

SSVEO IFA List

Date:02/27/2003

STS - 83, OV - 102, Columbia ( 22 )

Time:04:02:PM

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<u>Tracking No</u>	<u>Time</u>	<u>Classification</u>	<u>Documentation</u>	<u>Subsystem</u>
MER - 1	<b>MET:</b> Prelaunch	Problem	<b>FIAR</b>	<b>IFA</b> STS-83-V-01 FC
EGIL-01	<b>GMT:</b> 094:07:35		<b>SPR</b>	<b>UA</b> <b>Manager:</b> Howard
			<b>IPR</b> 87V-0001	<b>PR</b> FCP-0336 Wagner x39048 <b>Engineer:</b> Ray Gonzales

**Title:** Fuel Cell 2 Substack 3 Delta V High (ORB)

**Summary:** When the fuel cell start-up was initiated during prelaunch operations, the fuel cell 2 substack 3 delta voltage (delta V) remained above the OMRSD limit of 150 mV for an unusually long period of time. After the prestart reactant purge, the delta V value dropped from 500 mV to 160 mV. At the beginning of the fuel cell 2 startup, the value increased to over 400 mV and then began a gradual decrease. Prior to the fuel cell high-load calibration test, a purge was performed on fuel cell 2 in an attempt to sweep away any inerts that may have been the cause of the high delta V reading. This purge had no effect on the rate of decrease. The high load test (250 amperes) was performed and this caused the value to rapidly decrease to less than 100 mV, but when the load was returned to 150 amperes, the delta V value increased to above 100 mV. The delta V reading continued to decrease and was below 50 mV prior to flight. Waiver WK03629 was processed to accept this condition for flight.

The fuel cell 2 substack 3 delta volts began to increase on-orbit. Analysis of the data determined that the health of the fuel cell was suspect. The fuel cell 2 substack 3 delta V data indicated that a cell in the substack had a performance degradation approaching 300 mV, which could lead to the failure of the fuel cell. The decision was made to shutdown and safe the fuel cell and terminate the mission early. Fuel cell 2 shutdown and safing was initiated at approximately 096:19:07 G.m.t. (01:23:46 MET). The fuel cell was R&Red post flight.

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<u>Tracking No</u>	<u>Time</u>	<u>Classification</u>	<u>Documentation</u>	<u>Subsystem</u>
MER - 5	<b>MET:</b> 00:00:12	Problem	<b>FIAR</b>	<b>IFA</b> STS-83-V-02 ECLSS
EECOM-01	<b>GMT:</b> 094:19:32		<b>SPR</b>	<b>UA</b> <b>Manager:</b> Nanette Cerna
			<b>IPR</b> 87V-0012	<b>PR</b> x39045

**Engineer:** Charlie Dumis  
x45120

**Title:** High-Load FES Inboard Duct Temperature Low During Ascent (ORB)

**Summary:** During ascent, the FES high-load duct temperatures dropped off sharply. The inboard duct temperature dropped to approximately 62 °F (normally remains above 190 °F) by 094:19:32 G.m.t. (approximately 12 minutes MET). The heaters were reconfigured from system-A-only to systems A and B at approximately 12 minutes MET, and the temperatures eventually recovered. Throughout the occurrence, the evaporator outlet temperatures were stable. No further problems with the FES were noted during the flight. KSC will investigate to see if heater is debonded.

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<u>Tracking No</u>	<u>Time</u>	<u>Classification</u>	<u>Documentation</u>	<u>Subsystem</u>
MER - 11	<b>MET:</b> 02:21:17	Problem	<b>FIAR</b>	<b>IFA</b> STS-83-V-03 RCS
PROP-01	<b>GMT:</b> 097:16:38		<b>SPR</b> <b>IPR</b>	<b>UA</b> <b>PR</b> FRC2-0524 <b>Manager:</b> Sam Jones <b>Engineer:</b> Bill Manha

**Title:** Primary Thruster F3F Fail Off (ORB)

**Summary:** During the reaction control system (RCS) hot-fire test, primary RCS thruster F3F failed off on its first attempted firing. The thruster had a good driver out but the chamber pressure (Pc) reached only 11 psia. There was no indication of leakage. Pc tube blockage is considered to be an unlikely cause of the fail off, but can only be ruled out by postflight inspection. The most likely cause of the failure is improper operation of the thruster fuel or oxidizer valve. The thruster was deselected for the remainder of the mission. The FRCS pod will be removed and the thruster, along with other 3 thrusters on manifold, R&Red.

