIPTION:
At about 126:10:00 the FC2 H2 flow transducer (V45R0270A) shifted high by .2-.3#/hr. Started working properly toward end of mission.
.
KSC action to transfer this PR to next flow. Deferred per PR-FCP-4-A0009.
.
Flight Problem Report approved at Level II Noon PRCB on 7/20/89. (PRCBD #S62002)
.
Status: Closed

- CLOSURE RATIONALE:
Fuel cell 2 H2 flowmeter (V45R0270A) shifted high by 0.2 - 0.3 lb/hr (nominal is 0.4 +/- 0.2 lb/hr). However, the sensor started working properly toward the end of the mission. Defer maintenance until next flow. KSC PR-FCP-4-05-0107 and IM30RF10 will track amaintenance and failure analysis.

1
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IFA NUMBER> STS-30-V-2G
TITLE:Instrumentation: APU 1 EGT 2 failed (V46T0140A)

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

IFA STATUS: CLOSED : 07/20/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1989-06-05 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62002 PHASE: ENTRY/LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR-APU-A-0007 M MMACS-06
P CAR 30RF11

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

0 DESCRIPTION:
APU 1 EGT 2 failed on entry
.
R&R of transducer is complete.
.
Flight Problem Report approved at Level II Noon PRCB on 7/20/89.
(PRCBD #S62002)
.
Status: Closed

- CLOSURE RATIONALE:
APU 1 EGT 2 (V46T0140A) failed during entry. KSC has removed and replaced the failed sensor. Failure analysis will be tracked by CAR 30 RF11.

1

IFA NUMBER> STS-30-V-2H
TITLE:Instrumentation: Left engine LH2 inlet pressure transducer biased low (V41P1200C)

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 128 : 19.34.00
IFA DATE: 05/08/1989
IFA STATUS: CLOSED : 07/20/1989 ELAPSED TIME: 004 : 00.47.01
PRACA STATUS: UNKNOWN HOUSTON TIME: 14.34.00
PRCBD NUMBER: S62002 PHASE: ENTRY/LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M BSTR-06 P IM/30RF12

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

0 DESCRIPTION:
The left engine LH2 inlet pressure transducer was reading about 10 psi lower than actual pressure from VREL = 4500 FPS to touchdown.
.
KSC evaluation shows eng #2 typically 10 psi lower than other two engines. JSC/KSC/DWNY review showed that this is a nominal behavior.
.
No further action required.
.
Flight Problem Report approved at Level II Noon PRCB on 7/20/89.
(PRCBD #S62002)
.
Status: Closed

- CLOSURE RATIONALE:
SSME 2 LH2 inlet pressure transducer was reading about 10 psi lower than actual pressure during landing. KSC evaluation showed that SSME 2 LH2 inlet presure is typically 10 psi lower than the other two engines. JSC and Rockwell-Downey agree that this is nominal operaiton. Final closeout will be tracked by CAR 30RF12.

1

IFA NUMBER> STS-30-V-20
TITLE:1307 Bulkhead Blanket Damage

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 11/08/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1992-08-11 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62020 PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-130244 K PR-TCS-4-05-0515
P CAR 30RF27
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. GUTHERY
2:
0 DESCRIPTION:
Some 1307 bulkhead blankets, adjacent to those recently modified, sustained cover damage. In addition, nine snaps were found unsnapped.
.
Downey to submit MCR to modify blankets.
.
Engineer to be complete on 7/31.
.
CAR Status: Received explained closeout for OV-102 (Flt 10, STS-35) and OV-103 (Flt 10, STS-31).
.
Flight Problem Report approved at Level II Noon PRCB on 11/8/90. (PRCBD #S44925)
.
Status: Closed

- CLOSURE RATIONALE:
The exact cause of this probem has not been determined even though several hypotheses have been investigated by test and analysis. The redesigned blankets flown on STS-30, STS-28 and STS-34 demonstrated their compatibility with the existing environment. The loose snaps have no flight effect. The anomalous blankets and all others in the area have now been replaced with the redesigned blankets. This redesign adds vent screens and beta cloth material to the blanket backsides for additional strength. The beta cloth addition will minimize the wear during ascent, and if the material is damaged, all of the aluminized Kapton particles will be contained. The condition of the modified blankets will be determined by inspection after each flight to assure that the blanket redesign is effective.

1

IFA NUMBER> STS-30-V-21
TITLE:AFT FUS Temps Low Prelaunch

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 08/18/1994 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62021 PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
P IM/30RF28
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MCMILLAN
2:
0 DESCRIPTION:
WSB vent/nozzle temps 10 deg F warmer on first launch attempt than on

launch day. Due to local weather. Clear/sun on first attempt; cloudy/showers on launch day.

.

Flight Problem Report approved at Level II Noon PRCB on 8/18/89. (PRCBD #S62021)

.

Status: Closed

1

IFA NUMBER> STS-30-V-22
TITLE:During MPS LO2 Manifold Repress/GO2 Press Lagged

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 08/31/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1991-01-29 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62022 PHASE: ENTRY/LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 34RV-0035
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MCMILLAN
2:
0 DESCRIPTION:
When the MPS LO2 Manifold Repress was initiated during Rentry, the GO2 disconnect press rise lagged by approx 1 min 30 secs. Press should rise concurrently. GO2 filter suspect.

.

KSC Troubleshooting on 7/22/89 indicated the GOX manifold orifice was too small or restricted. Orifice replacement complete and X-rays of brazes are good.

.

Flight Problem Report approved at Level II Noon PRCB on 8/31/89. (PRCBD #S62022)

.

Status: Closed

- CLOSURE RATIONALE:
The slow rise in pressure in the MPS GO2 prepressurization/ pressurization manifold when compared to the rise in the LO2 manifold was most probably caused by contamination in the heluim repressurization line filter/orifice assembly (RP1). The filter/orifice assembly was removed and replaced. Testing has shown that flowrates through the new orifice assembly meet analytical predictions. The remaining components/lines downstream of the repressurization regulator in the GO2/LO2 repressurization system were removed, cleaned to specification levels, and reinstalled in the vehicle. The system upstream of the repressurization regulator was verified clean to specification levels by blowdown through millipore filters.

1

IFA NUMBER> STS-30-V-23
TITLE:High Iodine concentration in drinking water

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 09/29/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62023 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:
   The crew measured drinking water iodine concentration several times
   during the mission and found that the concentrations increased
   throughout the flight, reaching a maximum value of 13ppm.  Microbial
   check valve is designed to inject 2 ppm iodine into 70 deg F. water,
   however the galley input water temperature is higher, causing
   increased iodine concentration.  Further data will be taken on STS-28,
   34, and 33 to determine how to redesign the microbial check valve.
   .
   Flight Problem Report approved at Lv. II Noon PRCB on 9/29/89.
   (PRBD #S62023).
   .
   Status:  Closed

- CLOSURE RATIONALE:
   A high iodine concentration was experienced in the drinking water
   because the supply water was warmer than the temperature used for the
   design of the MCV's causing them to inject excess iodine into the
   water.   Further data will be taken on STS-28, 34, and 33 to support a
   redesign of the MCV's.  High iodine concentrations will exist until the
   redesigned MCV's become operational.

1
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  IFA NUMBER> STS-30-V-24
  TITLE:LOX electrical disconnect purge port taped over.

0 MISSION CONSTRAINT:            SUBS          IFA TIME GMT: 000 : 00.00.00
                                               IFA DATE:
  IFA STATUS:   CLOSED    : 11/27/1989         ELAPSED TIME: 000 : 00.00.00
  PRACA STATUS: UNKNOWN                        HOUSTON TIME: 00.00.00
  PRCBD NUMBER: S62024                         PHASE:        PRE-LAUNCH
0 TYPE      TRACKING NUMBER          TYPE       TRACKING NUMBER
   *    ********NONE FOUND*******      *    ********NONE FOUND*******
0 CLOSURE INITIATED BY:
  RESPONSIBLE MANAGERS 1: D. CORCORAN
                       2:
0 DESCRIPTION:
   Post STS-30 landing, Pre-Ferry Flight, it was determined that the
   purge port for the LOX electrical disconnect was taped over.  It has
   been subsequently determined that the tape was not removed prior to
   ET/Orbiter mate at KSC.
   .
   Flight Problem Report approved at Lv. II Noon PRCB on 11/27/89.
   (PRCBD# S62024)
   .
   Status:  Closed

- CLOSURE RATIONALE:
   The Orbiter/ET Mate procedure (S0004) was not specific enough to ensure
   removal of the tape from this purge port.  KSC has revised the
   Orbiter/ET Mate procedure (S0004X) to include specific steps (SEQ 22,
   steps 4 & 5, and SEQ 23, steps 4 & 5) to insure that anything covering
   the purge port is removed.

