



SPACE SHUTTLE PROGRAM
Space Shuttle KSC Integration Office
NASA Kennedy Space Center, Florida



STS-129 Integrated Launch Site Requirements Review

Presenter **Kenneth Nowak**

Date **03-19-09**

Program Freeze Point

PRCB Presentation

S115129A



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Baseline the STS-129 Mission Specific Requirements and Flow Plans. This CR and the associated Data Package were reviewed at the 03-16-09 FRWG.

Flight Management*

MO3/USA-PI

Orbiter Engineering*

USA-OE

Payload/Cargo Engineering*

USA-PI

Status in BackUp

KSC Integration

MK-SIO

Flight Software

USA-FSW

Orbiter GFE

MV5

EVA

XA

SSME

Status at LSFR

MP21



STS-129 LSRR

Flight Requirements Status

March 19, 2009

Michael Darnell, Lead MIM



STS-129 LAUNCH SITE REQUIREMENTS REVIEW

Presenter	Michael Darnell
Date	MARCH 19, 2009

LAUNCH

11/12/09
 39A/ MLP 3
 CREW SIZE: 6UP/7DN

ORBIT

51.6 DEG
 122 NM
 DIRECT INSERTION
 DURATION: 11 + 1 + 2 DAYS

CONFIGURATION

OV-104(31)
 LP04;RP01
 ET-133
 BI-140
 RSRM-108
 (1) TBD (2) TBD (3) TBD
 OI-34
 SRMS,ODS,OBSS

CONSUMABLES

CRYO TANK SETS	5 (FULL)
GN2 TANKS	5 (FULL)
FWD RCS	1912# (OFFLOAD)
AFT RCS	4970# (FULL)
OMS	22760# (FULL)

PAYLOAD

ISS-ULF3
 (ELC1, ELC2,
 SASA, MISSE 7A,
 MISSE 7B)

MIDDECK P/L

ISS-ULF3
 MAUI
 SEITE
 SIMPLEX
 RAMBO-2

LANDING

SITE
 TAL
 ALT. TAL
 SCA

KSC
 ZARAGOZA
 MORON & ISTRES
 911



STS-129 LAUNCH SITE REQUIREMENTS REVIEW

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PERFORMANCE MARGIN

- **SIMULATION MARGIN (CIRAF129)** **+1977**

- **WEIGHT CHANGES SINCE SIMULATION**
 - **PAYLOAD** **+555**
 - **OPERATOR** **- 203**
 - **ORBITER** **- 537**
 - **NPC** **- 66**
 - **TOTAL WEIGHT CHANGES** **- 251** **+251**

- **OTHER PERFORMANCE PROJECTIONS**
 - **PROTECTION FOR DOL DISPERSIONS** **- 700**
 - **11/12/09 LAUNCH DATE (PMBT&ATMOS)** **- 230**
 - **SRB – M.P. UPDATES** **- 205**
 - **SRB – BR / 2.80 MIL HIGHER THAN 0.3705 AVG** **+560**
 - **PROJ TO 5 MIN WINDOW FROM INPLANE** **- 600**
 - **PERFORMANCE CHANGES ADJUSTMENT** **- 17**

- **CURRENT BASELINED APM (03/17/09)** **+1036**



STS-129 LAUNCH SITE REQUIREMENTS REVIEW

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FLIGHT MASS PROPERTIES

<u>CASE</u>	TOUCHDOWN	MACH 3.5
	<u>WEIGHT pounds (LIMIT)</u>	<u>X C.G. inches (LIMIT)</u>
NOMINAL	205022 (233000)	1081.2 (1075.7)
RTLS	241064 (245000)	1080.7 (1077.2)
TAL	238888 (244000)	1080.4 (1077.2)
AOA	233707 (242000)	1076.2 (1075.7)
CONT RTRN*	235327 (233000)	1078.5 (1075.7)

*CONT RTRN EXCEEDS 233K NEOM LIMIT (See Vol. X Bk. 1 Sec. 3.3.1.1.9)

NOTE: RTLS INCLUDES 25 SEC FRCS DUMP
TAL INCLUDES 65 SEC FRCS DUMP
752 LBS AFT BALLAST
PROTECTING FOR NO DOCKED PLS BALLAST CASE, ASSUMES FWD CARGO
ELEMENT DEPLOYED FIRST

ESTIMATES BASED ON CIRAF129 AND MODIFIED FOR WEIGHT CHANGES THRU 03/17/09.



Flight Requirements Status

Presenter **Michael Darnell**

Date **3/19/09**

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PRCB CR's

- Addition of RAMBO-2

ULF3 MIP (NSTS 21545):

- Current version available on PILS: Basic + Chg 1-3, 2/03/09
- Recently approved MIP CRs:
 - 21545-0006, Update On-Orbit Task Priorities, 3/11/09
 - 21545-0009, Update Landing Sites Table 6-1, 3/11/09
- Pending CRs:
 - None

Issues/Concerns:

- None Identified

STS-129 LSRR OV-104 FLIGHT 31 CONFIGURATION UPDATES

**Alvin Jenkins
USA / OE**

**Elena Seastrom
Boeing / VPE**

March 19, 2009

STS-129 OV-104 Flight 31 – LSRR Updates

Program Authorization Is Requested For The Following:

- Baseline Three (3) Orbiter Modifications
- Baseline Two (2) Mission Equipment Modifications
- Baseline MECSLSI Updates
- De-baseline One (1) Mission Equipment Modification

Information Only:

- Modifications Previously Baselined
- Additional OPF Processing Requirements
 - Chits, TPS Completed Installations

Back-up:

- Modification Records and MECSLSI Updates Summary
- Engineering, Hardware and Certification Status
- TPS Priorities

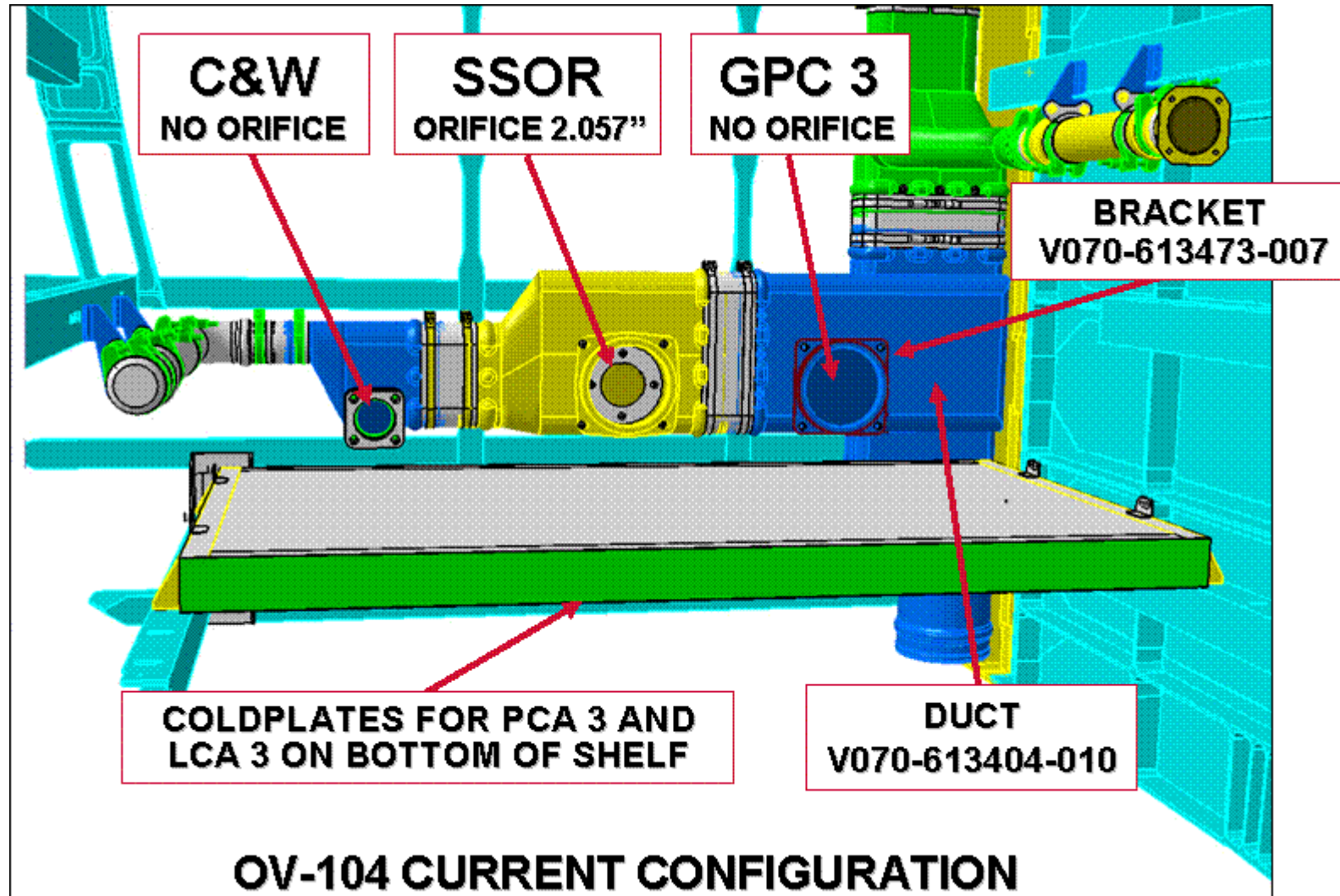
STS-129 OV-104 Flight 31 – Modifications To Be Baselined

TAD 30240 / MCR 19393 – Middeck ISS Payload Cooling Requirements

- Installs resized orifice in the ducting to middeck avionics bay 3A to provide sufficient airflow to cool the ISS payload
 - The ISS payload, Mice Drawer System (MDS), is currently planned to be installed in middeck avionics bay 3A
 - The current Orbiter configuration does not provide sufficient airflow to accommodate rear breathing payload in the middeck avionics bay 3A
 - Modification, increases the airflow to this location, providing the capability for avionics cooling in support of the MDS
 - Bay 3A requires installation of a bracket in the duct to allow the installation of an upgraded orifice at GPC 3 location, and installation of an upgraded orifice at SSOR and C&W locations
 - OCCB approved the implementation of the modification for bay 3A for flight 31 on 10/28/08

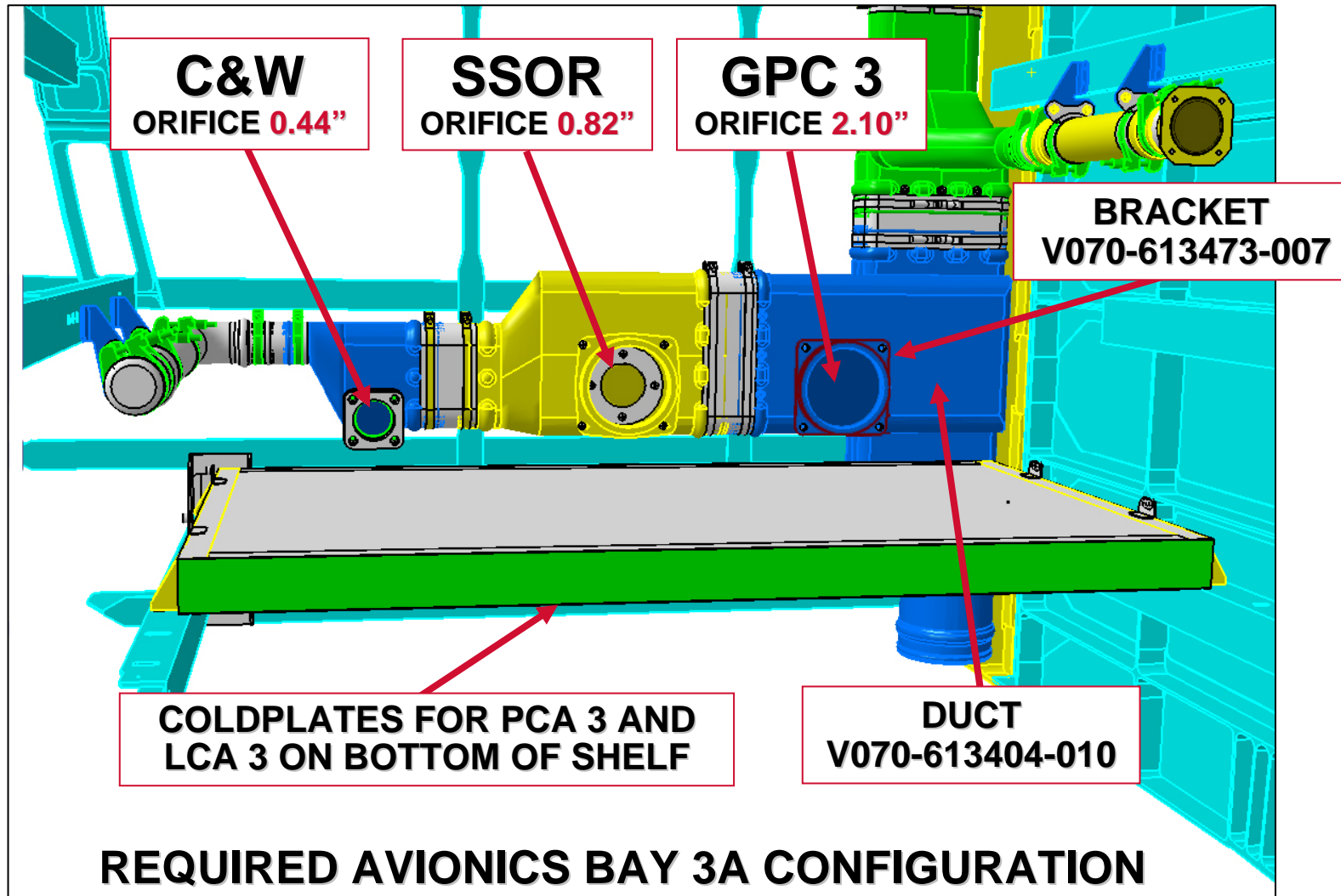
STS-129 OV-104 Flight 31 – Modifications To Be Baseline

TAD 30240 / MCR 19393 – Middeck ISS Payload Cooling Requirements (Cont.)



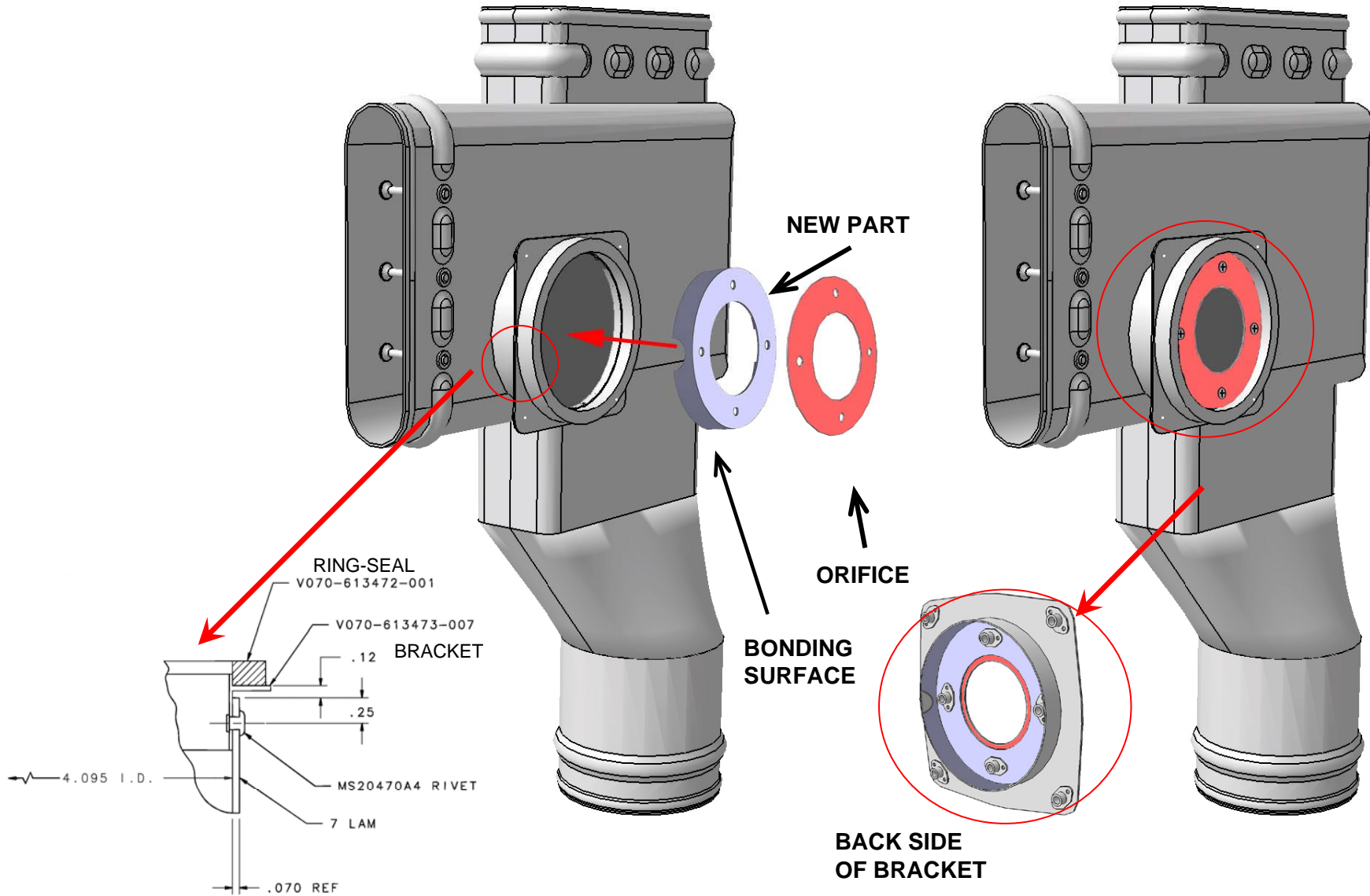
STS-129 OV-104 Flight 31 – Modifications To Be Baselined

TAD 30240 / MCR 19393 – Middeck ISS Payload Cooling Requirements (Cont.)