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<u>Tracking No</u>	<u>Time</u>	<u>Classification</u>	<u>Documentation</u>	<u>Subsystem</u>
MER - 12	<b>MET:</b> 02:22:44	Problem	<b>FIAR</b>	<b>IFA</b> STS-83-V-04 GN&C
GNC-02	<b>GMT:</b> 097:18:04		<b>SPR</b> <b>IPR</b>	<b>UA</b> <b>PR</b> GNC-0133 <b>Manager:</b> Scott Murray <b>Engineer:</b> Phil Perkins

**Title:** -Z Star Tracker Pressure BITE (ORB)

**Summary:** Following a reactivation of the -Z star tracker at approximately 097:18:04 G.m.t. (02:22:44 MET), a pressure BITE was annunciated for approximately 11

minutes. After the BITE cleared, the star tracker functioned nominally, successfully acquiring stars. The star tracker is normally pressurized with argon gas to 17.58 psia to prevent moisture and contamination from entering the star tracker during entry and ground operations. There was no impact to flight operations.

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<u>Tracking No</u>	<u>Time</u>	<u>Classification</u>	<u>Documentation</u>	<u>Subsystem</u>
MER - 13	<b>MET:</b> 02:22:56	Problem	<b>FIAR</b>	<b>IFA</b> STS-83-V-05 GN&C
GNC-01	<b>GMT:</b> 097:18:16		<b>SPR</b>	<b>UA</b> <b>Manager:</b> Scott Murray
			<b>IPR</b> 87V-0006	<b>PR</b> GNC-0134 x38242 <b>Engineer:</b> Phil Perkins

**Title:** -Y Star Tracker BCE Bypass (ORB)

**Summary:** At 097:18:16 G.m.t. (02:22:56 MET), the -Y star tracker (S/N 11) was bypassed by the PASS. The crew performed the malfunction procedures, which included an I/O reset, port mode and power cycle of MDM FF3, as well as a power switch and circuit breaker cycle of the -Y star tracker. The -Y star tracker was not recovered. Note that prior to this occurrence, both star trackers had been powered off due to the loss of fuel cell 2. The star trackers had been powered on for approximately 12 minutes when the bypass occurred.

Troubleshooting at KSC found a power supply failure in the ST. It was replaced by S/N 5.

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<u>Tracking No</u>	<u>Time</u>	<u>Classification</u>	<u>Documentation</u>	<u>Subsystem</u>
MER - 2	<b>MET:</b> Prelaunch	Problem	<b>FIAR</b>	<b>IFA</b> STS-83-V-06 STR,MECH
	<b>GMT:</b> 094:18:15		<b>SPR</b>	<b>UA</b> <b>Manager:</b> Carlisle
			<b>IPR</b> 83V-0144	<b>PR</b> Campbell x38948 <b>Engineer:</b> Duke Tran

**Title:** Side Hatch Test Port Seal Leak/Damage Prelaunch (ORB)

**Summary:** During the prelaunch cabin-leak check, the closeout crew reported a problem with the KC103-16 nose seal at the end of the test port fitting used to pressurize the cabin. The seal came off when the pressurization probe was removed. The seal was replaced and the cabin-leak check was completed nominally. Because seal replacement caused an additional cabin leak check, there was excessive O2 in the midbody. This high reading and the ensuing discussion to clear for flight caused a 20 minute 32 second launch delay.

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<u>Tracking No</u>	<u>Time</u>	<u>Classification</u>	<u>Documentation</u>	<u>Subsystem</u>	
MER - 17	<b>MET:</b> 02:23:08 <b>GMT:</b> 098:18:28	Explained Condition	<b>FIAR</b> <b>SPR</b> <b>IPR</b>	<b>IFA</b> STS-83-V-07 <b>UA</b> <b>PR</b>	C&T <b>Manager:</b> Ragan Edmiston x30956 <b>Engineer:</b> Ernest Sanchez

**Title:** HUD Camera Out of Focus During Entry (GFE)

**Summary:** The mini-camera used to show landing video through the HUD was out of focus during landing ops. This camera, one of two mini-cams flown, is used for other video purposes during the flight and must be refocused to infinity prior to entry. The camera was inspected at Boeing FEPC and found to be totally operational. It is assumed that the crew did not properly focus the camera prior to entry.

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<u>Tracking No</u>	<u>Time</u>	<u>Classification</u>	<u>Documentation</u>	<u>Subsystem</u>	
MER - 7 EGIL-02	<b>MET:</b> 01:23:46 <b>GMT:</b> 096:19:07	Problem	<b>FIAR</b> <b>SPR</b> <b>IPR</b>	<b>IFA</b> STS-83-V-08 <b>UA</b> <b>PR</b>	PRSD <b>Manager:</b> Howard Wagner x39048 <b>Engineer:</b> Ray Gonzales

**Title:** FC 2 H2 Reactant Valve Failed to Close (ORB)

**Summary:** At 096:19:07 G.m.t. (01:23:46 MET), when the fuel cell 2 reactant valves were closed to shutdown and safe FC 2, the FC 2 H2 reactant valve failed to close. The FC 2 O2 reactant valve closed and the shutdown and safing was completed. At approximately 097:01:23 G.m.t. (02:06:03 MET), the crew cycled the FC 2 reactant valve switch to close and the valve closed nominally. No KSC action.