1
          STS-030 (OV-104,FLT #4) OFFICIAL INFLIGHT ANOMALY REPORT      01/31/95
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```

IFA NUMBER> STS-30-V-4A
TITLE:CFE - MS-1 RH shoulder belt adjuster "c" clip missing

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE: 04/28/1989
IFA STATUS: CLOSED : 06/28/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62004A
PHASE: PRE-LAUNCH

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR-FCS-4-04-0194 K PR-LAF-4-04-0086
P CAR KB0821

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

0 DESCRIPTION:
After the launch attempt the MS-1 RH shoulder belt adjuster was found missing during seat ingress.
.
MS-1 seat R&R'd during launch turnaround.
.
CAAR Tracking Number: PV-6-128141
.
Flight Problem Report approved by Level II Noon PRCB on 6/28/89. (PRCBD #S62004A)
.
Status: Closed

- CLOSURE RATIONALE:
The MS1 seat right-hand shoulder belt adjuster failed to maintain tension in the belt because the "C" clip was missing from the adjuster. The MS1 seat was removed and replaced prior to the next launch attempt. The removed seat is in rework. A design change is under consideration that will maintain the integrity of the adjuster after the loss of a "C" clip.

1

IFA NUMBER> STS-30-V-4B
TITLE:GFE - Arriflex 16mm camera operate lever failed.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 125 : 23.48.00
IFA DATE: 05/05/1989
IFA STATUS: CLOSED : 06/21/1989
ELAPSED TIME: 001 : 05.01.01
PRACA STATUS: UNKNOWN
HOUSTON TIME: 18.48.00
PRCBD NUMBER: S62004
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M MMACS-04 P FIAR BFCE-210-F003

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

0 DESCRIPTION:
During crew operations the Arriflex 16mm camera lever failed to function. The crew performed a routine malfunction procedure and regained the camera function. However, in this mode the camera will run continuously unless the battery pack is unplugged.
.
Flight Problem Report approved by Level II Noon PRCB on 6/21/89. (PRCBD #S62004)
.
Status: Closed

- CLOSURE RATIONALE:

Failure of the Arriflex inventory to alleviate this problem is under way. All Arriflex cameras presently in FEPC inventory will be inspected to ensure that each plastic operate lever has been changed out with a metal operate lever. It is anticipated that all Arriflex cameras will be inspected and modified as required prior to the next flight.

1

IFA NUMBER> STS-30-V-4C
TITLE:GFE - Galley Failures

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 126 : 13.37.00
IFA DATE: 05/06/1989
IFA STATUS: CLOSED : 08/04/1989
ELAPSED TIME: 001 : 18.50.01
PRACA STATUS: UNKNOWN
HOUSTON TIME: 08.37.00
PRCBD NUMBER: S62004C
PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M EECOM-04 P FIAR BFCE-023-F002,3,4

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

0 DESCRIPTION:
1. Galley H2O dispenser not selectable.
2. Chilled water QD failed to disconnect. JSC Chit approved to check QD's, then R/R galley.
3. Package-in-place lever was stuck for about 80 percent of mission.
.
KSC is performing galley work, per OMI V5114 and the approved CHIT.
.
Galley has been removed and shipped to JSC.
.
T/S'ing at JSC has found a possible bad solder connection on one switch. No anomalies have been found with the QD's. T/S'ing to complete week of 6/5. Galley to be returned to KSC prior to need date.
.
FIAR's: BFCE-023-F002; BFCE-023-F003; BFCE-023-F004;
.
Flight Problem Report approved at Level II Noon PRCB on 8/4/89. (PRCBD #S62004C)
.
Status: Closed

- CLOSURE RATIONALE:
Three problems involving the galley were encountered duiring the mission:
1. The erratic water quantities that were dispensed resulted from a bad solder joint connecting the water quantity select switch to the galley control electronics. The solder joint has been re-soldered.
2. The QD problem could not be duplicated, but may have been caused by unique procedures required to separate this particular QD which the crew had not trained for. Procedural differences for separating the chilled water QD will be delivered to crew training personnel for incorporation into the crew traiing flow.
3. The package-in-place lever return was caused by the lever return spring jamming. The OV-104 rehydration station will be replaced with a spare.

1

IFA NUMBER> STS-30-V-4D
TITLE:GFE - Hasselblad 70mm camera failed

```
0 MISSION CONSTRAINT:            SUBS          IFA TIME GMT: 126 : 12.52.00
                                               IFA DATE:     05/06/1989
  IFA STATUS:   CLOSED    : 06/28/1989         ELAPSED TIME: 001 : 18.05.01
  PRACA STATUS: UNKNOWN                        HOUSTON TIME: 07.52.00
  PRCBD NUMBER: S62004D                        PHASE:        ON-ORBIT
0 TYPE      TRACKING NUMBER          TYPE      TRACKING NUMBER
   M   MMACS-05                       P   FIAR-BFCE-210-F002
0 CLOSURE INITIATED BY:
  RESPONSIBLE MANAGERS 1: D. DILLMAN
                       2:
0 DESCRIPTION:
   Hasselblad 70mm camera shutter jammed.  Remove and send to JSC.
   .
   Flight Problem Report approved by Level II Noon PRCB on 6/28/89.
   (PRCBD #S62004D)
   .
   Status:  Closed

- CLOSURE RATIONALE:
   The Hasselblad 70mm camera suffered mechanical failure which jammed the
   shutter between the open and closed positions. This failure caused the
   camera to stall in mid-cycle rendering the camera unusable for the
   remainder of the flight.  The camera has been returned to the vendor for
   repair.  This hardware is off-the-shelf hardware therefore, a detailed
   failure analysis may not be supplied.  Even if this problem recurred on
   a future flight, a second Hasselblad camera is manifested on every
   mission.

1
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  IFA NUMBER> STS-30-V-4E
  TITLE:GFE - CCTV Camera A - Spots on image

0 MISSION CONSTRAINT:            SUBS          IFA TIME GMT: 126 : 18.45.00
                                               IFA DATE:     05/06/1989
  IFA STATUS:   CLOSED    : 07/19/1989         ELAPSED TIME: 001 : 23.58.01
  PRACA STATUS: UNKNOWN                        HOUSTON TIME: 13.45.00
  PRCBD NUMBER: S62004E                        PHASE:        ON-ORBIT
0 TYPE      TRACKING NUMBER          TYPE      TRACKING NUMBER
   A   DR BH930060                     M   INCO-03
   P   FIAR BFCE-029-F011
0 CLOSURE INITIATED BY:
  RESPONSIBLE MANAGERS 1: D. DILLMAN
                       2:
0 DESCRIPTION:
   Two translucent white spots, above midscreen, overlapping and each
   about 1/8" in diameter, were noted on D/L video from P/L bay camera A.
   5 black spots, less than 1/32" in diameter and scattered across the
   screen, were also noted.  The spots stayed stationary after zoom
   performed.
   .
   R&R complete;  Camera is at JSC.
   .
   Bad Silica Intensifier Target (SIT) Tube.
   .
   Flight Problem Report approved at Level II Noon PRCB on 7/19/89.
   (PRCBD #S62004E)
   .
   Status:  Closed

- CLOSURE RATIONALE:
```

The spots on the image from CCTV camera A were caused by a burn on the SIT tube that resulted from exposure to excessive illumination. The CCTV camera A has been returned to the vendor for replacement of the SIT tube.

1
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IFA NUMBER> STS-30-V-4F
TITLE:GFE - Teleprinter messages illegible

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 125 : 04.54.00
IFA DATE: 05/04/1989
IFA STATUS: CLOSED : 07/14/1989
ELAPSED TIME: 000 : 10.07.01
PRACA STATUS: UNKNOWN
HOUSTON TIME: 23.54.00
PRCBD NUMBER: S62004F
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
M	INCO-02	P	FIAR-BFCE-029-F010

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

0 DESCRIPTION:
Top half of teleprinter characters did not print.
.
R&R complete; Teleprinter is at JSC.
.
Paper not installed correctly. Key hammer had buildup of ink.
.
Flight Problem Report approved at Level II Noon PRCB on 7/14/89. (PRCBD #S62004F)
.
Status: Closed

- CLOSURE RATIONALE:
The illegible teleprinter characters were caused by a combination of heavy ink buildup on the character hammers, as well as the paper having been threaded incorrectly into the teleprinter. FEPC procedures for pre-mission preparation of the teleprinter will be modified with cautionary notes to inspect the hammers for ink buildup and to verify proper threading of the paper.