STS-129 OV-104 Flight 31 – Modifications To Be Baselined

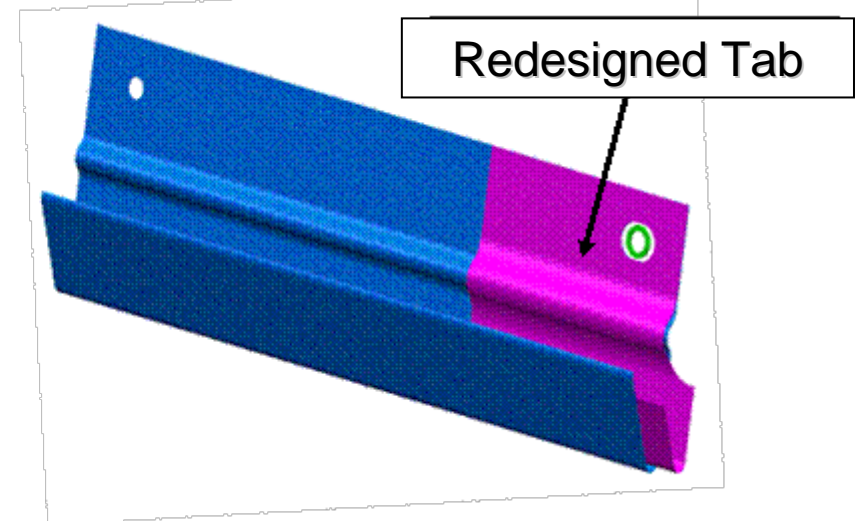
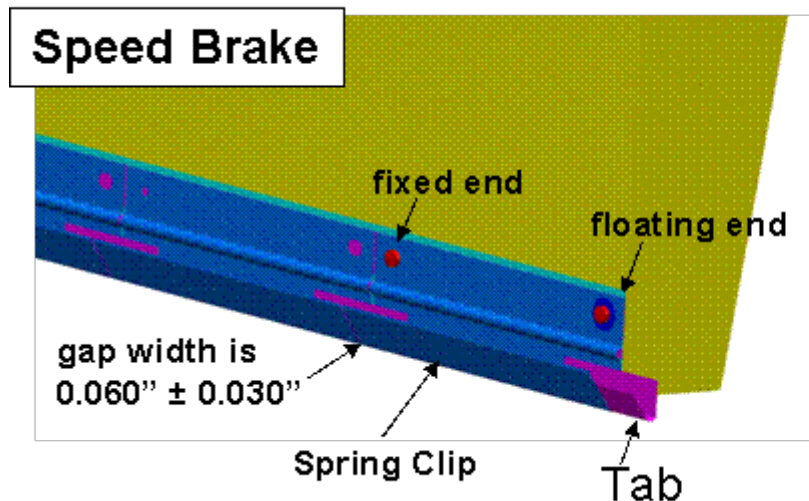
TAD 30240 / MCR 19393– Middeck ISS Payload Cooling Requirements (Cont.)



STS-129 OV-104 Flight 31 – Modifications To Be Baselined

TAD 30231 – Rudder Speed Brake Inconel Thermal Barrier Redesign

- Installs redesigned Rudder Speed Brake inconel thermal barrier tabs to improve strength of the tab attachment
 - During STS-124 an inconel tab was seen floating away from the vehicle while on orbit
 - STS-126 post-flight inspection found 7 inconel tabs were missing, even though improved pre-flight ground inspection procedures were used
- The redesign effort will reduce the moment arm and stress to the spot welds, and will provide a secondary mechanical attachment
 - Redesign lengthens tab to reach screw, slides tab into spring by .70" (.30" overhang), includes more spot welds and changes the spot weld from Class "C" to Class "B" (additional quality control to ensure weld conformance)



STS-129 OV-104 Flight 31 – Modifications To Be Baselined

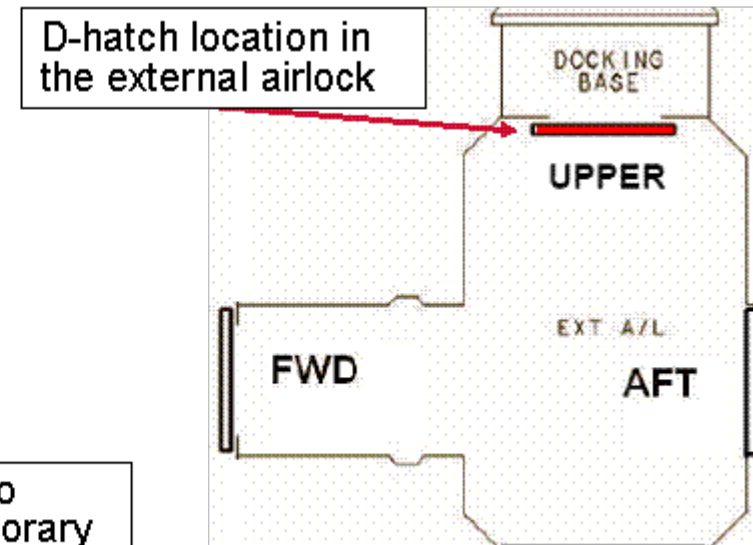
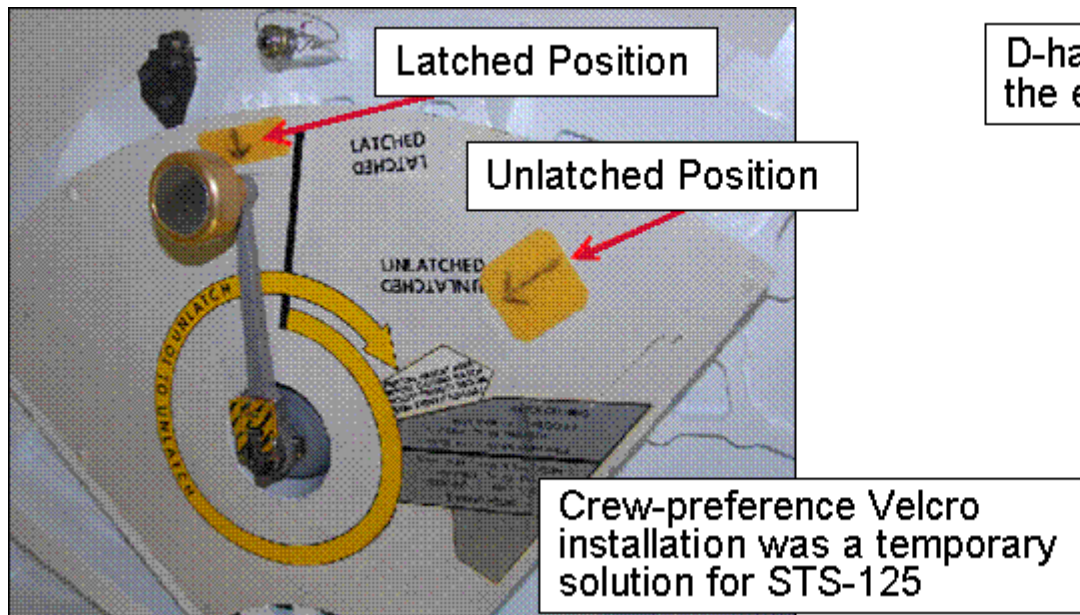
TAD 30250 – Oxygen Crossover Valve Signal Talkback Modification

- Modifies Orbiter electrical configuration for the O2 crossover valves to provide valve position indication
 - The N2/O2 control panel supports O2 and N2 flow to the crew cabin and provides O2 to the crew Launch Escape Suits (LES) and airlock
 - The O2 crossover valves are required to be open to support crew breathing on the Advanced Crew Escape Suit (ACES)
 - Current Orbiter configuration provides only switch scan instrumentation which verifies power applied to valve but not position indication
 - O2 crossover valve failure closed could result in the loss of oxygen to LES
 - The O2 crossover valve position indication is provided at the N2/O2 control panel electrical connector
 - Connecting to the available N2/O2 valve position will provide a reliable method for verifying that the O2 crossover valve is open
 - Electrical modification requires repinning the connector at the N2/O2 control panel and reworking the MDM and signal conditioners in the avionics bay
 - Utilizes two existing spare MSIDs for valve position indication
 - The first implementation of the modification is planned for STS-128, OV-103
 - Implementation on STS-129, OV-104 is contingent upon sufficient slack in harness to allow repinning of connectors without removal of MO10W panel

STS-129 OV-104 Flight 31 – Mission Equipment Modification To Be Baselined

TAD 30099 – Relocation of D-Hatch Actuator Handle Position Decal

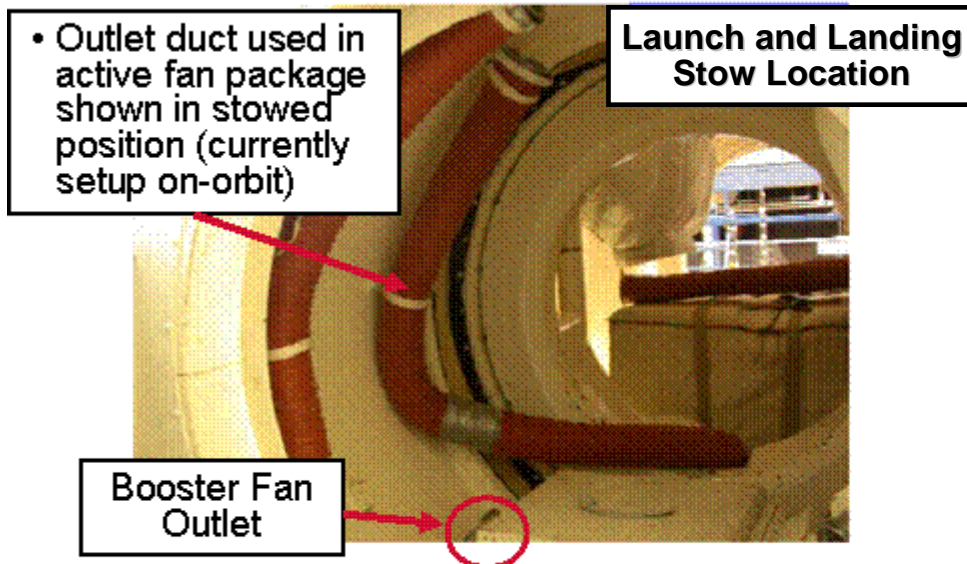
- Relocates actuator handle position decal on the external airlock upper hatch to the correct location
 - The crew reported difficulty closing and latching the external airlock upper hatch during STS-124 (OV-103)
 - Attempts to position the actuator handle over the decal that indicated the correct “pre-closing” position were unsuccessful, as a hard stop was encountered prior to reaching that position (Ref. PR MEQ-3-36-1710)
 - When D-hatch was designed in 1982, the decal was inadvertently located in original A/B-hatch position (20 degrees from fully unlatched)
 - The D-hatch installation drawings are updated to reflect the correct decal locations



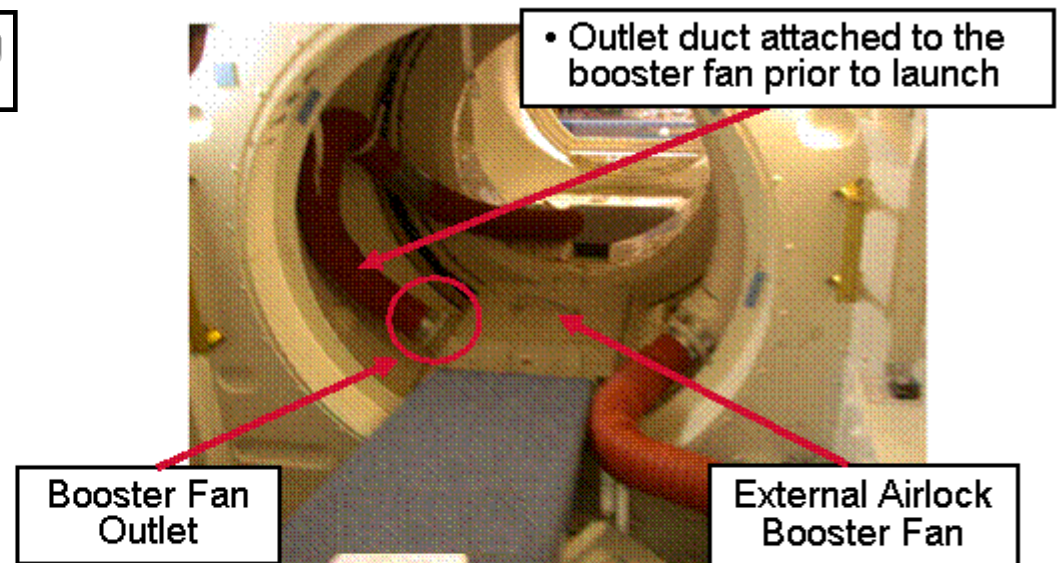
STS-129 OV-104 Flight 31 – Mission Equipment Modification To Be Baselined

TAD 30099 – External Airlock Ducting Configuration Change

- Connects the Orbiter Docking System booster fan outlet duct prior to launch to have the airlock fan active from post-insertion through de-orbit preparation
 - MOD has indicated that future missions will not require the cryo savings associated with use of the booster fan bypass duct
 - The new duct configuration will reduce crew setup activity associated with booster fan operations
 - The mylar tape will not be required around the forward middeck floor diffuser; eliminating a crew procedure to remove the tape seal which can be misplaced during the mission
 - The option to fly the booster fan bypass duct will still be available



Airlock Booster Fan and Ducting Stowed for Launch (Current Configuration)



Airlock Booster Fan and Ducting in Active Booster Fan Arrangement for Launch (Proposed Configuration)

STS-129 OV-104 Flight 31 – MECSLSI Updates

- **Update the V072-200209 MECSLSI with the following tech order change:**
 - **WVS Antenna Load Plug Installation** (LH and RH bay #10 longeron sill connector interfaces, Ref. FRD 17462-129)
 - Add M072-794026-016 (Remove antenna #3, add load plugs)
 - Add M072-794026-017 (Remove antenna #5, add load plugs)

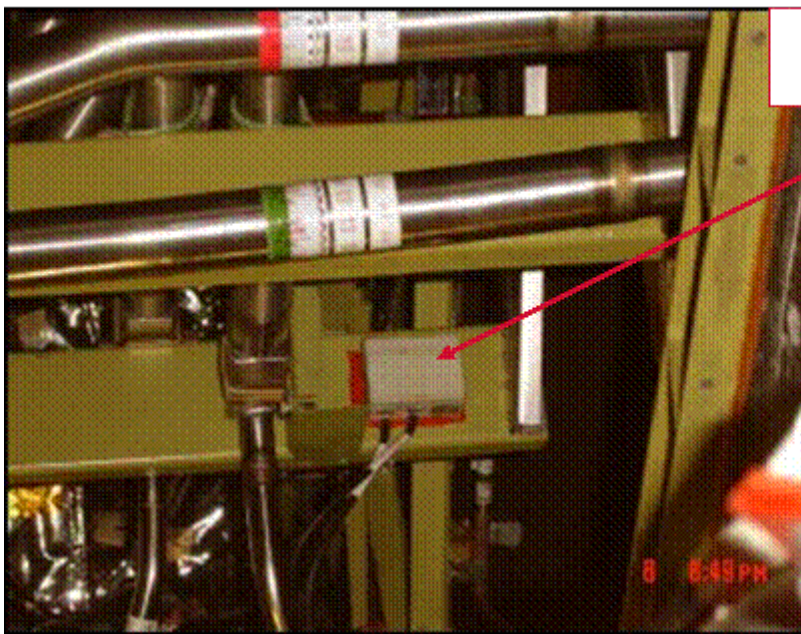
STS-129 OV-104 Flight 31 – Modification To Be De-Baselined

- **Authorization is requested to de-baseline TriDAR (DTO-701A) Installation**
 - Following the manifest change of STS-128 and STS-129 to Orbiters OV-103 and OV-104, respectively, and due to STS-125 HST re-scheduling (ref. PRCBD S042013HQ, 12/10/08), the TriDAR installation was changed from OV-104 manifest to OV-103
 - TriDAR installation was approved at the STS-128 Delta LSRR for OV-103 flight 37 (ref. PRCBD 115128C, 1/6/09)
 - OV-104 MRCS record to be de-baselined: TCTIM0030164REF, 0001, 0 (previously authorized by PRCBD S115128, 8/25/08)

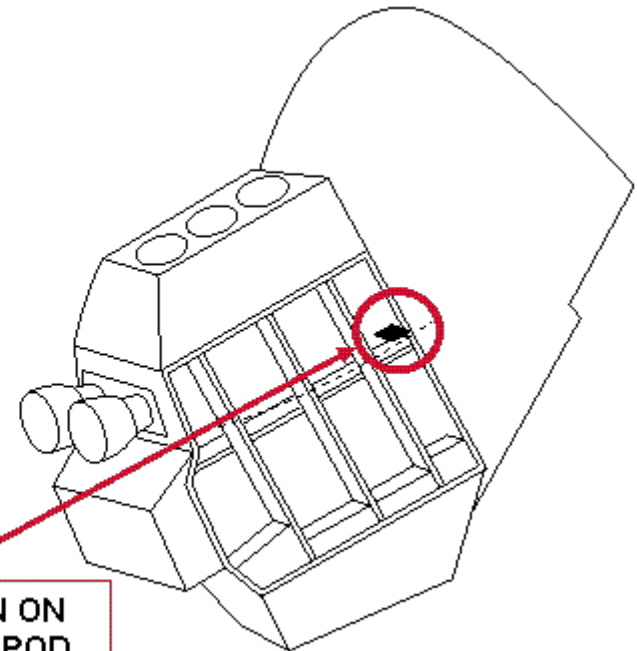
Modification Previously Baselined for Flight 31