1
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IFA NUMBER> STS-30-V-4G
TITLE:GFE - Gas Bubbles in Drinking Water

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 10/05/1989
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S62004G
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:
Crew reported gas bubbles in drinking water during debrief. Post flight analysis inconclusive as to source of gas. Fly-as-is. Ground tests will be run to attempt to identify gas source.
.
Flight Problem Report approved at Lv. II Noon PRCB on 10/4/89.

(PRCBD #S62004G).

.

Status: Closed

- CLOSURE RATIONALE:
Since no conclusive information on the source of the gas is available, and this phenomenon can be compensated for by the crew, the galley and supply water system was loaded and will be flown as-is for STS-34.

1

IFA NUMBER> STS-30-Y-01
TITLE:During the countdown for STS-30, two problems occurred at the Central Computer Complex (CCC) which caused range to give a NO-GO for coming
0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 05/06/1989 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: CLOSED OSB PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
* ********NONE FOUND******* * ********NONE FOUND*******
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1:
2:
0 DESCRIPTION:
During the T-9 min hold the RSO reported a computer failure. No estimate given on repair time. The T-9 min hold was extended an additional five minutes before a GO was received from the RSO.

.

1. The latest WINDS file, to be used in debris footprint processing, could not be transferred from Cyber B to Cyber A. This occurred at approximately T-90 minutes in the countdown. The cause of this problem was determined to be a coding error in the latest version of the Network Operating System (NOS), deadstart tape #53. A modification had been made to allow the use of ESM (Extended Semiconductor Memory) in conjunction with UEM (User Extended Memory) for the sharing of disk files between the two Cypers. NOS deadstart tape #53 has an error in logical device assignment identification when the ESM is not present on one of the Cyber systems. ESM is not present when the Cybers are in launch configuration.

.

2. During Range Safety theoretical simulations, Cyber A failed to read the theoretical disk file. The cause of this problem was determined to be a coding error in NOS deadstart tape #53 which prevented the realtime disk driver (RIO) from being loaded into the peripheral processor (PP). A modification had been made to provide expanded memory (Megaword) for the Trident Acquisition Impact Location (TAIL) program that is currently being developed to support the first D5 ripple launch. Due to a particular sequence of events, two words in main memory were being erroneously overwritten.

.

Resolutions:
1. Both an immediate and long-term solution have been developed to prevent and to solve this problem. The immediate solution is for the Cyber operator to key-in a command to prevent utilization of UEM during periods when the CCC Cybers are in launch configuration. The long-term solution is to correct the code so that the proper logical equipment identifiers are used when the Cybers are in launch configuration.

.

2. Both an immediate and long-term solution have been developed to prevent and to solve this problem. The immediate solution is load

1

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IFA NUMBER> STS-30-Y-01
TITLE:During the countdown for STS-30, two problems occurred at the Central Computer Complex (CCC) which caused range to give a NO-GO for coming

0 DESCRIPTION: (Continued from previous page).
and initialize all realtime tasks together, prior to executing any of these realtime tasks; and, to confirm on the Cyber console that the realtime disk driver (RIO) is loaded. The long-term solution is to correct the code so that the two words in memory are not being erroneously overwritten by the Megaword code.
.
Status: Closed; This item presented at 2nd Launch attempt L-2 Day review. No further PRCB action required. No Flight Problem Report required.

-JFDPO12: NORMAL TERMINATION OF PROCESSING

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STS-031 (OV-103,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 1

IFA NUMBER> STS-31-B-01
TITLE:Left SRB aft IEA and ETA ring damage

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE: 04/24/1990
IFA STATUS: CLOSED : 05/09/1990
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-06-15
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044820B
PHASE: ENTRY/LANDING

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	A12930	A	PV-6-158719
K	PR D-BI-037L-0002		

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

0 DESCRIPTION:
The left SRB aft IEA was dislocated from the ETA Ring at water impact.
.
Three ring covers, two angle brackets, and one cable tie for the IEA on the left SRB ETA ring are missing. The mounting flanges for the IEA box were broken off, and there is visible deformation of both the forward and aft ETA ring webs at the IEA location. All of the cables on the strut side and 10 of the 19 cables on the tunnel side were severed, leaving the IEA attached by only nine cables which were then purposely cut by the divers. The evaluation of the sheared cover fasteners and fractured IEA mounting flanges confirmed that both were torn off in a forward direction (single event fracture). This damage was caused by the severe loads encountered during water impact. It is currently unknown whether or not the ETA ring segment experiencing the deformation will be repairable for reuse. A test of the IEA indicated no loss of pressure in this unit and may be acceptable for reuse.
.
This problem has been closed in the MSFC PRACA system for STS-38 and subs on 6/15/90. MSFC Tracking Number is A12930.
.
Flight Problem Report approved at Level II Noon PRCB on 5/9/90 (PRCBD #S044820B).

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STS-031 (OV-103,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 2

IFA NUMBER> STS-31-B-02
TITLE:Right and Left SRB Ordnance Ring to Frustum Fastener Assemblies Loose.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 000 : 00.00.00
IFA DATE: 04/30/1990
IFA STATUS: CLOSED : 05/14/1990
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-07-24
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044820C
PHASE: POST LANDING

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	A12931	A	PV-6-158892
A	PV-6-158904	K	PR D-BI-037L-0033
K	PR D-BI-037R-0006		

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

0 DESCRIPTION:
There was a varing reduction of preload in fasteners at the frustum

to ordnance ring interface on the left (20 of 296) and right (all) SRB's.

.

Preliminary data indicated that the cause of the loose fasteners might be associated with an out-of-spec frustum flange thickness. Further evaluation exonerated the flange thickness since adequate fastener grip length was maintained. The reduction in preload is considered to be the principal factor responsible for this anomaly. The reduction in preload is attributed to washer deformation caused by descent loading (drogue loading puts the fastener assemblies into tension which reduces preload). The nuts were fully engaged on the bolts with at least two threads protruding. Ascent loads are compressive, therefore, the integrity of this joint is not dependent on preload during ascent. Loss of preload during descent has no effect on joint integrity based on worst case Design Certification Review (DCR) of deployment loads which give a factor of safety > 4.0 for the fasteners. All frustum assemblies which have not been transferred have been inspected and verified to have acceptable preload. There is no corrective action required for STS-35 since the factors of safety are unaffected during ascent. The integrity of this joint is not dependent on preload during ascent or descent. The Level II PRCB required additional information before approval can be issued. The drogue parachute deployment loads effect and dimensional tolerances of the frustum fastener assemblies will be added to the Flight Problem Report (FPR).

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KSC CAAR Tracking Numbers: PV-6-158892; PV-6-158904.

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MSFC PRACA Tracking Number: A12931

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This problem is a CRIT 3 failure. This problem has been closed in the MSFC PRACA system for STS-41 and subs on 7/24/90.

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Flight Problem Report was presented to the Level II Noon PRCB on

1

IFA NUMBER> STS-31-B-02
TITLE:Right and Left SRB Ordnance Ring to Frustum Fastener Assemblies Loose.

0 DESCRIPTION: (Continued from previous page).
5/9/90 (PRCBD #S044820C). Additional information was requested to be added the FPR. PRCBD was signed OSB on 5/14/90.

1

IFA NUMBER> STS-31-B-03
TITLE:RSS Transition Housing Sooted on Both SRB's.

0 MISSION CONSTRAINT: SUBS

IFA STATUS: CLOSED : 05/09/1990
PRACA STATUS: CLOSED : 1990-07-24
PRCBD NUMBER: S044820D

IFA TIME GMT: 000 : 00.00.00
IFA DATE: 04/30/1990
ELAPSED TIME: 000 : 00.00.00
HOUSTON TIME: 00.00.00
PHASE: POST LANDING

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	A12932	A	PV-6-158812

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

0 DESCRIPTION:
The RSS crossover bracket on both SRB's is sooted around the P2 connector jam nut. Also, ballooning of the heat shrink tubing was

observed on one cable in the right SRB RSS transition housing.

.

The left P2 connector backshell is also sooted. Thermal analysis of the sooted areas shows that there is not sufficient heating during ascent to cause the effects seen inside the RSS transition housing. Sooting is evident on areas of connectors and other housing components which could only occur during descent. This condition has been noted on previous missions and was documented in the SRB postflight assessment manual for STS-41G. This problem has been elevated to an IFA for STS-31R to record a first time event since return to flight. In conclusion, there is neither sufficient heating during ascent nor physical evidence to support the occurrence of sooting during ascent. Ballooning of the heat shrink tubing can occur during ascent due to delta pressure and is not considered a problem. There is no corrective action required. Enhancements of the RSS transition housing closeout are being evaluated.

.

MSFC PRACA Tracking Number: A12932

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This problem is a CRIT 3 failure. This problem has been closed in the MSFC PRACA system for STS-41 and subs on 7/24/90.

.