TAD 30186 – OMS Pod Micro-WIS Strain Recorder Removal

- Removes the Micro-WIS Strain Gage Unit (SGU) from the left OMS Pod due to the expired certification
 - The Strain Gauge Unit was installed to obtain environment data for analysis of harmonics observed on STS-100 (OV-105) launch video and was certified for four flights
- Tech order M072-755111 was updated to -002 and added to the MECSLSI



MICRO SGU
RECORDER BOX

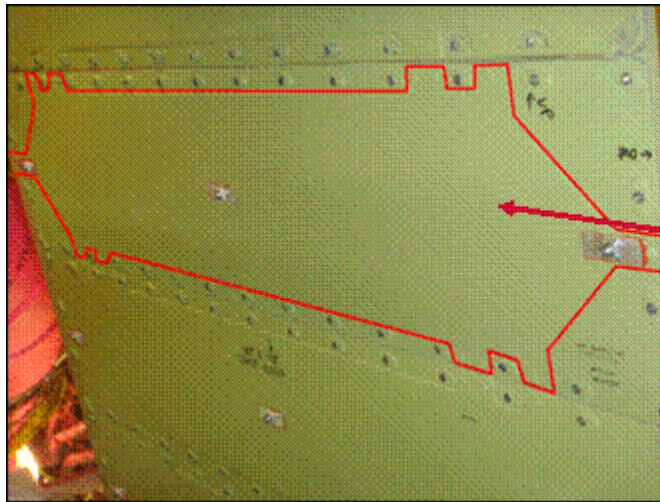


BOX LOCATION ON
THE LEFT OMS POD

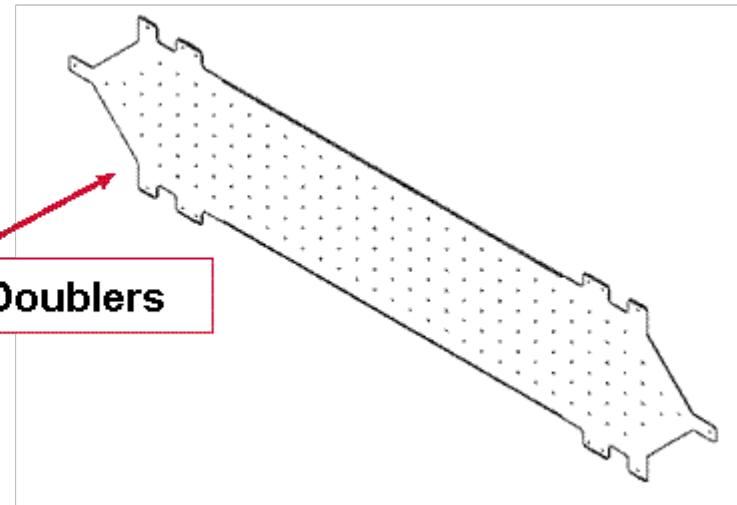
Modification Previously Baselined as NFS

MCR 23205 – Acreage Doublers Addition to Avionics Bays 4, 5 and 6

- Installs cold bonded protective doublers to the honeycomb facesheet on the aft avionics bay 4, 5 and 6 doors to provide additional resistance to impact loads and ensure life of honeycomb panels
 - Numerous dents and damages to the avionics bay 4, 5 and 6 doors occur during routine ground processing
 - Large PRACA history on honeycomb dents requiring MR doubler installation
- Protective doublers over the entire acreage will prevent future damage and work stoppage during damage assessment and repair effort



Acreage Doublers



Chits

CHIT	TITLE
J6116	AMES GAP FILLER REMOVAL AND REPLACEMENT
J6327	WLE RCC JOGGLE INSPECTION
J6378	OV-104 BODY FLAP (BF) POWER DRIVE UNIT (PDU) GEARBOX FLUID LEVEL INSPECTION
J6380	EVA PDU TOOL INTERFACE VERIFICATION
J6389	CLOSE CLEARANCE MEASUREMENTS OF ORBITER HARDWARE FOR STS-125 (post flight)
J6399	0-GAUGE PROTECTION FOR OV-103 FLIGHT 32-35 AND OV-104 FLIGHT 27-35
J6402	MICRO INSPECTIONS OF CAPTIVE GAP FILLERS
J6407	CLOSE CLEARANCE MEASUREMENTS OF SRMS MPM AND OBSS
J6447	STS-126 POST FLIGHT INSPECTION AND CONTAMINATION SAMPLING OF LASER CAMERA SYSTEM AND ORBITER LOCATIONS
J6466	OMS POD PILLOW GAP FILLER INSTALLATIONS

Current Vehicle Status – Completed Installations

Priority Number	Total	OV-103	OV-104	OV-105
1. BRI-18 Tile - MLGD FWD O/B Corner	28	complete	complete	complete
2. BRI-18 Tile - MLGD FWD Edge	22	complete	complete	complete
3. BRI-18 Tile - MLGD O/B Side	18	complete	complete	complete
4. BRI-18 Tile - STR side of ET Doors	20	complete	complete	complete
5. BRI-18 Tile – LESS Carrier Panels 8-10 (103 & 104)	24	complete	complete	n/a
6. BRI-18 Tile – STR side of ET Doors I/B	8	complete	1	complete
7. Inboard Elevon “Hub” Tile Mod	4	complete	2	complete
8. I/B Elevon 9lb/90 SIP	34	complete	20	complete
9. O/B Elevon 9lb/90 SIP	6	complete	complete	complete
10. MLGD – Outboard Middle 1/3	24	0	0	3
11. ET Door remaining STR side	40	1	7	0
12. MLGD - Outboard AFT 1/3	24	0	0	1
13. Nose Area 9lb/90 SIP	14 (16 ^{OV103})	1	0	0
14. Base Heat Shield 9lb/90 SIP	42	8	Complete	36
15. Gap fillers in Subset 2B	5 Zones	2	1	0
16. Remaining BRI-18 - MLGD (top priority) / ET / LESS carrier panels / NLGD	MLGD 100	MLGD 0	MLGD 1	MLGD 0
	NLGD 123	NLGD 12	NLGD 19	NLGD 47
	LESS 68 (90 ^{OV-105})	LESS 7	LESS 5	LESS 12
	ET Door 28	ET Door 5	ET Door 0	ET Door 1
17. Mod work LESS internal	44 locations	38	39	complete
19. Remaining Gap Fillers & Window BRI-18	124	2	2	19
Structural Corrosion Sampling Plan	See Special Chart			
2nd Subset Putty Repair Removals	11 / 6 / 5	6	complete	0

STS-129
ISS-ULF3 ELC 1, ELC2, MISSE 7A & 7B, SASA
Launch Site Requirements Review

Payload Cargo Engineering Status

Yvette Carmona

281-212-6492

03/16/09

STS-129 LSRR

Engineering Flight Product Status

<u>Drawing No</u>	<u>Title</u>	<u>Rev</u>	<u>EO</u>	<u>Released</u>
V072-200209	MECSLSI	Basic	-	01/15/09A
VA72-200209	Cargo Arrangement	Basic	-	01/15/09A
VD72-200209	Avionics Diagram	Basic	-	01/19/09A
VS72-200209	Integrated Schematic	Basic	-	01/19/09A
VS70-540403	Retention Schematic	A	A01	01/16/09A

Engineering Open Work

- FRED ECD
04/24/09
- M072-710729 - Payload Bay Wiring tech Order 04/29/09
- Assessment of ELC power safety inhibits for contingency EVA ops
 - Possible addition of two Payload Power Switching Units (PPSUs) if 2nd safety inhibit required
 - Impacts to VS, VD, Payload Bay Wiring Tech Order, Safety-Critical Switch List, CIH
 - Possible impacts to Avionics Software and Standardization, AFD Wiring tech Order, BPA
- Middeck Avionics Bay Flow Test Chit for OV-104
- ELC MGSE Design Incorporation (CDR May 2009)

Standardization

- Mission Configuration does comply with Orbiter/Payload Integration Standardization Document NSTS 60523
 - Deviation from standardization to be requested if FSW updates needed for PPSU monitoring

STS-129 LSRR

OMRS Status

Baselined Files

- None

Open Work

ECD

- RCNs
 - FII, V2 Post Mate
 - PP17851 ISS-ULF3 Baseline (P545) 03/24/09
 - PP17850 MISSE 7 Baseline (P548) 03/24/09
 - FII, V4 Pre-Mate
 - PS TBD F2/V4 Mission-Unique List 05/26/09
 - PS TBD FIII MUL 05/26/09
 - PS TBD Adjacent Bent Pin Test 05/26/09
 - FII, V6 Shuttle Experiments
 - None

Issues/Concerns

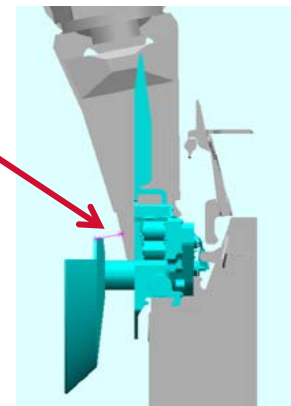
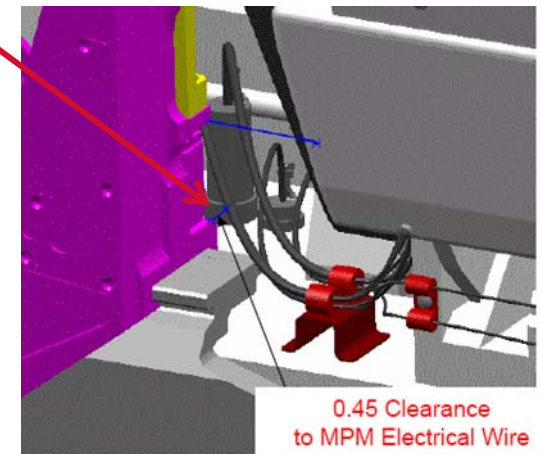
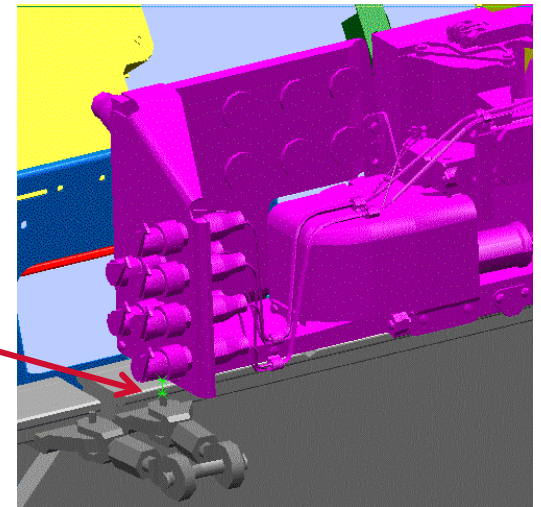
- None

STS-129 LSRR

Cargo Close-Clearance Process

The following Close Clearance areas have been identified:

- **Starboard ROEU-to-stabilizer link bolt**
 - 0.45” static, 0.26” dynamic
 - As-installed OPF measurements required
 - Chit to be approved by May 2009
- **Latch at X_o 892 and MPM wiring (port and starboard)**
 - 0.45” static (approx) when latch travels full aft
 - Measurement not required
 - Re-dress of MPM cabling may be required if potential for contact
- **Potential: MPM and scuff plate at X_o 1242**
 - Less than 3” static, but currently >1” dynamic
 - As installed measurement only required if VLA shows less than 1” dynamic (ECD: 07/16/09)



STS-129 LSRR

Cargo Integration Hardware Status

Delivery Status

- **ROEU Cable Harnesses – (Re-Make)**
 - Hardware Delivery Date: 06/18/09
 - Certification Approval Date: N/A
 - KSC Need Date: 06/18/09

Issues/Concerns

- **Possible addition of PPSUs**
 - Hardware assessment in work - ECD: 03/23/09



STS-129 Integrated Launch Site Requirements Review

Presenter **Kenneth Nowak**

Date **03-19-09**

Backup Material

FRWG Presentation (With Minor Changes)



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Presenter	
Date	3/19/09
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Backup

STS-129 FRD Status

- **STS-129 FRD Latest Revision: 004, dated February 19, 2009**
 - **Approved CRs for Revision 005**
 - **129-0009 Addition of DSO 640**
 - **CRs in work**
 - **129-0010 Update Middeck Control Weight/Lead Ballasting**

CRs posted at <https://sspweb.jsc.nasa.gov/icbdata>

Back-up

- **Modification Record and MECSLSI Updates Summary**
- **Engineering, Hardware and Certification Status**

Modification Records and MECSLSI Update Summary

MCR/ TAD NO.	TITLE	KIT / MOD RECORD & DESCRIPTION	TECH ORDER IMPACT	REMARKS
<u>Orbiter Modifications To Be Baselined</u>				
30240/ 19393	Middeck ISS Payload Cooling Requirements Installs resized orifice in the existing ducting to the middeck avionics bay 3 to provide sufficient airflow balance to cool the ISS payload.	VK70-613604-001_0104_0 - Installs resized orifice in 3 locations K609-613004-001_0002_0 - Provides caps for air flow control	Middeck Bay 3A Cooling Installation M072-613800-005 Avionics HX & Fan Installation M072-613999-002	CCCD Impact
30231	Rudder Speed Brake Inconel Thermal Barrier Redesign Installs redesigned the Rudder Speed Brake inconel thermal barrier tabs to improve strength of the tab attachment.	TCTIV2930231REF_0104_0 - Installs redesigned RSB inconel thermal barrier tabs	No Tech Order Impact	No MECSLSI Impact
30250	Oxygen Crossover Valve Signal Talkback Modification Modifies Orbiter electrical configuration for the O2 crossover valves to provide valve position indication.	TCTIV7930250REF_0104_0 - Repins the connector at the N2/O2 control panel and reworking the MDM and signal conditioners in the avionics bay	No Tech Order Impact	No MECSLSI Impact
<u>Mission Equipment Modifications To Be Baselined</u>				
30099	Relocation of D-Hatch Actuator Handle Position Decal Relocates actuator handle position decal on the external airlock upper hatch / blanket to the correct location.	TCTIM3330099REF_0001_0 - Relocates "Latched / Unlatched" decals on the airlock upper hatch TCTIM0030099REF_0001_0 - Relocates decal on the blanket	D-Hatch M072-593828-005 MV0828A Blanket M072-364828-004 MV0828A	MECSLSI Impact
30099	External Airlock Ducting Configuration Change Connects the Orbiter Docking System booster fan outlet duct to the booster fan outlet prior to launch.	N/A	ISS Fan & Ducting M072-643402-011 MV0828A	MECSLSI Impact
<u>Modification Previously Baselined</u>				
30186	OMS Pod Micro-WIS Strain Recorder Removal Removes the recorder box from the left OMS Pod and stows the wires.	TCTIM0030186REF_0003_0 - Stows the remaining wire	Micro-WIS SGU on OMS Pod Installation M072-755111-002 (is) M072-755111-001 (was) MV0886A	MECSLSI Impact
23205	Acreege Doublers Addition to Avionics Bays 4, 5 and 6 Installs cold bonded protective doublers to the honeycomb facesheet on the aft avionics bay 4, 5 and 6 doors to provide additional resistance to impact loads and ensure life of honeycomb panels.	VK70-356734-001_0104_0 - Provides hardware for acreege doublers on honeycomb door panels	No Tech Order Impact	No MECSLSI Impact

Engineering, Hardware and Certification Status

MCR/ TAD NO.	TITLE	Est. Engr Release (MM/DD/YY)	G.O. Engr Need (MM/DD/YY)	Est. Hdwe Delivery (MM/DD/YY)	G.O. Hdwe Need (MM/DD/YY)	MOD/CERT GO / NO-GO	CERT SUBMITTAL DATE	CERT APPROVAL DATE	CERTIFICATION CR / CAR (BOEING)	REMARKS
Orbiter Modifications To Be Baselined										
30240 / 19393	Middeck ISS Payload Cooling Requirements Installs resized orifice in the existing ducting to the middeck avionics bay 3A to provide sufficient airflow balance to cool the ISS payload.	4/3/09	4/20/09	5/15/09	5/24/09	GO	3/31/09	5/15/09	22-613400-001N 14-22-613400-001N	OCCB approved 10/28/08 (S165384A) OCR/D S165384A
30231	Rudder Speed Brake Inconel Thermal Barrier Redesign Installs redesigned the Rudder Speed Brake inconel thermal barrier tabs to improve strength of the tab attachment.	5/27/09*	5/27/09	5/24/09	5/24/09	GO	5/29/09	7/15/09	07-290101-001R 18-07-290101-001R	OCCB approved 1/27/09 OCR/D S165399 *Detail drawings will be released by 4/30/09
30250	Oxygen Crossover Valve Signal Talkback Modification Modifies Orbiter electrical configuration for the O2 crossover valves to provide valve position indication.	3/27/09*	3/27/09	N/A	N/A	GO	N/A	N/A	N/A	OCCB approved 2/24/09 OCR/D S165404 *Detail drawings will be released by 3/11/09
Mission Equipment Modifications To Be Baselined										
30099	Relocation of D-Hatch Actuator Handle Position Decal Relocates actuator handle position decal on the external airlock upper hatch / blanket to the correct location.	Released	N/A	N/A	N/A	GO	Submitted Submitted	Approved Approved	Hatch Actuator CR# 28-593201-001T CAR# 12-28-593201-001T Hatch Blanket CR# 09-362000-001CJ CAR# 71-09-362000-001CJ	*OCR/D S165361 approved
30099	External Airlock Ducting Configuration Change Connects the Orbiter Docking System booster fan outlet duct to the booster fan outlet prior to launch.	Released	N/A	N/A	N/A	GO	Submitted	Approved Approved	CR# 35-643500-002W CAR# 20-35-643500-002W	*OCR/D S165375 approved
Modifications Previously Baselined										
30186	OMS Pod Micro-WIS Strain Recorder Removal Removes the recorder box from the left OMS Pod and stows the wires.	Released	N/A	N/A	N/A	GO	N/A	N/A	N/A	OCR/D S164130N Baselined at STS-128 LSRR
23205	Acreage Doublers Addition to Avionics Bays 4, 5 and 6 Installs cold bonded protective doublers to the honeycomb facesheet on the aft avionics bay 4, 5 and 6 doors to provide additional resistance to impact loads and ensure life of honeycomb panels.	Released	N/A	Delivered	N/A	GO	N/A	N/A	N/A	Baselined as NFS at STS-128 LSRR Engineered for flight 30