Flight Problem Report approved at Level II Noon PRCB on 5/9/90 (PRCBD #S044820D).

1

IFA NUMBER> STS-31-B-04
TITLE:Left SRB Aft Skirt Missing K5NA over MTA-2 and MTA-2 over MTA-2

0 MISSION CONSTRAINT: SUBS

IFA TIME GMT: 000 : 00.00.00
IFA DATE: 04/27/1990
IFA STATUS: CLOSED : 05/10/1990
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-06-25
HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044820E
PHASE: POST LANDING

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	A12933	A	PV-6-158813
A	PV-6-158816	K	PR D-BI-037L-0023
K	PR D-BI-037L-0029		

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

0 DESCRIPTION:
The left SRB aft skirt was missing several areas of K5NA over MTA-2 and MTA-2 over MTA-2 (ranging from 4" X 10" to 5/8" X 5/8")

.

These areas are between the cork ramps of the mid-ring fastener head closeouts. Evaluation of MTA-2 losses showed small affected areas with clean or lightly sooted MTA-2 substrate. This condition is consistent with a late descent or water impact occurrence. Evaluation of K5NA losses showed small spalling affected areas with sooted and/or heat affected MTA-2 substrate. Thermal analysis and verification shows that minor K5NA spalling can occur in-flight, beginning at T+80 seconds, due to aft skirt radiant heat loads on a thin K5NA application. There is a very low potential that this minor K5NA loss would become a debris source subsequent to T+80 seconds. There are no similar radiant heat loads experienced on SRB forward assemblies. There are no SRB forward assemblies which have this type of thin layer closeout. This type of application of K5NA over MTA-2 was discontinued in December, 1989. STS-35 left and STS-40 right are the only aft skirts remaining with this type application. The loss of MTA-2 occurred during descent or water impact. The loss of K5NA occurred at T+80 seconds or later and is not considered a probable

debris source. There is no corrective action required for STS-35 and subsequent missions.

.

KSC CAAR Tracking Numbers: PV-6-158813; PV-6-158816.

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MSFC PRACA Tracking Number: A12933

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This problem is a CRIT 3 failure and has been closed in the MSFC PRACA system for STS-38 and subs on 6/15/90.

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Flight Problem Report approved at Level II Noon PRCB on 5/10/90 (PRCBD #S044820E).

1

IFA NUMBER> STS-31-E-01

TITLE:HPOTP Strain Gage Date Malfunctions on ME-1, ME-2 and ME-3

0 MISSION CONSTRAINT: SUBS

IFA TIME GMT: 000 : 00.00.00
IFA DATE: 04/24/1990

IFA STATUS: CLOSED : 07/06/1990
PRACA STATUS: CLOSED : 1990-06-27
PRCBD NUMBER: S044820P

ELAPSED TIME: 000 : 00.00.00
HOUSTON TIME: 00.00.00
PHASE: ASCENT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	A026266	A	A026267
A	A12970		

0 CLOSURE INITIATED BY:

RESPONSIBLE MANAGERS 1: J.M.O.SMITH/EE23
2:

0 DESCRIPTION:

Eight of twelve HPOTP weld number 3 strain gages provided insufficient data during the STS-31R flight.

.

Each HPOTP weld 3 is instrumented with four strain gages per engine, for a total of twelve gages. The four gages per HPOTP are configured with 2 gages at the 0 degree location and 2 gages at the 45 degree (shaft rotating direction) location, providing single redundancy at both positions. This was the first flight to utilize the instrumented HPOTP configuration. The strain gages are used for the sole purpose of monitoring HPOTP (turbine end) bearing wear indications. This determines the reusability of HPOTP units without running additional screenrun tests. The data is evaluated after the orbiter has landed. Initial observations from the hard-line data indicated erroneous data from three strain gages during the first six seconds of engine operation (start). Subsequent postflight data evaluation revealed that eight of the total twelve gages failed to provide adequate data. The data evaluation indicated 2 gages may have debonded during chilldown with the other 6 debonding during the flight. Low frequency noise (200 to 400 KHz) was observed on all 12 channels. It was concluded that the noise was not associated with the real-time MADS recorder system but resulted from the subsequent MADS recorder data dump and data reduction process. Because of the inherently low signal to noise ratio (7%-10% above the noise floor), the data are quite sensitive to data reduction equipment and procedures. Resistance and bond tests were performed on all 12 gages. All of the gages passed a continuity test (350 +/-10 Ohms). A bond (push) test revealed that the eight anomalous gages identified from data evaluation yielded a value of greater than 10 microstrains (experience base indicates values greater than 10 are typical of debond condition). Two revisions to the strain gage installation procedure (RL-01033, Rev B and C) were released since STS-31R. Revision B changed the surface finish of the bonding area from "mirror

finish" to "rough cross-hatch". This will improve the gage adhesion to the pump housing. Revision C changed the overcoat to "M-coat-A". This will reduce the mass of the overcoat material, thereby reducing the likelihood of both gages at a given location from being debonded

1

IFA NUMBER> STS-31-E-01
TITLE:HPOTP Strain Gage Date Malfunctions on ME-1, ME-2 and ME-3

0 DESCRIPTION: (Continued from previous page).
due to vibration loads.
.
On-site evaluation of the flight strain gage installation procedures was conducted by ME&T and flight operations, and the findings revealed the need to modify the specification, primarily, in the surface preparation. The major change was to discontinue the use of the fine (320 grit) sandpaper. It was determined that the sandpaper adhesive contaminated the HPOTP surface when used with acetone (degreaser). In addition, the surface finish obtained when using the sandpaper was too smooth, eliminating the roughness needed for the adhesive to retain its bond capability during thermally-induced expansion/contraction of the pump. The strain gage installation specification has been updated to revise the surface preparation (reference RL01033).
.
SSME UCR Numbers: A026266 and A026267
.
MSFC PRACA Tracking Number: A12970
.
The problem has been closed in the MSFC PRACA system for STS-41 and subs on 6/27/90.
.
Flight Problem Report approved at Level II Daily SPRCB on 7/6/90 (PRCBD #S044820P).

1

IFA NUMBER> STS-31-E-02
TITLE:ME-2 HPFTP Outboard Static Seal Fragments in Hot-Gas System

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 07/19/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-08-09 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044820W PHASE: POST LANDING

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	A026761	A	A026768
A	A026771	A	A13042
A	PV-6-162936	K	PR ME2031-0131

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J.M.O.SMITH/EE23
2:

0 DESCRIPTION:
During the postflight inspection of ME-2 (S/N 2031), a scheduled disassembly of HPFTP (6102R1) revealed two different sections of the pump-end outboard static seal were missing.
.
The disassembly of the HPFTP 6102R1 identified two missing sections of the outboard static seal (3.3" and 0.7" circumferential lengths respectively). The HPFTP mount ring static seal has an approximate total circumferential length of 39.9" and is fabricated of Inconel X-750 with gold plating. One piece of the missing seal material

was found and removed from joint G3 of the HPOTP and measured 0.47" long by 0.045" wide by 0.026" deep. This piece is believed to have migrated to the HPOT (turbine side) subsequent to engine shutdown (zero G environment, post-MECO). Due to the propellant flow dynamics during engine operation, it is impossible for any contamination to travel upstream, against the OPB flow, from the main injector region. ALthough fragments from the static seal can enter the hot-gas flow during operation, this scenario is not an in-flight concern since: 1) No effect is observed on turbopump performance; and 2) Insufficient mass present to cause downstream damage. As a result, the only circumstance of flight safety significance is a fragment of the seal left undetected on the HPOT side (previously discussed as a post-engine shutdown occurrence), which could result in heat exchanger coil damage at engine start of the next use/flight. Heat exchanger impact tests showed potential coil punctures with fragment masses greater than 0.06 grams. Of the total seal material missing (4.0" circumferential length which corresponded to 0.60 grams), 3 pieces have been found in the main injector plus the forementioned piece found at the HPOT joint G3, accounting for a retrieved net mass of 0.25 grams. A net mass of 0.35 grams currently remains unaccounted for.

.

Sixty percent of the main injector surface was inspected and no additional fragments were found. The remaining fragments were either expelled through the main injector fuel annulus and/or are currently trapped in the center of the main injector LO2

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IFA NUMBER> STS-31-E-02
TITLE:ME-2 HPFTP Outboard Static Seal Fragments in Hot-Gas System

0 DESCRIPTION: (Continued from previous page).

posts. As previously stated, this creates a concern for heat exchanger coil damage from particle impact during the next engine start. However, large margins exist for heat exchanger damage based on laboratory particle impact tests and hot gas flow velocities from 3-D CFD models. No penetration of the heat exchanger tubes will occur with striking velocities up to 550 ft/sec with a mass of 0.12 grams (Rockwell hardness equivalent to INCO X-750) based on laboratory test results. If the particle is located at the HPOTP discharge, the maximum particle velocity would be 50 ft/sec (factor of 11). If the particle is located at the HPOTP turbine, the maximum particle velocity would be 150 ft/sec (factor of 3.5). In summary, small particles are not detrimental to engine operation. Particles entering the hot gas flow path during operation will be carried by flow forces to the main injector and will be trapped in the main injector by flow forces until engine shutdown. Zero "G" and/or postflight handling can move the particles to an area in the hot gas manifold where they will be found by normal postflight inspections.