TPS Priorities

Mandatory (everyflow expectation)

- **Flight damage, OMRS Rqmts/Chits, LRU access, & deferred work**

- Multi-flow
Chits
- Corrosion Sampling (10% of total tile allocation) *Chit J6275A*
 - Putty repairs in RCC & Window DTA Zones of influence (10 tiles) (Chit Pending)
 - Continue G/F R & R on a best effort basis - zones 2B subset
 - *Deferred work may be redeferred with acceptable inspection*
-

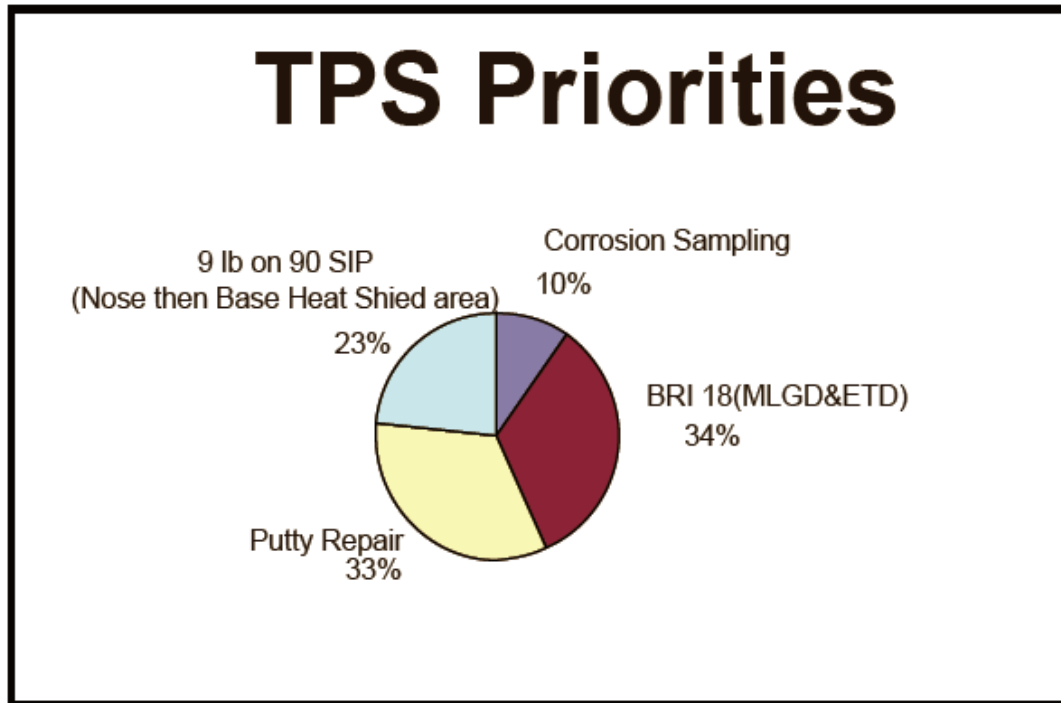
Prioritized Opportunity

- 1 - 5 1 thru 5 complete on all vehicles**
- 6 BRI-18 Tile** – STR side of ET Doors Inboard side – *AFT 4 Tiles (8 Tile)*
- 7 Inboard Elevon “Hub” Tile Modification** – *104 only remaining (2 Tiles)*
- 8 I/B Elevon 9lb/90 SIP Upgrade to FRCI-12** – AFT to FWD, 34 Tiles (17/side)
- 9 O/B Elevon 9lb/90 SIP Upgrade to FRCI-12** – 6 Tiles (3/side)
- 10 MLGD** – Outboard Middle 1/3 - (6 Door/6 STR)

TPS Priorities Continued

- 11 **ET Door - Remaining STR side of Door & leading edge on Door - 40 tiles (24 STR/ 16 door)**
- 12 **MLGD - Outboard AFT 1/3 - 24 Tile (6 door/6 str)**
- 13 **Nose Area 9lb/90 SIP Upgrade to FRCI-12 – 14* Tiles (7/side) (*103 16 tiles,thruster)**
- 14 **Base Heat Shield 9lb/90 SIP Upgrade to FRCI-12 – 42 Tiles (32/stinger, 10/Box Attach point)**
- 15 **Gap fillers in Subset 2B (Line across MLGD edge)**
- 16 **Remaining BRI-18 Tile – Remaining MLGD (top priority) / ET Door / LESS carrier panels/NLGD**
 - MLGD (Inboard, forward edge working to AFT door edge)
 - ET Door
 - LESS - panels 8, 9, 10, 7, 6, 5, 4, 3, 2, 1, 11, 12, 13 (in that order)
 - NLGD (attrition – do leading edge first)
- 17 **Mod work (WLE sneak flow, WLE Horsecollar Gap Fillers,)**
- 18 **MADS Instrumentation Failures (104 & 105 L/H OMS Pod)(place holder)**
- 19 **Remaining Gap Fillers & Window BRI-18**
 - Windows 2, 3, 4, & 5 Upper Carrier Panels (top priority)

TPS Priorities



Example	60 tile Allocation at DLSF
Corrosion Sampling	6
BRI-18 MLGD&ETD	20
Putty Repair	20
9lb on 90 SIP	14

- Orbiter's expectations for the work areas are shown on the pie chart
 - The above table is for reference only – exact #'s are determined by the KSC Team
 - Access/configuration/length of flow
 - Distribution provides data/risk reduction in all areas of the list
 - Does not allocate all the resources in one area
 - OV-104 to utilize this break down upon completion of priority numbers 6 & 8

Current Vehicle Status – Corrosion Under TPS

The Special Chart

REGION	REMAINING WORK CONTENT			
	MINIMUM SAMPLE	OV-103 (Current Flight)	OV-104 (Current Flight)	OV-105 (Current Flight)
TILE (EACH SAMPLE SITE IS ONE TILE CAVITY)				
TILE - AFT FUSE BASE AND DOME HEAT SHIELDS	6	COMPLETE	COMPLETE	COMPLETE
TILE - AFT FUSE LOWER	7	COMPLETE	COMPLETE	COMPLETE
TILE - AFT FUSE SIDES	2	2	2	2
TILE - BODYFLAP LOWER SURFACE	3	3	3	COMPLETE
TILE - BODYFLAP SIDES AND UPPER SURFACE	3	1	3	COMPLETE
TILE - FWD FUSE LOWER	6	COMPLETE	COMPLETE	COMPLETE
TILE - FWD FUSE SIDES AND UPPER SURFACE	7	COMPLETE	COMPLETE	COMPLETE
TILE - LH IB ELEVON	3	COMPLETE	COMPLETE	COMPLETE
TILE - LH OB ELEVON	2	COMPLETE	COMPLETE	COMPLETE
TILE - LH WING	14	COMPLETE	COMPLETE	COMPLETE
TILE - MID FUSELAGE LOWER	21	COMPLETE	COMPLETE	COMPLETE
TILE - RH IB ELEVON	3	COMPLETE	COMPLETE	COMPLETE
TILE - RH OB ELEVON	2	COMPLETE	COMPLETE	COMPLETE
TILE - RH WING	14	COMPLETE	COMPLETE	COMPLETE
TILE - VERTICAL TAIL and RSB	4	COMPLETE	COMPLETE	COMPLETE

FLOW PLANNING KEY - REGION PRIORITY FOR LSRR / LSFR	
5	Priority Region - Number indicates remaining locations to be sampled
COMPLETE	Completed Region - No additional sampling required
3	Low Priority Region - Number Indicates remaining locations to be sampled

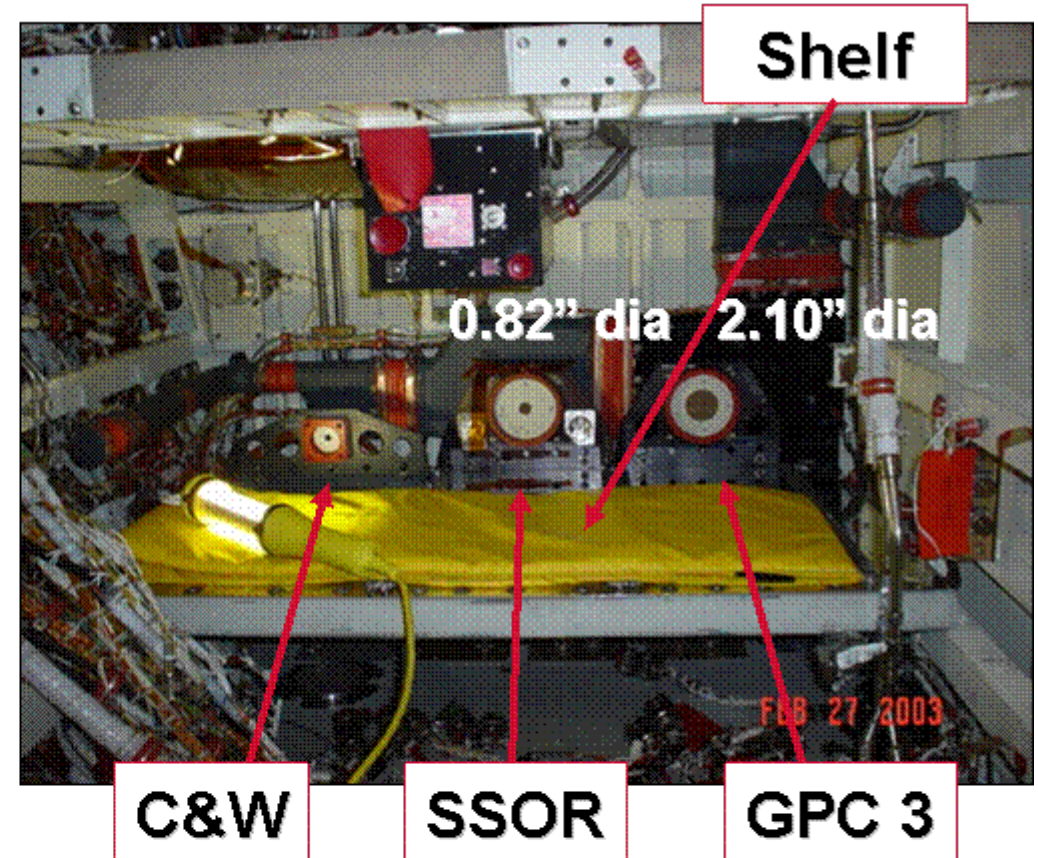
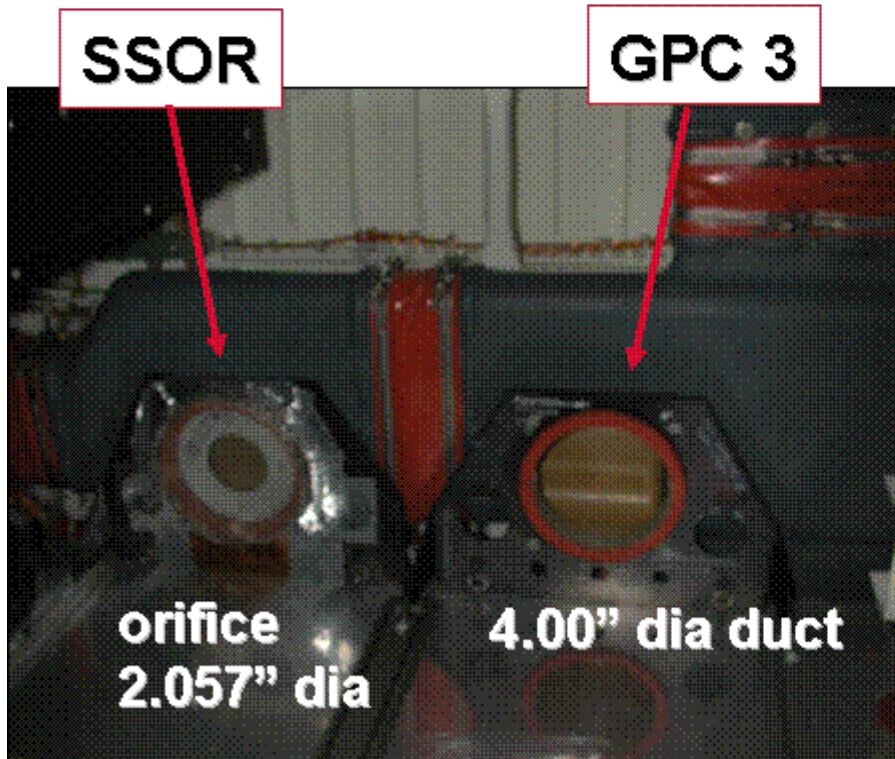
REGION	REMAINING WORK CONTENT			
	MINIMUM SAMPLE	OV-103 (Current Flight)	OV-104 (Current Flight)	OV-105 (Current Flight)
FRSI AND FIB (EACH SAMPLE SITE IS ONE FIB OR ONE 12" X 12" SECTION OF FRSI) - (12" x 24" for WINGS)				
RSI - AFT FUSE SIDES BHS and DHS	3	2	2	2
RSI - FWD FUSE SIDES AND UPPER SURFACE	9	COMPLETE	COMPLETE	COMPLETE
RSI - LH IB ELEVON	3	1	2	3
RSI - LH OB ELEVON	2	2	2	2
RSI - LH WING	12	10	COMPLETE	12
RSI - MID FUSELAGE SIDES	15	COMPLETE	1	COMPLETE
RSI - RH IB ELEVON	3	3	2	3
RSI - RH OB ELEVON	2	2	2	2
RSI - RH WING	12	10	COMPLETE	12
RSI - VERTICAL TAIL and RSB	11	COMPLETE	COMPLETE	COMPLETE

HEATSINK PERIMETER INSPECTIONS (EACH SAMPLE SITE IS ONE 2 LINEAR FOOT SECTIION)				
HEATSINK PERIMETER - BODYFLAP	3	3	3	3
HEATSINK PERIMETER - LH OB ELEVON	1	1	1	COMPLETE
HEATSINK PERIMETER - LOWER FWD FUSELAGE	3	3	3	3
HEATSINK PERIMETER - RH IB ELEVON	2	2	2	1
HEATSINK PERIMETER - RH OB ELEVON	1	1	1	COMPLETE
HEATSINK PERIMETER - LH IB ELEVON	2	2	2	1

STS-129 OV-104 Flight 31 – Modifications To Be Baselined

TAD 30240 / MCR 19393 – Middeck ISS Payload Cooling Requirements (Cont.)

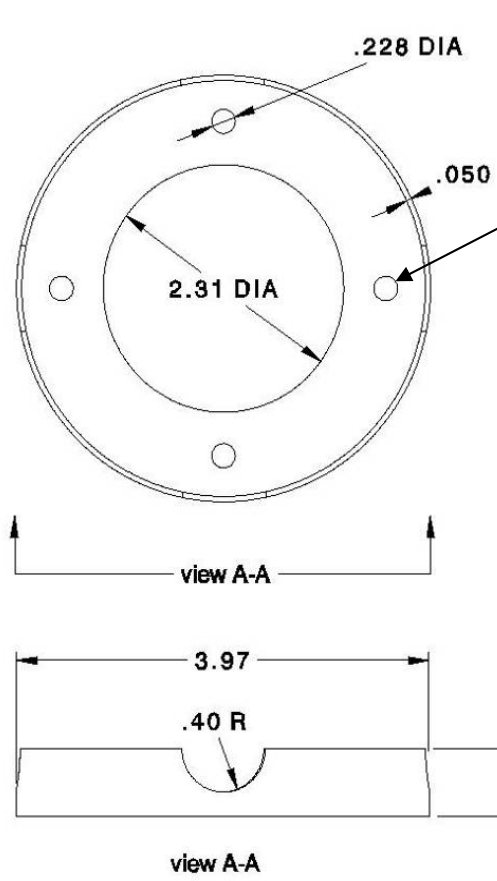
OV-103 CONFIGURATION BEFORE THE MOD WAS IMPLEMENTED



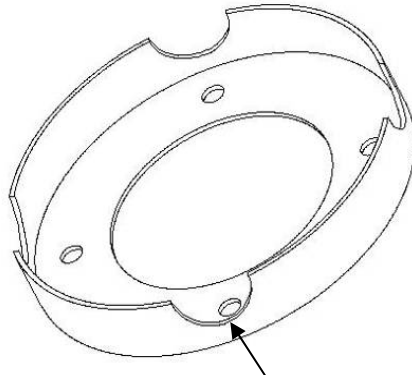
OV-103 CONFIGURATION AFTER THE MOD WAS IMPLEMENTED

STS-129 OV-104 Flight 31 – Modifications To Be Baselined

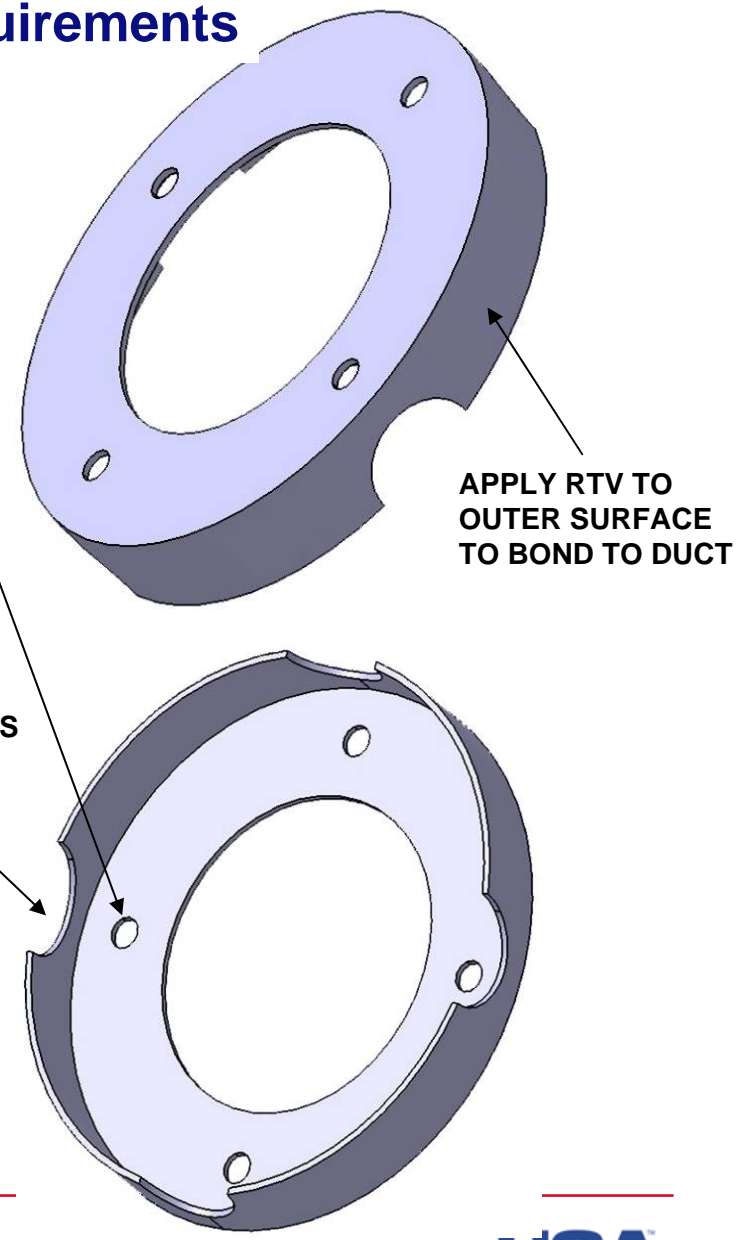
TAD 30240 – Middeck ISS Payload Cooling Requirements



MD114-5005-0301 NUTPLATE 4 REQD
MD121-0001-03 RIVET 8 REQD



NOTCHED TO SLIDE OVER THE RIVETS
IN THE V070-613404-010 DUCT



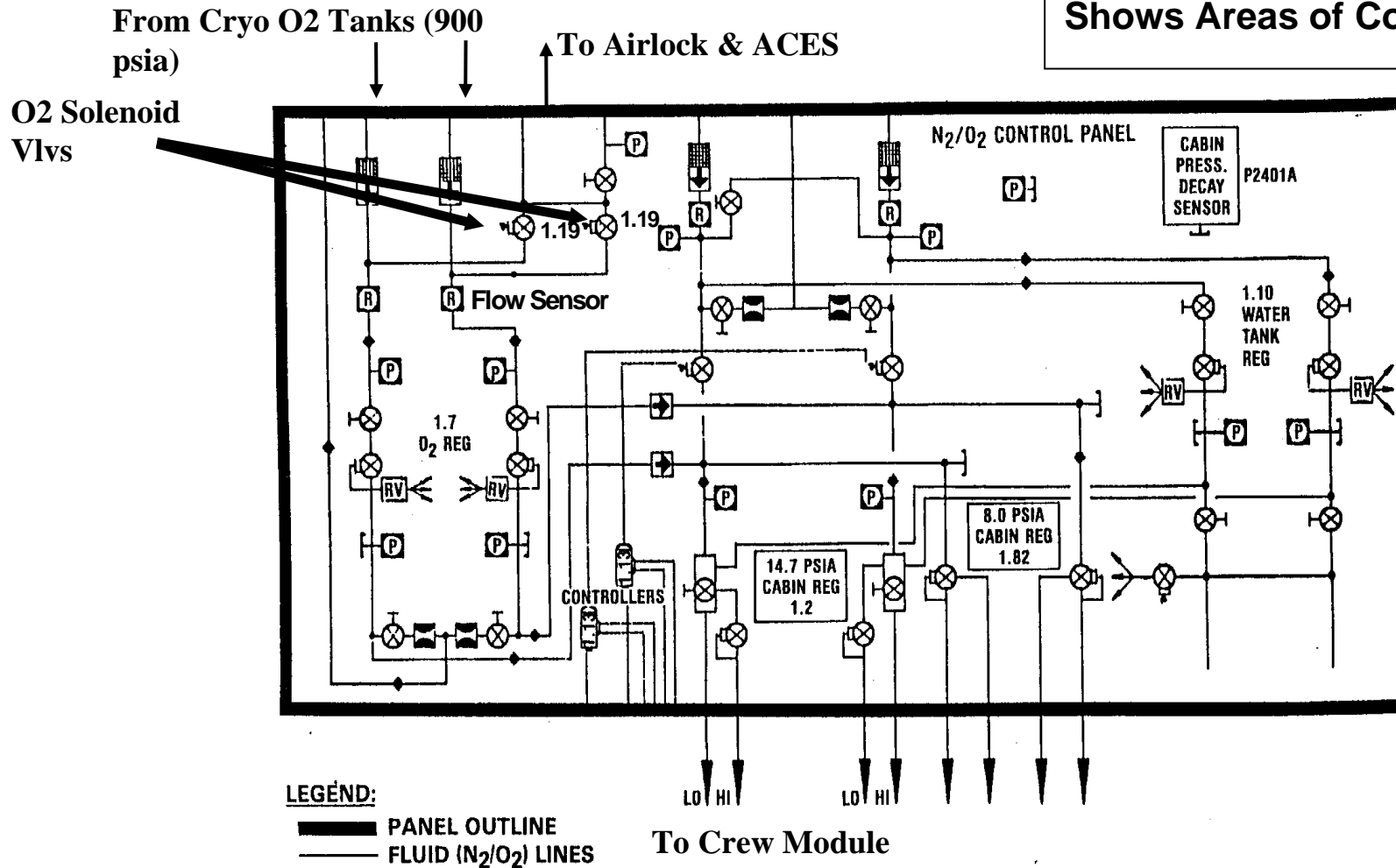
INITIAL CONCEPT FOR BOND IN-PLACE ORIFICE



STS-129 OV-104 Flight 31 – Modifications To Be Baselined

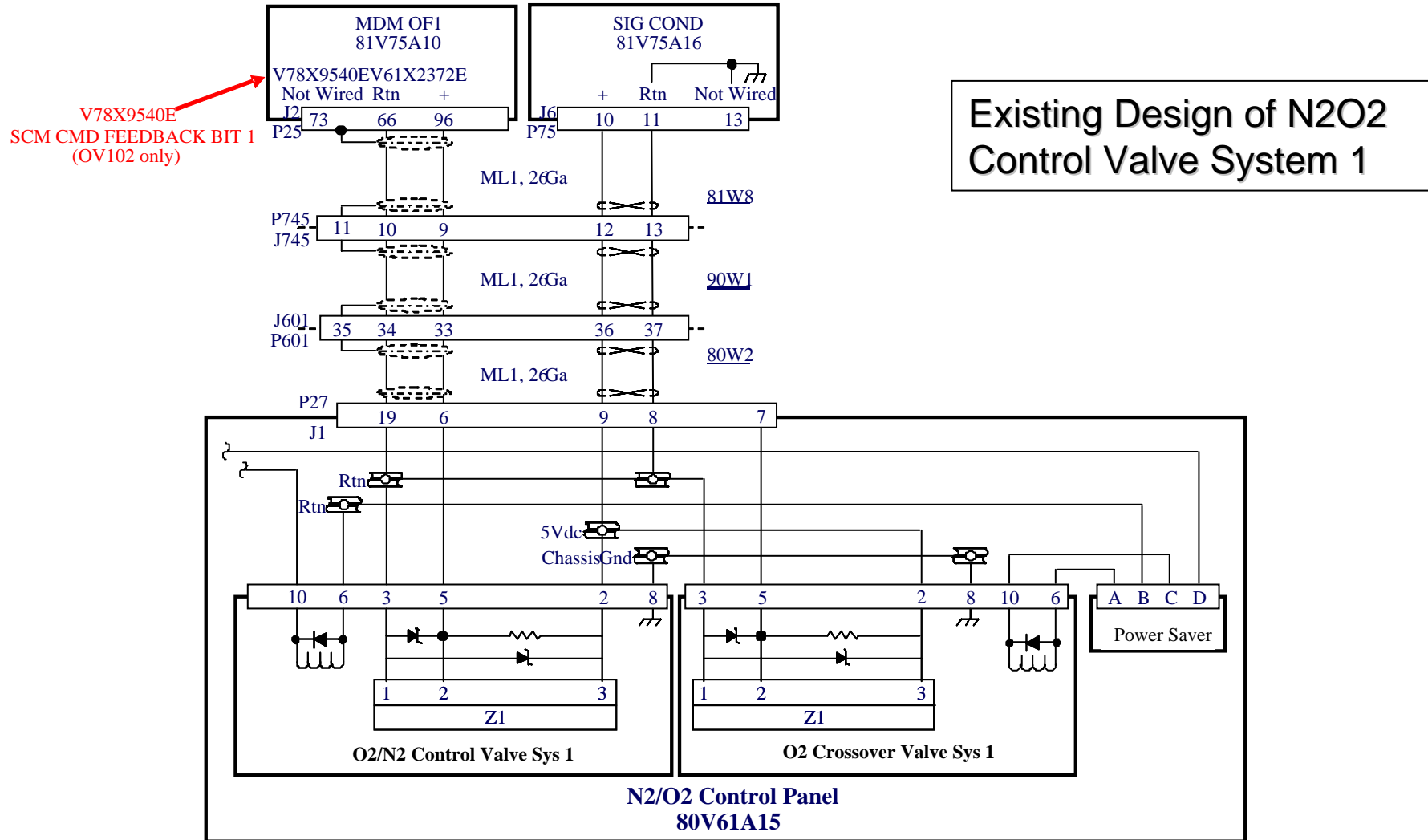
TAD 30250 – Oxygen Crossover Valve Signal Talkback Modification

N2/O2 Panel Schematic Shows Areas of Concern



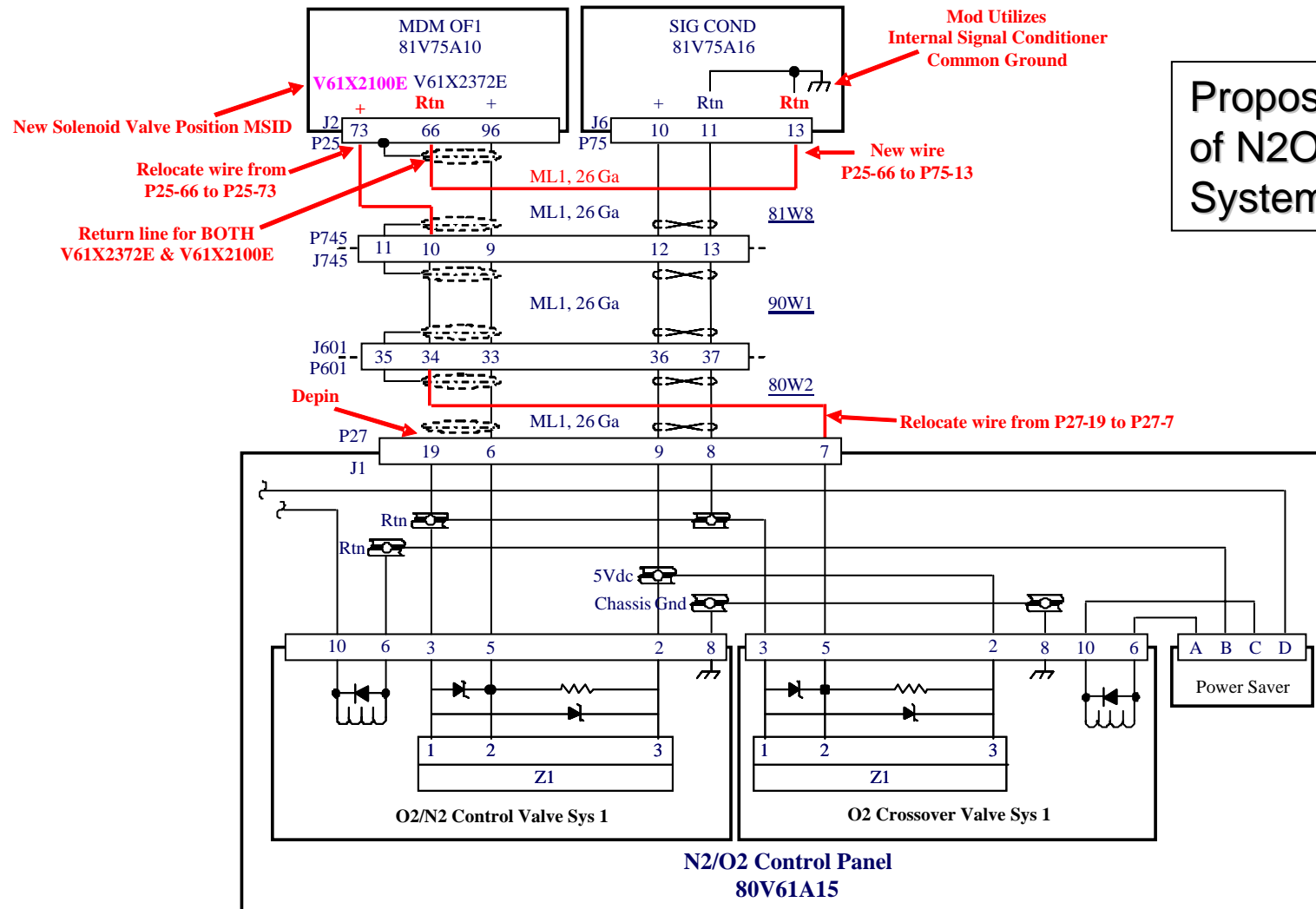
STS-129 OV-104 Flight 31 – Modifications To Be Baselined

TAD 30250 – Oxygen Crossover Valve Signal Talkback Modification (Cont.)



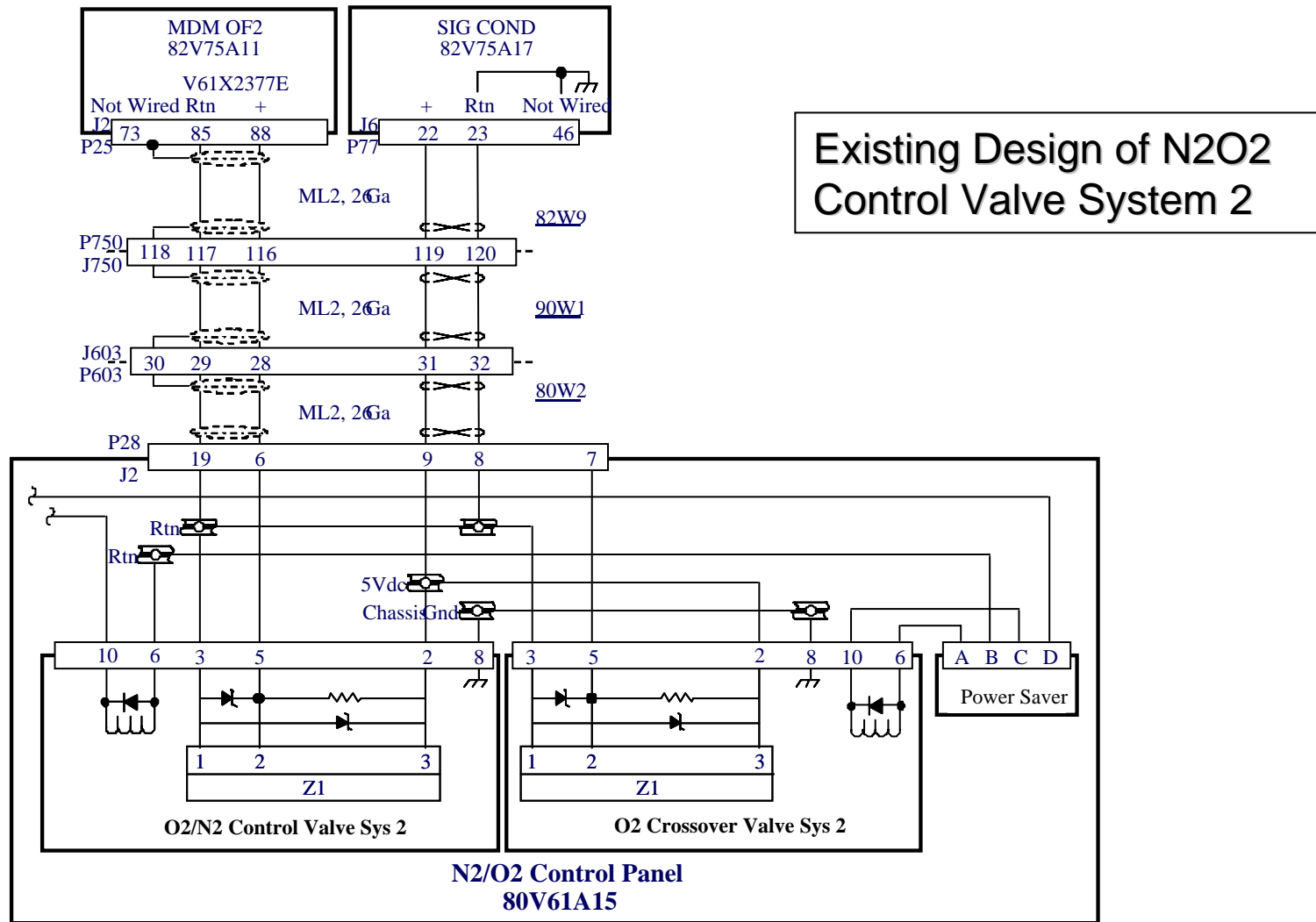
STS-129 OV-104 Flight 31 – Modifications To Be Baselined

TAD 30250 – Oxygen Crossover Valve Signal Talkback Modification (Cont.)