.

During the FMEA/CIL analysis, the mount ring static seal failure mode was identified as benign and thus determined to be a criticality 3. A concern has been stated which could lead to a 1R type failure. In particular, the concern is related to the potential for conditions to exist within the coolant circuit such that ice would form within the passages, blocking the flow and causing an overpressurization of the coolant circuit which would lead to a redline cut-off. Both analyses and hot-fire experience with instrumented turbopump 2504 indicate the potential for icing does not exist. Cracking and missing pieces of these seals is acceptable per approved ECP 1108. Although the analysis showed significant margin on the striking velocities required

to penetrate the heat exchanger coil, the pump-end outboard seal will be removed from several of the next development turbopump builds. Should the test data and hardware show no abnormal effects from this condition, this configuration may be incorporated into flight units. In the interim, the static seal condition will continue to be monitored. If a missing section of the seal is discovered, detailed main injector inspections will be performed to locate and remove all accessible pieces. The outboard static seals are inspected at each removal of the bellows shield per hot-fire specification (RL00050) and the OMRSD.

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SSME UCR Numbers: A026761, A026768 and A026771

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MSFC PRACA Number: A13042

.

This problem has been closed in the MSFC PRACA system for STS-41 and subs on 8/9/90.

.

Flight Problem Report approved at Level II Daily SPRCB on 7/19/90 (PRCBD #S044820W).

1

IFA NUMBER> STS-31-E-02
TITLE:ME-2 HPFTP Outboard Static Seal Fragments in Hot-Gas System

0 DESCRIPTION: (Continued from previous page).

1

IFA NUMBER> STS-31-K-01
TITLE:GLS received a Class 3 error while trying to open PV9, outboard fill and drain valve.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 114 : 13.02.00
IFA DATE: 04/24/1990
IFA STATUS: CLOSED : 05/21/1990
ELAPSED TIME: 000 : 00.28.09
PRACA STATUS: UNKNOWN
HOUSTON TIME: 08.02.00
PRCBD NUMBER: S044820G
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	IV-6-022789	K	IPR 31RV-0182
P	INTG		

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

0 DESCRIPTION:
GLS issued CMD V41X1515XL to close PV9 at T-48 sec. The CMD was not issued up the LDB because prerequisite contol logic (GCL18) was active which verifies the LO2 xfer feed line purge valve is closed which prevented PV9 close command from being issued (GLOX2403E and GLOX3403E).
The count held at T-31 sec, MPS bypassed the prerequisite logic program, manually closed PV9, outboard F/D VLV. GLS recieved the indication the VLV closed and the count was resumed. IPR was transferred to MPS to resolve purge configuration for STS-35. As a result of the power outage reconfigruation, it was decided to activate the feedline purge on the LO2 xfer feedline to prevent any hammer effect if power was lost and the ET tank had to be drained. This purge was activated by deviation to S0007 at approx T-1:40 sec from the MPS console.

.

Flight Problem Report approved at Level II Noon PRCB on 5/21/90 (PRCBD #S044820G).

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STS-031 (OV-103,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 12

IFA NUMBER> STS-31-M-01
TITLE:Right SRM Nozzle Cowl/Outer Boot Ring Bondline Separation.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 04/30/1990
IFA STATUS: CLOSED : 05/07/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-07-11 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044820A PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A A12918 D SPR DR4-5/198
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. THORNTON/EE52
2:
0 DESCRIPTION:
During postflight inspection of the right SRM nozzle, the cowl/outer boot ring joint was separated, showing a gap of 1.8 inches at 216 degrees decreasing to zero inches at 120 degrees.
.
This joint separation is greater than has been seen on previous flights. Cowl/outer boot ring bondline separations typically occur in RSRM static tests and flight nozzles at the end of motor tailoff. These separations are an expected observation. Separation gaps are typically 0.1-0.2". Of 25 RSRMs built and tested/flown, two had separations beyond typical. STS-34 (RSRM-10B) had a .58" bondline separation (max) at 225 degrees. STS-31R had 1.8" separation (max) from 212 degrees to 220 degrees (over an 8 degree range). Displaced outer boot rings are usually caused by delta pressure in the flex boot cavity during motor tailoff. The cowl vent holes tend to plug with slag such that cavity pressure cannot track chamber pressure during the rapid motore depressurization that occurs during motor tailoff. The adhesive bondline, which is weakened by heat soak, can seperate due to the delta pressure in the boot cavity and thermal stresses. In addition, splashdown loads can aggravate the condition, causing greater separation opposite the actuators. the function of the outer boot ring is to provide thermal protection to the flex bearing and adjacent o-ring seals. By design the outer boot ring is only required to retain hoop continuity and remain attached to the cowl until motor tailoff. Conservative thermal analysis shows that loss of the outer boot ring after 110 seconds will not affect flex bearing safety or reuse. the CEI specification was updated to reflect the functional requirements of the outer boot ring. CPW1-3600 paragraph 3.2.1.4.13.c requires the outer boot ring to retain hoop continuity and remain attached to the cowl until the beginning of motor tailoff (110 seconds). The outer boot ring can be unbonded and broken after 110 seconds and meet all CEI specification requirements. In addition, a deviation (RDW-0601) has been approved to allow the 2.0 safety factor requirement for the outer boot ring adhesive bond to be violated after 70 seconds. The STS-31B nozzel condition is understood and has no impact on flight safety. There were no materials or process anomalies identified. The separation occurred after motor burnout. The STS-31B nozzle hardware condition was anticipated and meets all CEI

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STS-031 (OV-103,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 13

IFA NUMBER> STS-31-M-01
TITLE:Right SRM Nozzle Cowl/Outer Boot Ring Bondline Separation.

0 DESCRIPTION: (Continued from previous page).
specification requirements. The only discriminator identified is

water impact (seyser over 200 feet tall) which would not affect the safety of future flights.

.

The problem has been closed in the MSFC PRACA system for STS-41 and subs on 7/11/90.

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MSFC PRACA Tracking Number is A12918.

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Flight Problem Report approved at Level II Noon PRCB on 5/7/90 (PRCBD# S044820A).

1

IFA NUMBER> STS-31-P-01
TITLE:PCG leakage during seeding session

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 115 : 22.34.00
IFA DATE: 04/25/1990
IFA STATUS: CLOSED : 07/18/1990
ELAPSED TIME: 001 : 10.00.09
PRACA STATUS: UNKNOWN
HOUSTON TIME: 17.34.00
PRCBD NUMBER: S044820L
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
M	PYLD-04		

0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: T. GUNN
2:

0 DESCRIPTION:
During the PCG seeding session, fluid from 4 chambers leaked out due to the pressure differential between the cabin pressure and chamber pressure. Crew member complained of eye irritation. In addition, crew member noted 2 CX seeding insertion devices were empty and the C2 SID had low volume. Crew also noted C7 SID was empty.

.

Impact: C2 was seeded despite low SID. C7 was not seeded due to empty SID.

.

Resolution: Surgeon sent a flight note to flight stating the leaking vials contain a carboxyl ester hydrolose. The surgeon stated no toxic hazard exists. Crewman wore goggles during deactivation.

.

Flight Problem Report presented to Level II Daily PRCB on 6/14/90 (PRCBD #S044820L). Chairman requested additional wording, positive steps, on the corrective action statement. Updated FPR will be submitted for OSB signature.

.

Flight Problem Report approved OSB on 7/18/90 (PRCBD #S044820L).

1

IFA NUMBER> STS-31-V-01
TITLE:APU 1 Chamber Pressure and Turbine Speed Abnormal.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 100 : 12.42.00
IFA DATE: 04/10/1990
IFA STATUS: CLOSED : 06/12/1990
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1993-08-09
HOUSTON TIME: 07.42.00
PRCBD NUMBER: S044820K
PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	IV-6-022511	A	PV-6-157346
K	IPR 31R-0159	K	PR APU-3-10-0208
P	CAR 31RF01		

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

0 DESCRIPTION:
At activation, APU 1 ran at high speed while normal speed was selected. Suspect pulse control valve could not fully close. Launch scrubbed, APU-1 and controller 1 to be R&R'd.
.
Controller checked out good at vendor (Sunstrand). Vendor confirmed pulse control vavle (PVC) failure on APU. APU replacement with S/N 203 is complete.
Failure analysis revealed GGVM poppet seat chipped (approx. 110 deg. of 360 deg. and .030 max depth).
Hot fire on replacement unit completed successfully.
.
KSC CAAR Tracking Numbers: IV-6-022511; PV-6-157346
.
CAR Status: Opened on 4/11/90. Explained closeout summary for STS-38 (OV-104,Flt #7) issued on 6/28/90. Explained rationale with Action Response open issued on 12/14/90.
.
KSC PR has been closed.
.
Flight Problem Report approved at Level II Daily PRCB on 6/12/90 (PRCBD #S044820K).