STS-129 OV-104 Flight 31 – Modifications To Be Baselined

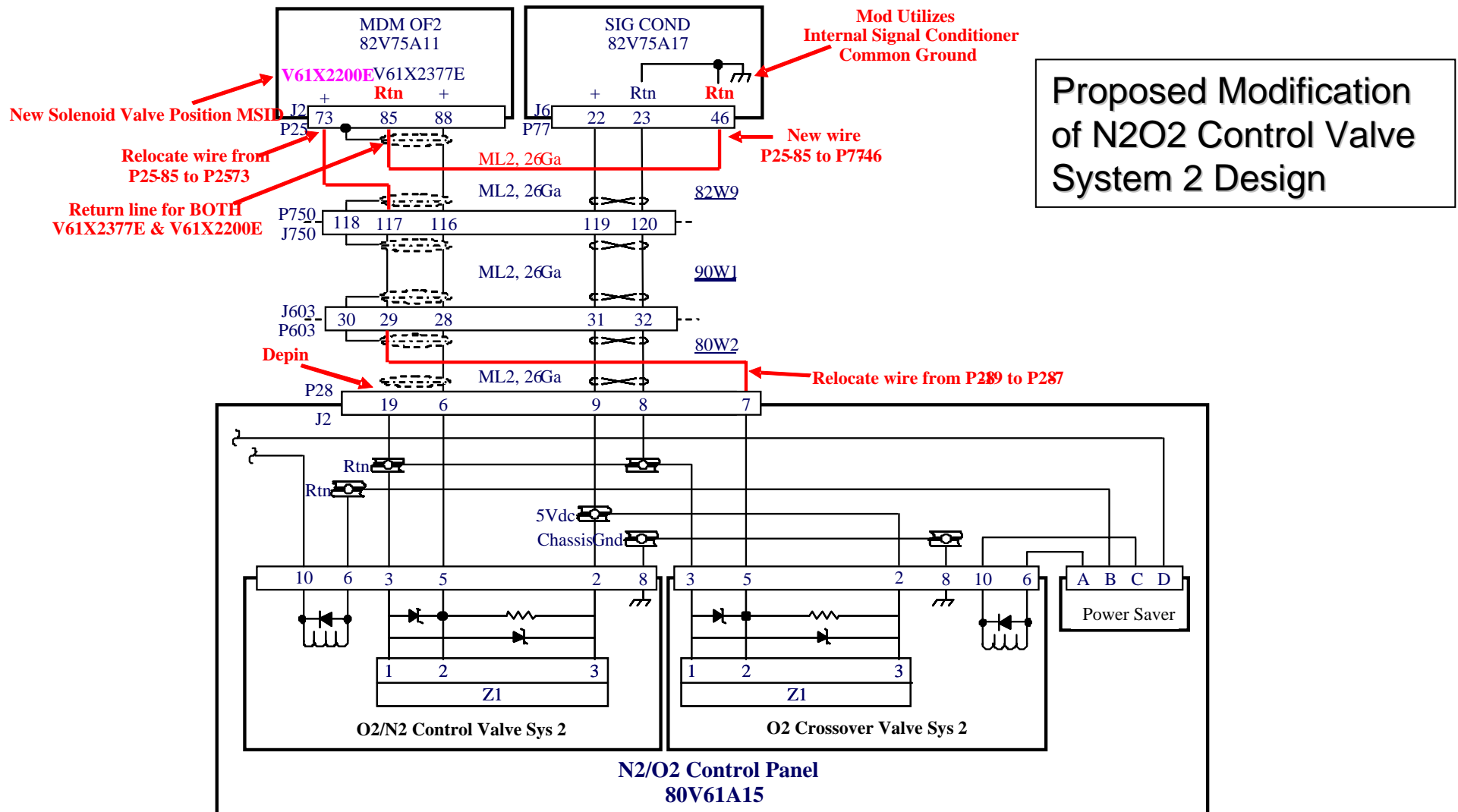
TAD 30250 – Oxygen Crossover Valve Signal Talkback Modification (Cont.)



Existing Design of N2O2 Control Valve System 2

STS-129 OV-104 Flight 31 – Modifications To Be Baselined

TAD 30250 – Oxygen Crossover Valve Signal Talkback Modification (Cont.)



Backup Charts

STS-129 LSRR

Annex 1

Baselined Files

- ISS-ULF3 MIP Annex 1
- MISSE 7 PIP Annex 1

Baselined
03/09/09

Open Work

- ISS-1J A01 – NSTS 21370
 - Post-CIR Update
 - Customer input: ELC1 & 2 Mechanical & Electrical Drawings, ELC1 & 2 Functional Flow Diagram, ELC1 & 2 Electrical Schematic Diagram, ELC1 & 2 Safety-Critical Circuit Diagram, Landing Mass Properties for ELC1 & 2, ELC1 & 2 Grapple Fixture Fundamental Vibration Frequencies and Stiffness Matrices Safety Critical Switch List 03/27/09

ECD
04/03/09

Issues/Concerns

- None

TGHR Status

Customer Submittal
Release For Review
Baseline

07/13/09
08/12/09
09/11/09

Issues/Concerns

- None

STS-129 LSRR

Payload ICDs/PIRNs

All Payload-Unique ICDs are baselined

PIRNS that Impact Flight Products

<u>PIRN #</u>	<u>CD/Payload</u>	<u>Title</u>	<u>ECD</u>	
A05687	ICD-A-21545-ELC1	Update Cargo to Orbiter Bond Strap	05/10/09	
A05705	ICD-A-21545-ELC1	Source Power from Aft Bus to Primary Bus		04/13/09
A05716	ICD-A-21545-ELC1	Incorporate IRNs 131, 132, 134, 139 & 144	05/11/09	
A05679	ICD-A-21545-ELC2	Update Sec 3.0 Figures and Section 20	04/01/09	
A05684	ICD-A-21545-ELC2	Change Sec 3 Bond Strap to Applicable	05/05/09	
A05707	ICD-A-21545-ELC2	Update with Stress Analysis Report Data	04/13/09	
A05715	ICD-A-21545-ELC2	Incorporate IRNs 131, 132, 134, 139 & 144	05/04/09	
A05714	ICD-A-21548-MISSE7	48" EVA Non Compliance	04/27/09	
A05718	ICD-A-21548-MISSE7	MISSE7 ICAPC Relocation	05/11/09	
A05713	ICD-A-21548-SASA	48" EVA Non Compliance	04/27/09	

Issues/Concerns

- None

Rescue Flight Status

STS-129 Reconfiguration Engineering Products will be developed by the Engineering Order To Follow (EOTF) process.



STS-129 Integrated Launch Site Requirements Review

Presenter **Kenneth Nowak**

Date **03-19-09**

Overview

- **SSP System Drawings** **No Issues***
- **SSP Authorized Modifications/Non-Standard Work** **No Issues***
- **SSP OMRS Changes (RCNs)** **No Issues***

STS-129

Launch Site Requirement Review

Flight Software Overview

Judi Powell

USA FSW

PRCB 03/19/09

STS-129 LSRR (FSW)

- **STS-129/OV-104 Flight Software (FSW) Versions**
 - Second scheduled Flight of Operational Increment (OI) 34 Flight Software (SASCB SCR 98107A documents PASS and BFS OI-34 content)
 - Second scheduled Flight of MEDS IDP VI 07.00/MDUF VI 06.00 (SASCB SCR 98113 documents content)
 - Third scheduled Flight of MAGRS-3S Link 613-996-008 Software (Link-008) (SASCB SCR 98115 documents content)
- **STS-129/OV-104 Flight Software Payload/Vehicle Support:**
 - ISS ULF3
 - Orbiter Interface Unit (OIU)
 - Sequential Still Video (SSV)
 - Orbiter Docking System (ODS)
 - Trajectory Control System (TCS)
 - ISS Caution and Warning (ISSCW)
 - Assembly Power Converter Units (APCUs) & Station to Shuttle Power Transfer System (SSPTS) (generic support for both configurations)
- **Major New Flight Software Support Items:**
 - None

STS-129 LSRR (FSW)

- **STS-129 Source Changes/Edits for Primary Flight Software (Base)**
 - SCR 93211A Update of SSMEC Vehicle Data Table (VDT) for Enhanced Accelerometer
 - SCR 93262A Film ET Camera
 - SCR 93267A Removal of the Set and Reset to False Cmds For the RCS Tank Iso Valves
 - DR 126366 SM GPC Failure to Send GCIL Commands
- **STS-129 Patch Implementation for Primary Flight Software**
 - None
- **STS-129 Patch/Edit Implementation for Backup Flight Software (Base) (included on delivered Mass Memory)**
 - None
- **STS-129 Patch Implementation for Backup Flight Software**
 - None

STS-129 LSRR (FSW)

- **Products**

- **STS-129/OV-104 Base delivery schedule (available to field)**

FPSB

- **Shuttle Data Tape**

March 10, 2009A

- **Mass Memory Unit**

March 30, 2009

- **STS-129/OV-104 ADTL software production schedule (available to field)**

- **This cycle may not be required.**

- **Decision to deliver this set of products will be made in May, 2009**

FPSB

- **Shuttle Data Tape**

August 06, 2009

- **Mass Memory Unit**

August 20, 2009

- **Open Items**

- **None**

- **Concerns/Issues**

- **No issues or concerns with STS-129 at this time**



STS-129 LSRR Flight Crew Equipment/GFE	Presenter MV5/Kenneth Brown	
	Date March 19, 2009	Page 1

STS-129 LSRR

FCE/GFE Status

Kenneth Brown
Manager, GFE & Flight Crew Equipment Office
Johnson Space Center



STS-129 LSRR Flight Crew Equipment/GFE	Presenter MV5/Kenneth Brown	
	Date March 19, 2009	Page 2

- **Except for RMS End Effector, need dates and delivery dates have been partnered. Delivery of modified RMS End-Effector is presently 2 days past KSC need date. GFE team will work with KSC team to refine dates**

- **Tech orders and hardware list noted in backup charts, reference only**

- **Changes since STS-125:**
 - **Reconfigure from HST to ISS – reinstall ODS mechanism, TCS, WVS antennas**
 - **NOTE: WVS antennas at Xo 1126 location (bay 10) not installed due to interference with ELC2 primary latches**
 - **OMS pod SGUs removal (end of certified service life)**



STS-129 LSRR Flight Crew Equipment/GFE	Presenter MV5/Kenneth Brown	
	Date March 19, 2009	Page 3

- **RMS End Effector (EE) Mod - MDA Upgrading from -11 to -13:**
 - Change the raybestos brakes/clutches to a ceramic material (since raybestos is no longer available)
 - Implement two design modifications to address issues that occurred on STS-103 (back-up release stall)

- **OV-105 RMS EE was upgraded during STS-126 flow**

- **OV-103 RMS EE will be upgraded during STS-128 flow (EE S/N 403)**

- **OV-104 RMS EE will be upgraded during STS-129 flow (EE S/N 402)**
 - EE S/N 402 will be upgraded following STS-119 and returned in August for installation on OV-104

- **Tech Order M072-544502-036 reflects the new -13 EE configuration**



STS-129 LSRR Flight Crew Equipment/GFE	Presenter MV5/Kenneth Brown	
	Date March 19, 2009	Page 4

BACKUP



STS-129 LSRR
Flight Crew Equipment/GFE

Presenter MV5/Kenneth Brown	
Date March 19, 2009	Page 5

Tech Order numbers are identified for reference only. Report generated March 03, 2009.

Hardware	Tech Order	KSC Eng Need	Eng(TO) Release	In MEC	Cert O/C	HDW Need O/D	HDW Planned O/D	JSC Remarks	JSC Contact
A (port forward)	M072-750025-076	7/3/09	1/17/07	1/15/09	C	8/3/09	8/3/09	Camera/PTU from STS-127.	Randall Moore
B (port aft)	M072-750025-077	7/3/09	1/17/07	1/15/09	C	8/3/09	8/3/09	Camera/PTU from STS-127.	Randall Moore
C (starboard aft)	M072-750025-078	7/3/09	1/17/07	1/15/09	C	8/3/09	8/3/09	Camera/PTU from STS-127.	Randall Moore
D (starboard forward)	M072-750025-079	7/3/09	1/17/07	1/15/09	C	8/3/09	8/3/09	Camera/PTU from STS-127.	Randall Moore
SRMS elbow camera	M072-544504-014	7/3/09		1/15/09	C	8/3/09	8/3/09	Camera/PTU from STS-127.	Randall Moore
SRMS wrist camera	M072-544504-008	7/3/09	1/17/07	1/15/09	C	8/3/09	8/3/09	Camera from STS-127.	Randall Moore
Centerline Airlock Camera (stowed)	M072-660828-002, plus CCCD stow		3/17/99	1/15/09	C			Units last flown STS-127	Randall Moore
Lefthand Umbilical Camera (aft)	M072-705001-016	8/30/09	10/28/04	1/15/09	C	9/30/09	9/30/09	OPF Roll out planned for 10/07/2009.	Randall Moore
Righthand Umbilical Camera	M072-705001-028 M072-705001-027	8/30/09		1/15/09	C	9/30/09	9/30/09	OPF Roll out planned for 10/07/2009.	Randall Moore
Digital Television (DTV)	M072-710570-007		11/15/07		C			Installed Hardware	Larry Schmidt
MCIU/RMS Situational Awareness Display (RSAD)	M072-710543-001		3/7/00	1/15/09	C			Installed Hardware	Larry Schmidt
Tools for Rendezvous and Docking (TRAD)	M072-730021-022	7/13/09		1/15/09	C	8/13/09	8/13/09		Larry Schmidt
Video Processing Unit (VPU)	M072-710338-007			1/15/09	C			Installed Hardware	Larry Schmidt



STS-129 LSRR
Flight Crew Equipment/GFE

Presenter MV5/Kenneth Brown	
Date March 19, 2009	Page 6

Tech Order numbers are identified for reference only. Report generated March 03, 2009.

Hardware	Tech Order	KSC Eng Need	Eng(TO) Release	In MEC	Cert O/C	HDW Need O/D	HDW Planned O/D	JSC Remarks	JSC Contact
Wireless Video System (WVS)	M072-744007-001 UHF M072-344828-001 mount M072-744004-013 S-BAND M072-744004-012 S-BAND M072-744004-015 S-BAND M072-744004-017 S-BAND M072-744004-018 S-BAND		6/2/04	1/15/09	O			Installed Hardware	Randall Moore
Space to Space Orbiter Radio (SSOR)	M072-344828-002		9/24/04	1/15/09	C			Installed	Larry Schmidt
RMS Sideview Camera (RSC)	M072-710281-002 M072-0004 16-006 camera	9/14/09	11/24/04	1/15/09	C	10/14/09	10/14/09	Camera from STS-127 after repressurization. SSV to PAD A 10/14/2009	Randall Moore
Wing Leading Edge (WLE) Instrumentation - Left Wing	M072-756111-007		8/21/07	1/15/09	C			Insatllled Hardware	Micheal Wright
Wing Leading Edge (WLE) Instrumentation - Right Wing	M072-756111-008		8/21/07	1/15/09	C			Installed Hardware	Micheal Wright
OBSS Sensor Package 2 *** (OPF)	M072-710282-006	7/17/09	4/18/08	1/15/09	C	8/18/09	8/18/09		Larry Schmidt
OBSS SENSOR PACKAGE 1 ** (OPF)	M072-710282-008	7/17/09	4/18/08	1/15/09	C	8/18/09	8/18/09	Same configuration as STS-127.	Russell Yates
RMS-13 End Effector	M072-544502-036	7/13/09		1/15/09	C	8/12/09	8/14/09	The current plan is to swap the End Effector on OV-103 post STS-119 and return that End Effector back to MDA for upgrade and eventual use on STS-129. RMS guys at KSC will need no more that a few days in their lab to perform their off line check out and then a day or two to install in the vehicle prior to performing their V1175 test.	Kenneth Ruta

EVA Status STS-129/ULF3 Launch Site Readiness Review

**Marc Ciupitu
EVA Office
Johnson Space Center
March 19, 2009**

- **Forward Bulkhead PFR**
 - Portable Foot Restraint, SED33105308-307 installed on forward bulkhead.
 - Released Tech Order: M072-661568-029
 - Required to protect for contingency EVA TPS inspection
- **Lightweight Port TSA**
 - Port LWTSA installation – Tech Order: M072-660850-005
 - Port LWTSA Tools installation – Tech Order: M072-660853-002
 - Port LWTSA Tools installation (MSA) – Tech Order: M072-660853-TBD
- **Lightweight Starboard TSA**
 - Starboard LWTSA installation – Tech Order: M072-660850-006
 - Starboard LWTSA Tools installation – Tech Order: M072-66085X-001
- **Winches**
 - Winch P/N SED33101570-327 on Forward Bulkhead
 - Winch P/N SED33101570-325 on Aft Bulkhead



STS-129 Integrated Launch Site Requirements Review

Presenter **Kenneth Nowak**

Date **03-19-09**

Backup Material

- **SSP Systems Drawings** Attachment 1
- **SSP Authorized Modifications/Non-Standard Work** Attachment 2
- **SSP OMRS Waivers and Exceptions** Attachment 3
- **Launch Window** (Not Available)
- **Open Configuration Waivers** Attachment 4



STS-129 Launch Site Requirements Review	Presenter MK-SIO / A. Swift	
	Date 03-19-09	Page 1

Mandatory RCNs:

NONE

Non-Mandatory Value Added RCNs:

NONE



STS-129 Integrated Launch Site Requirements Review

Presenter **Kenneth Nowak**

Date **03-19-09**

SSP System Drawings

The Drawings Baseline Was Released By PRCB S115129 on 02-23-09

- V072-000001-282 (Rev. VW) Space Shuttle System (Rel. 03-06-09)
 - V072-200209-001 (Rev. NC) Mission Equipment Cargo Support (Rel. 01-15-09)
 - SGD32104452-401 (Rev. TBD) Crew Compartment Configuration (Rel. TBD)
 - 402 Descent
 - V070-000001-004 Orbiter General Assembly
 - V070-410100-018 SSME Installation
 - 10100-0061-177 Integrated SRB General Assembly (BI-140)
 - 80901000000-530 External Tank Assembly (ET-133)
- STS-129 CIR + 70 days Mission Configuration Product Plan (MCP) will be published on 04-17-09 and will be republished at LSRR +18 days on 04-06-09.



STS-129 Integrated Launch Site Requirements Review

Presenter **Kenneth Nowak**

Date **03-19-09**

SSP System Drawings – (Continued)

Ferry Configuration

- V072-000001-283 (Rev. VW) Space Shuttle System Drawing (Rel. 03-06-09)
 - V072-200209-002 (Rev. NC) Mission Equipment Cargo Support (Rel. 01-15-09)
 - SGD32104452-001 (Rev. TBD) Crew Compartment Configuration (Rel. TBD)
 - V072-300055-025 (Rev. BT01) Ferry Flight Configuration (Rel. 12-11-08)

SCA 911

LW MAR
8929-324

ML60B	6013 -310
PRIME C/L CAM GFE TV CONTROL	
ML60E	TBD -XXX
PGSC ACCESS	
ML60M	6014 -312
B/U C/L CAM LEAK DETECTOR	

VOL B (MA73J)	7436 -TBD
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VOL 3B (MA73J)	7425 -320
QUICK DON MASKS(2)/CABIN AIR CLEANER/AUD.DOS. BTA/LCD MONITOR/ DCS 760 CAM/SPOT- LIGHT/400MM LENS/ PD100 CAMCDR/FLASH 28-70MM LENS	

A16	8706 -314
CAM BAG PILOT	

CDR	CHARLIE HOBAUGH
PLT	BUTCH WILMORE
M/S #1	LELAND MELVIN
M/S #2	MIKE FOREMAN
M/S #3	RANDY BRESNIK
M/S #4	ROBERT SATCHER
M/S #5 (DN)	

MODULAR LOCKER LAYOUT ASCENT

PANTRY FOOD	1622 -308	MF57A PANTRY FOOD	1622 -308	PANTRY FOOD	1622 -302
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MF43C M/S #2	1900 -309	MF57C M/S #3	8072 -302	MF71C M/S #4	3005 -305
CLOTHING		CLOTHING		CLOTHING	

MIDDECK FORWARD

MF14E FRESH FOOD	2760 -306	MF28E/G GLACIER	0644 -301
FRESH FOOD			
MF14G MENU FOOD	2761 -308	IFM BREAKOUT BOX ALTIMETER	
MENU FOOD			
MF14H MENU FOOD	2763 -304	MF28H XXXX -334	
MENU FOOD			
MF14K MENU FOOD	2764 -306	MF28K 0655 -301	0656 -301
MENU FOOD		IFM TOOLS	
MF14M MENU FOOD	2765 -304	MF28M 2762 -307	
MENU FOOD		MENU FOOD	
MF14O MENU FOOD	2766 -305	MF28O 2767 -304	
MENU FOOD		M/S #5 DN CLOTH	

MF43E HH LIDAR W/ NIGHTSCOPE 2ND HHL (TRAD) SSV BPSMU	0631 -TBD	MF57E ORBITER FDF SODF	6240 -311	MF71E IPT RESERVE	TBD -XXX
CLOTHING		CLOTHING		CLOTHING	
MF43G CDR	1902 -309	MF57G M/S #1	8073 -302	MF71G PLT	1903 -306
CLOTHING		CLOTHING		CLOTHING	
MF43H CREW PREF (HCTB)	0305 -304	MF57H ORBITER FDF	5473 -305	MF71H FDF CREW CARE PKG (HCTB)	0645 -301
ENTRY GMTS (HCTB)					
MF43K POST INSERTION	1901 -306	MF57K SODF	6291 -311	MF71K HYGIENE	
		CTB (0744-301)			
MF43M HYGIENE	0641 -301	MF57M CREW SUPPORT	1908 -309	MF71M CONDENSATE COLL SUPA(12) INGRESS HDWR O-RING/BRAYCOTE STS CSA-CP	8965 -311
MF71O COAS/FLUOR LT SHIELDS/DCS 760 AUDIO DOSIMETER BTA	6299 -318				

LEADER:	
DATE:	01-23-09
LAUNCH:	11-12-09
FLIGHT:	STS-129/ULF3
VEHICLE:	OV-104
CREW:	7 MAN 11 + 1 + 2 DAYS
RQMTS:	SRMS, ERGOMETER, SORG, NO RCRS, SLEEPING BAGS

MIDDECK AFT

MA9D ISS RESERVE	XXX -327	LOCKER	TRAD SPARE DTV MUX SPARE DTV DSR SPARE DTV VIP
6300 -345		MA9F 6250 -353	
SOMS/RESUC			
MA9G RCC COLD BAG ASSY	8737 -306	MA16G DC VAC	8047 -304
		CTB (6015-326)	
MA9J PRINTER TRAYS IODINE REMOVAL	5962 -303	MA16J PHOTO/TV STOW-N-GO	8723 -302
6256-303		(CTB)	
MA9L COLOR PRINTER	6056 -321	MA16L PCS LAPTOP PCS ACCESSORIES PGSC ACCESSORIES CD STOWAGE CASE	0634 -305
(CTB)			
MA9N SOFT STWG BAGS PHKS (6)	7432-317 4980-309	MA16N MED KITS MAK (2)	3006 -305
CCK/LIGHT STICKS/COMM PHK 8071-312			
RSTRNTS/FLUID LOAD FIBERSCOPE 8070-302			

MD CEIL (PORT 1)	TBD
ISS RESERVE	
MD CEIL (PORT 2)	0654 -301
RSK ACES	
MD CEIL (STBD 1)	0275 -306
RFTA NODE 3 HDW	
MD CEIL (STBD 2)	6665 -343
NODE 3 HDW	
MD FLOOR (PORT 2)	0637 -TBD
4 MLE (IPT RESERVE) ANTIMICROBIAL APP	
MD FLOOR (PORT 1)	TBD
WATER TRANSFER RFTA CheCS	
MD FLOOR (STBD 2)	TBD
EMU HDWR	
MD FLOOR (STBD 1)	0657 -TBD
EMU HDWR	

A17	7424 -304
CORE CC SVS BAG DTV CAMERA BAG QUICK DON MASK (4) HATCH TOOL	

VOLUME D (MD52C)	
RCC TOOLS	

VOLUME F (MD76M)	1403 -306
WET TRASH	

VOLUME G (MD80R)	1800 -346
CONT UCDs WASTE MGMT	

VOLUME H (MD23R)	8068 -310
EVA ACCESS (INBD)	
EVA ACCESS (OBD)	
8065 -308	

WMC (MA82H)	0914 -332
TOWELS AND RESUPPLY ITEMS WMC DISPENSER	
1st DAY CLOTH SUPA 1641-330	

EXT AIRLOCK	5557 -319 (STBD)	5555 -320 (PORT)
2-EMUs		
EXT A/L FLOOR EVA TOOLS		
TBD		

A16	8706 -314
CAM BAG PILOT	

31 LIQH- 29 + 1 ATCO IN LIQH BOX, 2 INSTLD (7435-320)
6 G-SUITS

WINDOW SHADE BAG - WINDOW SHADES (5548-352)	IFM CABLES & HOSES (4259-343) MONITOR SHIELDS
--	--

L10A1: AVIU (6686-331) L10A2: DTV MUX L10A3: DTV VTR/VIP L11: PDIP 2 OIU 1/2 L12A1: SSP 1 L12A2: SSP 2 L12A3: PDIP 1 R12A1: VPU R12A2: OBSS/OPP

* NOT APPROVED O LATE LOAD X SWAP X TRANSFER TO ISS CTB-CARGO TRANSFER BAG HCTB-HALF CARGO TRANSFER BAG
--

C/D JSC TBD P/D JSC TBD C/D KSC TBD P/D KSC TBD CEIT KIT TBD MDK LBL TBD
DWG NO. SGD32104452 /USR/DWGS/LOCKER/STS129 CCMM: T. HUNT
483-3063

NOTE: LOCKER LAYOUTS ARE FOR REFERENCE ONLY AND ARE NOT RELEASED DRAWINGS.
FOR RELEASED DRAWINGS, REFER TO CCCD DRAWING # SGD32104442



STS-129 Integrated Launch Site Requirements Review

Presenter **Kenneth Nowak**

Date **03-19-09**

Modification Impact Report

- **Mission Equipment Modifications and Orbiter Modifications analyzed for impacts to OMRSD, LCC, ICD, EMI, Software, and GSE.**
- **A total of 10 MCRs have been approved and/or pending mods**
- **Current MCR impact status:**
 - **No impacts for all six disciplines** **2**
 - **One or more disciplines with impacts, documentation approved** **1**
 and/or pending approval
 - **MCR's 19271**



STS-129 Integrated Launch Site Requirements Review

Presenter **Kenneth Nowak**

Date **03-19-09**

Modification Impact Report – (Continued)

- Possible impacts still under review 7
 - MCR 19393, 30164, 30186, 30231, 30250, 30240, 8836 are being reviewed for all impacts

MCR/ECP	STAT	ITEM/KIT NUMBER	SEQ	DESCRIPTION / GENERAL REMARKS	PRCB	PRIO
-----	SITE	TCTI NUMBER	EISN NO.	-----	AUTHDATE	FLT
030164	AUTH KSC	TCTIM0030164REF	0001 000	AUTONOMOUS RENDEZVOUS AND DOCKING SENSOR - TRIDAR ADDED PER V828-000002 F21, MOVED TO STS-129 PER REMANIFEST/ REF. S042013HQ	S115128 2008-08-25	MAND 031
030186	AUTH KSC	TCTIM0030186REF	0003 000	OMS POD MICRO-WIS STRAIN RECORDER REMOVAL ADDED PER V886-000002 A14, REPLACES 030186,0014,0 MOVED TO STS-129 FROM STS-128 PER REMANIFEST	S115128 2008-08-25	MAND 031

TOTAL MODS = 2

MCR/ECP	STAT SITE	ITEM/KIT NUMBER TCTI NUMBER	SEQ EISN NO.	DESCRIPTION / GENERAL REMARKS	PRCB AUTHDATE	PRIO FLT
	AUTH KSC	J6116	0104 003 SPAR	AMES GAP FILLER REMOVAL AND REPLACEMENT	ORB-0085B 2006-08-16	MAND 031
	COMP KSC	J6198	0104 002 SPAR	OV-104 MID FUSELAGE LOCK BOLT OPPORTUNITY SAMPLING AND FASTENER REPLACEMENT	ORB-0085R01 2007-03-12	MAND 031
	AUTH KSC	J6275A	0104 001 SPAR	ORBITER STRUCTURE IML SURFACE CORROSION SAMPLING INSPECTION CORROSION SAMPLING CAPABILITIES WILL BE PROJECTED AT LSFR, AND FINALIZED AT DLSFR FOR EACH FLOW.	S-J6275A 2008-02-26	MAND 031
	AUTH KSC	J6327	0104 001 SPAR	WLE RCC JOGGLE INSPECTION	S-J6327 2008-02-14	MAND 031
	PLND KSC	J6329	0104 000 SPAR	ASA #2 & #4 AND ATVC #3 & #4 R&R FOR OV-104, FLT 31 PER USA PE:JEFF SCHIECK, TO PERF ON FLT 30, NOT 31	S-J6329 2008-05-15	MAND 031
	AUTH KSC	J6341A	0104 000 SPAR	EVALUATION OF OMS POD LI-900 TILE INSTALLED ON 0.090" SIP	S-J6341A 2008-04-09	MAND 031
	COMP KSC	J6351	0104 000 SPAR	OV-104 RUDDER/SPEEDBRAKE (RSB) ACTUATOR EXTERIOR INSPECTION PER USA PE, JEFF SCHEICK TO PERF ON FLT 30, NOT 31	S-J6351 2008-05-15	MAND 031
	AUTH KSC	J6378	0104 000 SPAR	OV-104 BODY FLAP PDU GEARBOX FLUID LEVEL INSPECTION	S-J6378 2008-07-18	MAND 031
	AUTH KSC	J6380	0104 000 SPAR	EVA PDU TOOL INTERFACE VERIFICATION	S-J6380 2008-07-07	MAND 031
	COMP KSC	J6387	0104 000 SPAR	PASSIVE DOCKING TEST ON OV-104 WORKED ON FLT 30 DUE TO ROLLBACK	S-J6387 2008-08-15	MAND 031
	AUTH KSC	J6389	0104 001 SPAR	CLOSE CLEARANCE MEASUREMENTS OF ORBITER HARDWARE	S-J6389 2008-07-10	MAND 031
	AUTH KSC	J6399	0104 000 SPAR	0-GAUGE PROTECTION FOR OV-104, FLIGHTS 31-35	S-J6399 2008-10-03	MAND 031
	AUTH KSC	J6402	0104 001 SPAR	MICRO INSPECTION OF CAPTIVE GAP FILLERS DOCUMENTS MICRO INSPECTION OF SPECIFIC CAPTIVE GAP FILLERS DUE TO OBSERVED FLT DEGRADATION.	S-J6402 2008-08-08	MAND 031
	AUTH KSC	J6407	0104 001 SPAR	STS-125 CLOSE CLEARANCE MEASUREMENTS OF SRMS MPM AND OBSS VEH/EFF:OV-104 FLTS 30, 31.	S-J6407 2008-09-02	MAND 031
	AUTH KSC	J6410	0104 000 SPAR	AFT STUB CRACKED TILE INSPECTION	S-J6410 2008-09-18	MAND 031

AUTH	J6414A	0104 000	RUDDER SPEED BRAKE THERMAL TAB INSPECTION	S-J6414A	MAND
KSC		SPAR		2008-12-19	031
COMP	J6430	0104 000	MIDDECK PARTITION INSPECTION	S-J6430	MAND
KSC		SPAR	WILL BE WORKED DURING FLT 30 PROCESSING DUE TO ORB ROLLBACK	2008-10-14	031

MCR/ECP	STAT	ITEM/KIT NUMBER	SEQ	DESCRIPTION / GENERAL REMARKS	PRCB AUTHDATE	PRIO FLT
-----	SITE	TCTI NUMBER	EISN NO.	-----	-----	-----
	AUTH KSC	J6441	0104 001	OV-104 LARGE PUTTY REPAIRS TPS REPLACEMNT WILL BE PARALLEL TO PLANNED OPF PRO CESSG. TILE REPLCMT FOR OV104-F30:OPPORTUNITY BASIS	S-J6441 2008-11-20	MAND 031
	AUTH KSC	J6447	0104 000	STS-126 POST FLT INSP AND CONTAMINATION SAMPLING	S-J6447 2008-12-19	MAND 031
	AUTH KSC	J6466	0104 001	OMS POD PILLOW GAP FILLER INSTALLATIONS	S-J6466 2009-02-09	MAND 031
019735	AUTH KSC	TCTIV1019735REF	0104 004	WLE FRONT SPAR PROTECTION FOR SNEAK FLOW - STRUCTURES TRANSFERRED TO GEU FROM GC5. PART DEF FROM OV-104/27. REF SEQ 1/STS-117, SEQ 2/STS-122, SEQ 3/125	S115117CR4 2006-11-21	MAND 031

TOTAL MODS = 21

MCR/ECP	STAT	ITEM/KIT NUMBER	SEQ	DESCRIPTION / GENERAL REMARKS	PRCB	PRIOR
-----	SITE	TCTI NUMBER	EISN NO.	-----	AUTHDATE	FLT
008836	APPD	TCTIM0008836REF	0020 000	PROVISIONS TO SUPPORT EXPRESS LOGISTICS CARRIER (ELC) PDA ADDED PER V785-714912 E07 - MOVED TO STS-128 FROM STS-129 PER REMANIFEST PER S042013HQ	NOT REQD	031
	KSC					