1
STS-031 (OV-103,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
PAGE 16

IFA NUMBER> STS-31-V-04
TITLE:Supply Water Tank Bellows Stuck.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 114 : 13.51.00
IFA DATE: 04/24/1990
IFA STATUS: CLOSED : 07/16/1990
ELAPSED TIME: 000 : 01.17.09
PRACA STATUS: CLOSED : 1991-01-28
HOUSTON TIME: 08.51.00
PRCBD NUMBER: S044820Q
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 41V-0014	K	PR ECL-3-11-0671
M	EECOM-01	P	CAR 31RF04

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

0 DESCRIPTION:
During prelaunch tank D normally drains into tank C. On-orbit tank C&D failed to equalize quantities as they normally do. Some water was drained from tank C&D by using FES B which freed up tank C bellows.
.
Will require tank C bellows test at KSC with possibility of tank removal afterwards. Spare is available at KSC.
.
Tank trouble-shooting at KSC is complete, found minor sticking of bellows at 100% position. Will fly as-is.
.
Will close tank "C" in and out valves after servicing to prevent tank "D" to "C" drain in vertical.
.
CAR Status: IM upgraded to CAR on 5/18/90. No Flight impact statement for STS-35 issued on 5/3/90. Explained rationale for STS-38 (OV-104, Flt #7) issued on 6/19/90. Revised explained rationale for STS-38, STS-35 (OV-102,Flt #10) and STS-41 (OV-103,Flt #11) issued on 6/29/90.
Explained closeout for all flights, all vehicles issued on 12/19/90.

CAR closed on 12/21/90.

.

KSC CAAR Tracking Numbers: IV-6-023097.

.

Flight Problem Report approved at Level II Daily SPRCB on 7/16/90 (PRCBD #S044820Q).

1

IFA NUMBER> STS-31-V-05
TITLE:Water Spray Boiler 2 Vent Heater A Showed No Response.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 114 : 15.55.00
IFA DATE: 04/24/1990
IFA STATUS: CLOSED : 09/13/1990
ELAPSED TIME: 000 : 03.21.09
PRACA STATUS: CLOSED : 1990-12-07
HOUSTON TIME: 10.55.00
PRCBD NUMBER: S044821F
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 41V-0052	M	MMACS-01
P	CAR 31RF05		

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

0 DESCRIPTION:
After operating erratically prelaunch, WSB 2A heater failed to respond when power was reapplied on-orbit. Heater 2B worked nominally. Heater "A" was used for entry. Heater "A" worked but was slower than normal on increasing temperature and cycled irregularly.

.

Will require heater and controller checkout at KSC, CHIT J3293 to perform insulation resistance check, was approved on 5/11/90. Work to be performed per TPS HYD-3-11-0088. Vent nozzle spare available at KSC, water spray boiler controller not available at KSC.

.

Trouble-shooting at KSC found tile in contact with nozzle, will rework tile. Temperature profile tests show tile acting as heatsinks. Further water spray valve leak testing planned (CHIT J3312).

.

Tile shaving complete, UA approved on 09/26/90.

.

Had similar failures on OV-104. IFA's STS-34-18 and STS-36-07.

.

Flight Problem Report approved at Level II Daily SPRCB on 9/13/90 (PRCBD #S044821F).

1

IFA NUMBER> STS-31-V-06
TITLE:Fuel Cell 2 O2 Flow Rate High During Purge

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 116 : 20.13.00
IFA DATE: 04/26/1990
IFA STATUS: CLOSED : 08/31/1990
ELAPSED TIME: 002 : 07.39.09
PRACA STATUS: CLOSED : 1991-02-14
HOUSTON TIME: 15.13.00
PRCBD NUMBER: S044821D
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 41V-0004	K	PR FCP-3-11-0259
M	EGIL-01	P	CAR 31RF07

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

0 DESCRIPTION:
O2 flow rate experienced a 22 sec high flow excursion reaching a max of 12.0 lb/hr during purge. Flow rates returned to nominal after the excursion. No further purges will be performed on fuel cell 2.
.
FC will be R&R'd at KSC, spare is available. Fuel Cell removal scheduled for 5/22/90.
.
CHIT J3291 for DFRF post-landing deltas approved on 4/30. A waiver and an exception are also required. CHIT J3298 to have the vendor (International Fuel Cell) to pull regulator at KSC prior to shipping Fuel Cell was approved on 5/14/90.
.
Fuel Cell R&R and regulator removal is complete. Regulator teardown and inspection, at vendor, found minor contamination, but nothing which could cause this failure. Regulator to be reassembled and installed in fuel cell for further testing, week of 7/1/90.
.
CAR Status: Issued on 5/1/90. Explained closeout summary for OV-102 (Flts 10-12), OV-103 (Flts 11-12) and OV-104 (Flts 7-9) issued on 6/29/90.
.
Flight Problem Report approved at Level II Daily SPRCB on 8/31/90 (PRCBD #S044821D).

1
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IFA NUMBER> STS-31-V-07
TITLE:GFE - EMU-2 "Power Restart" Messages

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 115 : 20.25.00
IFA DATE: 04/25/1990
IFA STATUS: CLOSED : 07/16/1990
ELAPSED TIME: 001 : 07.51.09
PRACA STATUS: CLOSED : 1990-05-14
HOUSTON TIME: 15.25.00
PRCBD NUMBER: S044820T
PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
M EVA-01
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:
0 DESCRIPTION:
EV 2 reported that she received 4 "Power Restart" messages on her Display and Control Module (DCM) LCD display. These are erroneous messages since no power restart was attempted. EV 2 also reported slight fluctuations in fan RPM and EMU input AMPS. These fluctuations are considered normal; however, cause of power restart messages are unknown.
.
Onboard troubleshooting on 4/27/90 could not recreate the problem.
.
EMU removed and shipped to JSC FEPC on 5/3/90 for additional trouble-shooting. KSC checked power supply on vehicle, checks were good, data provided to JSC. EMU T/S at JSC has not reproduced the anomaly. Will re-fly the EMU as-is.
.
Flight Problem Report approved at Level II Daily SPRCB on 7/16/90 (PRCBD #S044820T).

1
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IFA NUMBER> STS-31-V-08

TITLE:APU 3 Pump Bypass Htr A Failed On.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 118 : 08.41.00
IFA DATE: 04/28/1990
IFA STATUS: CLOSED : 09/14/1990 ELAPSED TIME: 003 : 20.07.09
PRACA STATUS: CLOSED : 1990-05-14 HOUSTON TIME: 03.41.00
PRCBD NUMBER: S044821G PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR APU-3-A0008 K PR APU-3-11-0214
M MMACS-03 P CAR 31RF08

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

0 DESCRIPTION:
During FCS checkout, fuel pump bypass temperature ramped up to approximately 196 degrees fahrenheit, tripping FDA alarm. Reconfigured to heater B and temperatures returned to nominal.
.
Ferry will be performed with "B" heaters (off-nominal).
.
APU is scheduled for R&R due to turbine wheel life. Repairs on Heater/Thermostat will be performed at the vendor (Sunstrand). APU removal completed on 5/24/90.
.
CAR Status: TBD.
.
KSC CAAR Tracking Number: PV-6-159487
.
Flight Problem Report approved at Level II Daily SPRCB on 9/14/90 (PRCBD #S044821G).

1

IFA NUMBER> STS-31-V-09
TITLE:Mid-Starboard PLB Floodlight Out.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 118 : 13.31.00
IFA DATE: 04/28/1990
IFA STATUS: CLOSED : 08/22/1990 ELAPSED TIME: 004 : 00.57.09
PRACA STATUS: CLOSED : 1990-08-23 HOUSTON TIME: 08.31.00
PRCBD NUMBER: S044820Z PHASE: ON-ORBIT

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K IPR 41V-0016 M EGIL-02
P CAR 31RF09

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

0 DESCRIPTION:
Crew reported that light flickered and went out when activated. Confirmed light problem with bus-current traces.
.
Spare floodlight on site, no spare FEA at KSC. Trouble-shooting at KSC has not repeated the failure. Trouble-shooting 576 Bulkhead feed-thru 30P312 complete/good. FEA trouble-shooting complete/good. V1088 lighting test complete/good.
.
UA approved for closure. CHIT J3336 approved on 6/25 to install tempi-labels on flood lights for future flights.
.
CAR Status: Explained closeout as a UA issued on 7/20/90.
.
Flight Problem Report presented to Level II Daily SPRCB on 8/1/90

(PRCBD #S044820Z). Closure was disapproved and an action was assigned to the Orbiter and GFE Project office to provide a complete overview on all PLB floodlight failures since return-to-flight.