TOTAL MODS = 1

Approved STS-129 OMRS Waivers and Exceptions

WVR EXC	ELEMENT PROJECT	PRCBD NUMBER WAIVER# (STAT) (INITIAL STS)	ABSTRACT RAS REQUIREMENTS	EISN PAYLOAD	STS BEG END
+	E	ORB	S053298ZC EK10572R1 (A)	OMRSD EXCEPTION REQUEST - MISSION LIFE ASSESSMENT OF WING LEADING EDGEINSULATORS (EK10572R1)	104 029 033
			S053298ZD EK10574R1 (A)	OMRSD EXCEPTION REQUEST - WING LEADING EDGE INSULATORS (EK10574R1)	104 029 036
			S053298ZE EK10575R1 (A)	OMRSD EXCEPTION REQUEST - MISSION LIFE ASSESSMENT OF WING LEADING EDGEINSULATORS (EK10575R1)	104 029 031
			S053299AQ EK10592 (A)	OMRSD EXCEPTION REQUEST - DRAG CHUTE DEPLOY SYSTEM 2 LIGHT FAILU RE(EK10592)	104 029 032
			S053299AT EK10593 (A)	OMRSD EXCEPTION REQUEST - DRAG CHUTE DEPLOY SYSTEM 2 LIGHT FAILU RE(EK10593)	104 029 032
	SSME		S053298HG EK10501 (A)	OMRSD EXCEPTION REQUEST - SSME HE BARRIER SYSTEM INFLATION EXCEPT ION(EK10501)	2056 005 005
	W	ET	S053293FZ WK03850R1 (A) (STS-093)	L02/LH2 TANK PRESSURE MONITOR FOR MOVE	ET 099 999
		OMS	S053298NV WK10522 (A)	OMRSD WAIVER REQUEST - RIGHT OMS SECONDARY REGULATOR CREEP RATE(W	0021 035 043

		K10522)		
ORB	S053296YT	OMRSD WAIVER REQUEST - PV6	104	027 031
	WK10332R2 (A)	PREVALVESCREEN PARTICLES (WK10332R2)		
	S053298HY	OMRSD WAIVER REQUEST -	104	027 031
	WK10502 (A)	BODY FLAP DRIVE RATE TEST (WK10502)		
	S053299BLR1	OMRSD WAIVER REQUEST -	104	029 032
	WK10600R2 (A)	OXYGEN SYSTEM 1 RELIEF VALVE FAILED RESEA TLEAKAGE (WK10600R3)		

-
1

Date: 03/10/09 14:50

PCASS

Page: 2

FLIGHT-SPECIFIC

Approved STS-129 OMRS Waivers and Exceptions

WVR	ELEMENT	PRCBD NUMBER WAIVER# (STAT)	ABSTRACT RAS REQUIREMENTS	EISN PAYLOAD	STS BEG END
+	W	RCS	S053296GY WK10188R1 (A)	OMRSD WAIVER REQUEST - LRCS OXIDIZER GHE ISOLATION VALVE LEAK(WK 10188R1)	0014 025 032
			S053296YG WK10318R1 (A)	OMRSD WAIVER REQUEST - RIGHT RCS OXIDIZER GHE SYSTEM INTERNAL LEA KAGE(WK10318R1)	0021 034 042
			S053298JF WK10503 (A)	OMRSD WAIVER REQUEST - RRCS OX TANKOUTLET TRANSDUCER ACCURACY (WK 10503)	0021 034 042
			S053299GW WK10634 (A)	OMRSD WAIVER REQUEST - LEFT REACTION CONTROL SYSTEM FUEL GHE ISO LATIONVALVE LEAKAGE (WK10634)	0014 030 032
	SRB	S053293WA WK03886 (A) (STS-103)	LH FWD AND RH MID SRB JOINT TEMP SENSORS	BI	099 999

+-----+-----+-----+-----+-----+-----+-----+-----+							
	Waivers	Except	Deviat	Cannib	Total		
+-----+-----+-----+-----+-----+-----+-----+-----+							
o Total Extracted	o 10	o 6	o 0	o 0	o 16	o	
+-----+-----+-----+-----+-----+-----+-----+-----+							

ACTIVE WAIVERS FOR
OV-104

Item #	Authority	Date	Waiver Description	Effectivity	Wad
53	S052428A	03/27/91	Allows specified flights to fly with interim TPS repair after each mission to minimize damage to surrounding tile during ferry flight	STS-37, STS-39, STS-40, STS-42 thru STS-999	STAYS OPEN
101	S076972	11/19/91	Permit the modified GPCs (AP101-S) Battery Back-up Unit to fly with annotated fastener improvements without rolling the LRU Part Number	STS-42, STS-44, STS-47 and STS-49 thru STS-999	STAYS OPEN
325	S061956	07/15/03	Blanket on the Control Moment Gyro (CMG) Orbital Replacement Unit (ORU) on the Lightweight MPESS Carrier (LMC) will NOT be re-installed on-orbit per configuration defined in ICD-A-21494. It will be secured around the FSE and attached to the aft bulkhead.	OV-104, Flight 27	
334	S115115JR1	07/19/06	The following requirement is waived to allow OV-104 to fly with the following out-of-configuration condition: Tech Order M072-544501-067 (RMS, MPM over-center stop and MPM pedestal insulation cover fasteners) will be implemented in total, less the requirement to perform bench rigging per updated specification requirements for for OV-104, Flight 27 and subsequent OV-104 flights until such time that all MPMs can be removed and bench rigging can be performed.	OV-104, Flight 27 thru OV-104, Flight 999	STAYS OPEN
339	S063652	07/09/07	The following requirement is waived to allow OV-104 to ferry from DFRC to KSC with the following out-of-configuration condition: Retain RH ET Camera installation for ferry flight MECSLSI V072-200197, reference flag note (3), removes (MV0456A) M072-705001-024 RH ET Sep Camera (Digital Camera with 35 mm lens) for ferry flight. The RH ET Camera needs to remain in flight configuration to support resolution of IFA STS-117-V07 Digital Umbilical Camera Image Corruption. Troubleshooting will be performed on the installed hardware after returning OV-104 to KSC.	OV-104, Flight 28	

Prepared by: Jeff McRoberts
USA CM/CVAS
861-2505

ACTIVE WAIVERS FOR
OV-104

Item #	Authority	Date	Waiver Description	Effectivity	Wad
340	S063652	07/09/07	<p>The following requirement is waived to allow OV-104, Flight 28 to ferry with the following out-of-configuration conditions:</p> <p>Remove LH OMS Pod LP04 (FIB) blankets prior to ferry flight thermal blanket V070-396376-241 on LOMS Pod lifted at forward leading corner and edges reported on orbit, IFA STS-117-V-02. Two blankets (V070-396376-241 and adjacent V070-396376-051) are removed. RTV ramp applied in cavity up to adjacent blankets per TLP04-28-2520 MRB approval.</p>	OV-104, Flight 28	
343	S115122GR4	12/07/2007	<p>The following requirement is waived to allow OV-104 to fly with the following out-of-configuration condition:</p> <p>Partial installation of Tech Order M072-660010-004, middeck air flow re-routing duct tech order, not to include one each bolt (NAS1003-8A) and one each washer (NAS620C10) in the lower aft corner of the vent housing cover assembly.</p> <p>During vertical stowage, the nut plate (not under USA Tech Order configuration control) was noted missing from behind the starboard closeout panel. Without the nutplate, the bolt and washer cannot be installed. The area cannot be currently accessed to reinstall the missing hardware.</p>	OV-104, Flight 29	ECL-4-A0118 (was ECL-4-29-1637)

ACTIVE WAIVERS FOR
OV-104

Item #	Authority	Date	Waiver Description	Effectivity	Wad
344	S071024MP	12/20/07	<p>During maintenance of an Advanced Master Events Controller (AMEC) it was discovered that the module cards are able to translate upward, away from connectors. The cards are retained by friction applied by wedge-locks. An assessment determined a 0.070 upward card translation, would result in card disengagement from connectors. The wedge-lock system can not assure the cards will not translate upwards. The AMEC vendor (Boeing Autonetics) is no longer on contract supporting SSP. A design proposal is to provide a secondary connector retention using the AMEC covers. The new design new lids will limit the upward translation to 0.055. The new design will reduce the milled section of the cover and add silicone pads to provide shock absorption. Due to the absence of the original vendor and no current alternate drawings available for the AMEC the modification is being requested via a program directed Material Review (MR).</p> <p>P/N MC450-0016-0029</p> <p>S/N U6F0002, U6F0003, U6F0004, U6F0006, U6F0007, U6F0009, U6F0010 and U6F0011</p> <p>***** SEE NSTS 07700 VOLUME IV BOOK 2 FOR COMPLETE DETAILS *****</p>	OV-103, Flight 35 OV-104, Flight 30 OV-105, Flight 21	

VEHICLE LIMITED LIFE STATUS REPORT

PRELIMINARY SUBMITTED 03/10/2009

NO.	SYS	REQT / PART DESC / PART NO	TOP / SEPAR	ANTICIPATED ACTION	CONSTR	ELE
1	PYRO	C00AA0.010.066 WINDOW #8 MC325-0027-0007 LOT WAC	CERT SHEET TC08-098	REMOVE/REPLACE/RECERT	2	O
2	PYRO	C00AA0.010.066A X-CORD 51988-1 LOT WAE	CERT SHEET TC08-097	REMOVE/REPLACE/RECERT	2	O
3	PYRO	C00AA0.010.124 CREW ESCAPE CART. ASSY SKD26100123-201 LOT NWA	CERT SHEET TC08-104	REMOVE/REPLACE/RECERT	2	O
4	PYRO	C00AA0.010.135 REEFING LINE CUTTER SED26139100-701 LOT PCA	CERT SHEET TC08-100	REMOVE/REPLACE/RECERT	2	O
5	RCS	C00AA0.070.001 RELIEF VALVE MC284-0421-0012	V1181 SEPAR-TBD	TEST	2	O
6	RCS	C00AA0.070.004/.005 HE REG. OXID/FUEL MC284-0418-00XX	V1181 SEPAR-TBD	TEST	2	O
7	OMS	C00AA0.080.001 RELIEF VALVE MC284-0421-00XX	V1180VL2/3 SEPAR-TBD	TEST	2	O
8	OMS	C00AA0.080.002 GN2 RELIEF VLV RV001 1186804-39	SEPAR - TC08-055 TBD	REFURB/REPLACE	2	O
9	OMS	C00AA0.080.003C HE PRESS REG OXID 73P620002-1003	V1180VL2/3 SEPAR-TBD	TEST	2	O
10	OMS	C00AA0.080.009 VALVE, HI PRESS ISO 73A620101-1003	V1180VL2/3 SEPAR-TBD	TEST	2	O
11	APU	C00AA0.090.020, 022 & 024 CONTROLLER APU #1 - 3 MC201-0001-1005	SEPAR - TBD V1019	RETEST/RECERT	2	O

Constraints

1=ET/SRB MATE 3=VAB ROLL
2=OPF ROLL 4=LAUNCH

Elements

O=ORBITER
M=MISSION EQUIP.

VEHICLE LIMITED LIFE STATUS REPORT

PRELIMINARY SUBMITTED 03/10/2009

12	APU	C00AA0.090.026, 028 & 030 HEATERS & THERMOSTATS APU #1 - 3 MC363-002X	SEPAR - TBD V1019	RETEST/RECERT	2	O
13	APU	C00AA0.090.032, 034 & 036 FUEL ISOLATION VALVE APU #1 - 3 V070-465238-00X	SEPAR - TBD V1019	RETEST/RECERT	2	O
14	PYRO	C00AA0.110.032 NASA STANDARD DET. SEB26100094-201	V5032.004 V5029.001	REMOVE/INSTALL	2	O
15	PYRO	C00AA0.110.033 CARTRIDGE SKD26100098-301	V5032.004 V5127	REMOVE/INSTALL	2	O
16	PYRO	C00AA0.110.034 AFT ATTACH BSTR CART. SKD26100099-401	V5032.004 V5029.001	REMOVE/INSTALL	4	O
17	PYRO	C00AA0.110.035 NLG THRUSTER CART. SKD26100100-301	V5032.004 V5127	REMOVE/INSTALL	2	O
18	PYRO	C00AA0.110.039 COMMON PRESS CART. SKD26100105-301 LOT HHC	CERT SHEET TC08-102	REMOVE/REPLACE/RECERT	2	O
19	PYRO	C00AA0.110.043 GAS PRESS CTG. SEB26100001-25X	V5056	INSTALL	4	O
20	PYRO	C00AA0.115.001 GAS SAMPLER BATTERY SED33101116-321	V5012.001 V5029.004	REMOVE/INSTALL	4	O
21	INS	C00AA0.140.004 MADS TAPE RECORDER ME435-0055-0003 THRU 0005	S0007 V1200 V1248	TEST	4	O
22	COM	C00AA0.160.001 GPS RECEIVER (GPS MAGR'S) MC478-0153-0001	V5A71 SEPAR-TBD	R/R BATTERIES EVERY 12 MONTHS	4	O

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23	MEQLG	C00AB0.010.003 NLG TIRE MC194-0007-0006 (2)	V1165.003 V1165.004	REMOVE/INSTALL	2	O
24	MEQLG	C00AB0.010.004 MLG TIE BOLTS & NUTS MC621-0051-0038 (4 WHEELS)	V1165.001 V1165.002	REMOVE/INSTALL	2	O
25	MEQLG	C00AB0.010.005 MAIN WHEEL ASSEMBLY MC621-0051-0038 (4)	V1165.001 V1165.002	REMOVE/INSTALL	2	O
26	MEQLG	C00AB0.010.006 NOSE WHEEL ASSEMBLY MC621-0050-0004 (2)	V1165.003 V1165.004	REMOVE/INSTALL	2	O
27	MEQ-ST	C00AB0.070.101 -Z START TRACKER DOOR/PANEL V070-591402-004	SEPAR-TBD	PERFORM INSPECTION OF PANEL SEAL SURFACE - (REFURBISH)	2	O
28	MEQ-ST	C00AB0.070.102 -Y START TRACKER DOOR/PANEL V070-591403-004	SEPAR-TBD	PERFORM INSPECTION OF PANEL SEAL SURFACE - (REFURBISH)	2	O
29	ODS	C00AB0.075.001 APDS OUTER SEAL MC621-0087-6001	TBD TC07-092	REMOVE/REPLACE SEALS	4	O
30	ODS	C00AB0.075.002 APDS INNER SEAL MC621-0087-6001	TBD TC07-092	REMOVE/REPLACE SEALS	4	O
31	PLM	C00AB0.160.020A VIDEOSPECTION CAMERA ASSY SED39125120-310	TPS-TBD	REMOVE/REFURB/INSTALL	4	O
32	INS-MW	C00AB0.160.021 MICRO-WIS SGU ASSY IVC911001-301	TBD SEPAR - TC08-016	REMOVE/REPLACE	2	O
33	TPS	C00AB0.170.001 RCC ARROWHEAD PLATE MC621-0007-7009	V5139.001 V5139.002	REMOVE/INSTALL	2	O

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34	TPS	C00AB0.170.002 RCC ARROWHEAD PLATE MC621-0007-7010	V5139.001 V5139.002	REMOVE/INSTALL	2	O
35	STR	C00AB0.180.527A LOWER GAP SEAL INSULATOR V070-199843-002	SEPAR - TC07-013 EXCEPTION - EK10575R1	REMOVE/REPLACE	2	O
36	ECLSS	C00AB0.230.100 AVIONICS BAY FIRE EXTINGUISHERS MC282-0065-0001	SEPAR - TBD V1042.002	RECERT/VERIFY WEIGHT	2	O
37	PYRO	C00AD0.030.009 SPHERICAL BEARING ASSY V070-562036-002	V5032.004 V5127	REMOVE/INSTALL	2	O
38	PYRO	C00AD0.030.012 PYRO CENTERING MECHANISM SKD26100098-501	V5032.004 V5127	REMOVE/INSTALL	2	O
39	PLM	JSC24937.30 PORTABLE FOOT RESTRAINT ASSY SED33105308-307	SEPAR - TC08-083 TPS-TBD	REMOVE/REFURBISH/INSTALL	2	M
40	PLM	JSC24937.36 HIGH-STRENGTH BRIDGE CLAMP FITTING SED33107177-305	SEPAR - TC08-084 TPS-TBD	REMOVE/REFURBISH	2	M
41	PLM	JSC24937.45 EVA SLIDEWIRE SUBASSY SED33103377-311	SEPAR - TC08-081 TPS-TBD	REMOVE/REFURBISH	2	M
42	PLM	JSC24937.53 ERCM SAFETY TETHER (2) SED33105087-315	SEPAR - TC08-082 TPS-TBD	REMOVE/REFURBISH/INSTALL	2	M
43	FCS	JSC24937.56 EMER EGRESS SLIDE SYS MC623-0015-0023	TPS-TBD	REMOVE/INSTALL	4	M
44	PVD	V05AA0.030/050 WCCS CHECK VALVES ME284-0438-X113	SEPAR - TBD V1076.XXX	REMOVE/REPLACE	2	O

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45	ECLSS	V61AIL.010-C LIOH CANNISTER MC621-0008-0409	TPS-TBD	INSTALL AT PAD	4	O
46	ECLSS	V61AIL.015-C HYDRAZINE (CO RMVL CART.) MC621-0008-0060	TPS-TBD	INSTALL AT PAD	4	O
47	ECLSS	V61AIL.016-C ATCO CARTRIDGE MC250-0024-0001	TPS-TBD	INSTALL AT PAD	4	O
48	ECLSS	V61AJ0.141 PPO2 SENSOR MC250-0002-3165	V1053.010	RECALIBRATE SENSORS AT PAD	4	O
49	FCP	V62AF0.060 MICROBIAL CHECK VALVE (FLOOR) SED42100926-306	V1055.022 TC08-087	REMOVE/REFURBISH/REINSTALL	2	O
50	FCS	V66AIL.060 POLE CREW ESCAPE SYS ASSY SED27101375-322	TPS-TBD	REMOVE/INSTALL	4	M
51	COM	V74AD0.130 MSBLS RF #1, 2 & 3 MC409-0017-0007	OMI-TBD SEPAR-TBD	PERFORM 15 MINUTE TEST	4	O

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