.

Flight Problem Report approved at Level II Daily SPRCB on 8/22/90 (PRCBD# S044820Z).

1

IFA NUMBER> STS-31-V-10
TITLE:TAGS Unit Not Responding To Advance Commands; Also Invalid Telemetry.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 118 : 04.21.00
IFA DATE: 04/27/1990
IFA STATUS: CLOSED : 07/16/1990
ELAPSED TIME: 003 : 15.47.09
PRACA STATUS: UNKNOWN
HOUSTON TIME: 23.21.00
PRCBD NUMBER: S044820U
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
K	IPR 41V-0006	M	INCO-01
M	INCO-02	M	INCO-03

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

0 DESCRIPTION:
TAGS did not respond to page advance commands. Unit was power cycled and normal operation was restored. Later the TAGS indicated a change to an unknown state while not in use. Page advance commands were unsuccessful. Another power cycle was performed to restore normal operation.

.

TAGS unit will be R&R'd at KSC and sent back to JSC FEPC. Electronic problems are suspected. TAGS removal on hold while radiation effects are explored.

.

48-hour power on test at KSC is complete, problem did not reproduce. UA closure approved.

.

Flight Problem Report approved at Level II Daily SPRCB on 7/16/90 (PRCBD #S044820U).

1

IFA NUMBER> STS-31-V-11
TITLE:APU 1 Fuel Pump/GGVM Htr Sys A Thermostat Set Point Change.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 117 : 08.00.00
IFA DATE: 04/27/1990
IFA STATUS: CLOSED : 09/14/1990
ELAPSED TIME: 002 : 19.26.09
PRACA STATUS: CLOSED : 1990-05-14
HOUSTON TIME: 03.00.00
PRCBD NUMBER: S044821H
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	PV-6-159486	K	PR APU-3-11-0213
P	CAR 31RF12		

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

0 DESCRIPTION:
Fuel bypass line temp (V46T0128A) indicated thermostat controlling within 8 deg F band (105-112 deg F) instead of normal 24 deg F band. Suspect thermostat contamination from vibration of bi-metallic disk. Precursor of hard failure.

.
Thermostat R&R by vendor (Sunstrand) is complete, retest is complete.
.
Flight Problem Report presented to Level II Daily SPRCB on 9/14/90 (S044821H). Chairman requested additional information provided on FPR with regard to short-term thermostat operation (approx. 1 hr) and the fact that the thermostat was misplaced at the vendor and has not been located.
.
Updated FPR was signed out of board on 9/14/90.

1
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IFA NUMBER> STS-31-V-12
TITLE:ADTA 3 Circuit Breaker Contamination.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 118 : 08.38.00
IFA DATE: 04/28/1990
IFA STATUS: CLOSED : 07/16/1990
ELAPSED TIME: 003 : 20.04.09
PRACA STATUS: CLOSED : 1991-05-29
HOUSTON TIME: 03.38.00
PRCBD NUMBER: S044820V
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
A	PV-6-159711	K	PR DDC-3-11-0054
M	GNC-01	P	CAR 31RF14

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

0 DESCRIPTION:
During FCS checkout, ADTA 3 was bypassed on transition to OPS 8 and showed no power. Crew cycled circuit breaker 5 times with no success. An additional 5 cycles were required to restore power. CB worked fine during entry preparation. Since Flight Rule and OMRSD limits of 5 cyles to restore power through a circuit breaker were exceeded and ADTA is a Crit 1 function, R&R of circuit breaker required.
.
Panel 016 removal completed on 5/24/90 and sent to RSC for CB R&R. CB R&R at RSC is complete, panel reinstallation is complete.
.
CAR Status: Explained rationale with action required issued on 6/25/90. Explained rationale revised on 6/28/90.
.
Flight Problem Report approved at Level II Daily SPRCB on 7/16/90 (PRCBD #S044820V).

1
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IFA NUMBER> STS-31-V-13
TITLE:+X COAS Misalignment.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 118 : 19.25.00
IFA DATE: 04/28/1990
IFA STATUS: CLOSED : 08/22/1990
ELAPSED TIME: 004 : 06.51.09
PRACA STATUS: CLOSED : 1992-08-17
HOUSTON TIME: 14.25.00
PRCBD NUMBER: S044821B
PHASE: ON-ORBIT

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
M	GNC-02	P	CAR 31RF16

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

0 DESCRIPTION:
The +X COAS was calibrated on FD 04 at MET 003:19:37. The coas was subsequently taken down from the +X station in between calibrations. At MET 004:06:50, the COAS was mounted again at the +X station and was calibrated a second time. The calibration delta was 0.6 Deg between FD4 and FD5.

.
Similar shifts of the line of sight vector for the +X station have been seen on previous flights of this vehicle.

.
T/S'ing of COAS unit at JSC trainers is scheduled for 5/17/90. Checkout of COAS at RI-Downey showed no problem. Considering tests at KSC and in-flight.

.
CAR Status: Issued on 5/16/90. Explained rationale for all flights of OV-102, OV-104, and OV-105 with action required for OV-103 issued on 6/26/90.

.
Flight Problem Report approved at Level II Daily SPRCB on 8/22/90 (PRCBD# S044821B).

1
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IFA NUMBER> STS-31-V-14
TITLE:AFT He Concentration High.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 100 : 18.00.00
IFA DATE: 04/10/1990
IFA STATUS: CLOSED : 08/08/1990
ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-08-29
HOUSTON TIME: 13.00.00
PRCBD NUMBER: S044821
PHASE: PRE-LAUNCH

0 TYPE	TRACKING NUMBER	TYPE	TRACKING NUMBER
		K	IPR 31RV-0162
K	PR MPS-3-10-0777	P	CAR 31RF15

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

0 DESCRIPTION:
The LCC limit is 10K PPM, but the time frame was not violated (T-2 hr to T-9 min). The HE concentration came down during the LCC time frame. Suspect the disconnect purge at the 4" boot. Will evaluate once the aft is open during the extended turnaround.

.
RTV applied to the 4" boot and leak checked with an ET Disc. purge. Small leak still evident after repair, however engineering feels it is acceptable.

.
The problem was isolated to the 4" disconnect boot (V070-415291-005). The boot had a pin size hole. The boot was repaired for flight and later replaced.

.
KSC inputs to closeout IFA received, ready to close.

.
KSC CAAR Tracking Numbers: IV-6-022524; PV-6-157594

.
CAR Status: No impact statement for STS-35 issued on 5/9/90. CAR is identical to CAR KB1231-010 which addresses a potential redesign of the 4" boot. This CAR is closed referencing the open CAR KB1231-010.

.
Flight Problem Report approved at Level II Daily SPRCB on 8/8/90 (PRCBD# S044821).

1
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IFA NUMBER> STS-31-V-15
TITLE:MISSING SEAL MATERIAL FROM TRAILING EDGE OF ELEVON FLIPPER DOORS 5 & 6

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 08/22/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1990-06-26 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044821A PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR STR-3-11-3204 K PR STR-3-11-3205
P CAR 31RF17
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. GUTHERY
2:
0 DESCRIPTION:
Bulb seals from RH #5 flipper door was found in upper elevon cove area. Ring retainer for door #6 not found. Retainer hardware on flipper door RH 5,6,12,13 found to be installed backwards. KSC to inspect door 5 & 6 cavities for overtemp per TPS STR-3-11-0462.
.
OV104 inspection showed LH door 2 seal was backwards. Inspection of OV102 is complete, retainers on RH door 4 & 6 are backwards. Repairs will be made to OV-102 prior to STS-35.
.
Rework is complete, Job card has been modified to include installation diagram. IFA is ready to close. KSC PR and TPS are closed.
.
Flight Problem Report approved at Level II Daily SPRCB on 8/22/90 (PRCBD# S044821A).

1
STS-031 (OV-103,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-31-V-16
TITLE:GFE - Galley Water Underdispense.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE:
IFA STATUS: CLOSED : 06/26/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: CLOSED : 1992-08-17 HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044820M PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
P FIAR B-FCE-023-F008
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:
0 DESCRIPTION:
Crew reported galley dispensed less water than requested with the amount of underdispense becoming more erratic as the mission progressed.
.
Galley removed on 5/16/90 and has been shipped to JSC FEPC for troubleshooting.
.
T/S'ing @ JSC could not reproduce the anomaly. A noisy dispense solenoid valve was R&R'd. Galley was reinstalled on OV-104 for STS-38.
.
Flight Problem Report approved at Lv. II Daily PRCB on 6/26/90

(PRCBD #S044820M).

1

IFA NUMBER> STS-31-V-17
TITLE:GFE: Five of Six aft Fuselage Gas Sampler Bottles Leaked.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 04/24/1990
IFA STATUS: CLOSED : 08/28/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044821C PHASE: ASCENT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
P FIAR-B-FCE-028-F005
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. DILLMAN
2:
0 DESCRIPTION:
All six bottles fired during ascent, however five subsequently leaked aire back into the bottle. Four of the five failed bottles had 98% or greater amount of air.
.
Failure possible due to a generic design problem. KSC trouble-shooting in progress. One bottle leaked at thermocouple stem. Other four leaked at spool due to scratching from pyros, considering redesign.
.
Flight Problem Report approved at Level II Daily SPRCB on 8/28/90 (PRCBD #S044821C).

1

IFA NUMBER> STS-31-V-18
TITLE:RMS End Effector Snare Wires Approx. 1/2 In. Out of Grooves.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 000 : 00.00.00
IFA DATE: 05/18/1990
IFA STATUS: CLOSED : 08/02/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 00.00.00
PRCBD NUMBER: S044820Y PHASE: PRE-LAUNCH
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR RMS-3-11-0016
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: J. PECK
2:
0 DESCRIPTION:
Postflight inspection showed snare wires 0.3-0.5 inches outside their groove. OMRSD limit is 0.25 in.
.
Waiver WK1830 and exception EK1831 processed to fly as-is. OMRSD limit increase in-work.
.
Flight Problem Report approved at the Level II Daily SPRCB on 8/2/90 (PRCBD #S044820Y).

1

IFA NUMBER> STS-31-V-2A
TITLE:Instrumentation: APU 1 EGT 2 Failed

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 100 : 12.42.00

IFA DATE: 04/10/1990
IFA STATUS: CLOSED : 06/06/1990 ELAPSED TIME: 000 : 00.00.00
PRACA STATUS: UNKNOWN HOUSTON TIME: 07.42.00
PRCBD NUMBER: S044820J PHASE: PRE-LAUNCH

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A PV-6-157406 K PR APU-3-10-0209
P IM/31RF02

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

0 DESCRIPTION:
EGT 2 failed to respond at APU activation.
.
Transducer R&R is complete.
.
KSC CAAR Tracking Number: PV-6-157406
.
IM Status: Closed on 4/18/90.
.
Flight Problem Report approved at Level II Daily PRCB on 6/6/90
(PRCBD #S044820J).

1
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IFA NUMBER> STS-31-V-2B
TITLE:APU-1 EGT #1 Failed.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 119 : 13.33.00
IFA DATE: 04/29/1990
IFA STATUS: CLOSED : 06/06/1990 ELAPSED TIME: 005 : 00.59.09
PRACA STATUS: UNKNOWN HOUSTON TIME: 08.33.00
PRCBD NUMBER: S044820J PHASE: ENTRY/LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR APU-3-11-0212 M MMACS-05
P IM/31RF10

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

0 DESCRIPTION:
EGT failed during entry. Transducer will be R&R'd at KSC. Spare
is available at KSC.
.
Transducer R&R is complete (7/17/90).
.
IM Status: Closed.
.
Flight Problem Report apprvoed at Level II Daily PRCB on 6/6/90
(PRCBD #S044820J).

1
STS-031 (OV-103,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-31-V-2C
TITLE:APU-3 EGT #2 Failed.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 119 : 13.35.00
IFA DATE: 04/29/1990
IFA STATUS: CLOSED : 06/06/1990 ELAPSED TIME: 005 : 01.01.09
PRACA STATUS: UNKNOWN HOUSTON TIME: 08.35.00
PRCBD NUMBER: S044820J PHASE: ENTRY/LANDING

0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR APU-3-11-0212 M MMACS-06

P IM/31RF11
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:
0 DESCRIPTION:
EGT failed during entry. Transducer will be R&R'd at KSC. Spare is available at KSC.
.
Trandsducer R&R is complete (7/17/90).
.
IM Status: Closed
.
Flight Problem Report approved at Level II Daily PRCB on 6/6/90 (PRCBD #S044820J)

1
STS-031 (OV-103,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-31-V-2D
TITLE:ROMS Fuel Inlet Pressure Erratic (V43P5646C).

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 119 : 13.45.00
IFA DATE: 04/29/1990
IFA STATUS: CLOSED : 06/06/1990
ELAPSED TIME: 005 : 01.11.09
PRACA STATUS: CLOSED : 1990-10-16
HOUSTON TIME: 08.45.00
PRCBD NUMBER: S044820J
PHASE: ENTRY/LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
A IV-6-023125 K IPR 41V-0015
M PROP-03 P IM/31RF13
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: D. CORCORAN
2:
0 DESCRIPTION:
Approximately 5 minutes before landing the ROMS fuel engine inlet pressure (V43P5646C) indicated erratic pressure readings (oscillated between 235 - 275 for approximately five minutes) without corresponding changes in ullage pressure.
.
Spare is available at KSC. Trouble-shooting in ORPA indicates suspect signal conditioner or transducer.
.
Downey/JSC evaluating entry buffeting as explanation. Entry buffeting determined to be the cause. However, JSC (MOD and MER personnel) are disagreeing with this explaination. Additional data review is in work at JSC.
.
IM Status: Issued on 5/2/90.
.
Flight Problem Report approved at Level II Daily SPRCB on 6/6/90 (PRCBD #S044820J).

1
STS-031 (OV-103,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-31-V-3A
TITLE:RCS Jet L3A Failed Off.

0 MISSION CONSTRAINT: SUBS
IFA TIME GMT: 114 : 12.44.00
IFA DATE: 04/24/1990
IFA STATUS: CLOSED : 09/13/1990
ELAPSED TIME: 000 : 00.10.09
PRACA STATUS: CLOSED : 1990-07-05
HOUSTON TIME: 07.44.00
PRCBD NUMBER: S044821E
PHASE: POST LANDING
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER

K PR LP04-07-0264 M PROP-01
P CAR 31RF03
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MCMILLAN
2:
0 DESCRIPTION:
L3A failed off during +X burn for post-MECO MPS dump. Oxidizer injector valve did not open.
.
Thruster installation and retest are complete.
.
Flight Problem Report approved at Level II Daily SPRCB on 9/13/90 (PRCBD #S044821E).

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STS-031 (OV-103,FLT #10) OFFICIAL INFLIGHT ANOMALY REPORT 01/31/95
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IFA NUMBER> STS-31-V-3B
TITLE:RCS Jet L3A Oxidizer Leak.

0 MISSION CONSTRAINT: SUBS IFA TIME GMT: 114 : 19.38.00
IFA DATE: 04/24/1990
IFA STATUS: CLOSED : 09/13/1990 ELAPSED TIME: 000 : 07.04.09
PRACA STATUS: CLOSED : 1990-05-14 HOUSTON TIME: 14.38.00
PRCBD NUMBER: S044821E PHASE: ON-ORBIT
0 TYPE TRACKING NUMBER TYPE TRACKING NUMBER
K PR LP04-07-0264 M PROP-02
P CAR 31RF06
0 CLOSURE INITIATED BY:
RESPONSIBLE MANAGERS 1: S. MCMILLAN
2:
0 DESCRIPTION:
Ox leak detector dropped from 90 deg. to 21 deg. and stabilized. Approx 45 min. later chamber pressure began cycling between 2 psia and 42 psia with corresponding temp fluctuations. Manifold 3 closed and ox manifold pressure decayed rapidly, confirming leak.
.
Instrumentation cable connector, 51P83, on back of thruster, fell off when touched by a technican.
.
Thruster removed at DFRF on 5/3/90 and is at the vendor for failure analysis. CHIT J3297 for oxidizer sample and boroscope of OV-103 right RCS oxidizer manifold #3 was approved on 5/15/90. Analysis found 'Gelatinous' iron nitrate in the pilot valve assembly. Failure is part of the generic moisture related contamination issue. Redesigned throat plug GSE is in work, along with improved RCS manifold drain/evacuation procedures.
.
Bench check of new thruster at KSC is complete.
.
Thruster installation and retest are complete.
.
Flight Problem Report approved at Level II Daily SPRCB on 9/13/90 (PRCBD #S044821E).

-JFDPO12: NORMAL TERMINATION OF PROCESSING