

STS-122 Integrated Launch Site Flow Review

Presenter

Stephen Reilly

Date

05-24-07

Program Freeze Point

PRCB Presentation

S115122G

STS-122 Integrated Launch Site Flow Review

Presenter
Stephen Reilly

Date
05-24-07

Baseline the STS-122 Mission Specific Requirements and Flow Plans.

The STS-122 Integrated Launch Site Requirements were established by PRCBD S042013GH. This CR and the Associated Data Package were reviewed at the 05-21-07 FRWG.

KSC Integration*

MK-SIO

Orbiter Engineering*

Requesting Approval

USA-OE

SSME

Requesting Approval

MP21

Shuttle Processing*

PH-B2

Status in BackUp

Flight Integration

MO3/USA-PI

Flight Software

USA-FSW

GFE FCE/EVA

MV5/XA

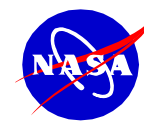
Payload/Cargo Engineering

USA-PI

ISS/Payload Operations

UB-N

*BackUp Material



STS-122 LAUNCH SITE FLOW REVIEW

Presenter Ken Nowak
Date MAY 24, 2007

LAUNCH

12/06/07
 39A/ MLP1
 CREW SIZE: 7 UP/7 DN

ORBIT

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

CONFIGURATION

OV-104 (29)
 LP04;RP01
 ET-125
 BI-132
 RSRM-99
CURRENT: (1) 2059 (2) 2052 (3) 2056
PROPOSED: (1) 2059 (2) 2052 (3) 2057
 OI-32
 RMS,ODS,OBSS

CONSUMABLES

CRYO TANK SETS	5 (FULL)
GN2 TANKS	5 (FULL)
FWD RCS	1912# (2446# FULL)
AFT RCS	4970# (FULL)
OMS	22760#

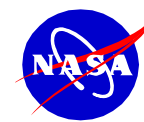
PAYLOAD

ISS 1E (COLUMBUS)	ISS 1E MAUI
ICC-LITE	
EC SH, PDGF	

LANDING

SITE	KSC
TAL	ZARAGOZA
ALT. TAL	MORON & ISTRES
SCA	905

FDRD UPDATE REQUIRED TO CHANGE SSME'S



STS-122 LAUNCH SITE FLOW REVIEW

Presenter Ken Nowak
Date MAY 24, 2007

PERFORMANCE MARGIN

• SIMULATION MARGIN (CIRAF122)		+2048
• WEIGHT CHANGES SINCE SIMULATION		
• PAYLOAD	-1048	
• OPERATOR	-221	
• ORBITER	-564	
• NPC	+209	
• CREW COMPARTMENT	+728	
• OMS	-71	
• MPS PROP (NOT INERT)	-93	
• ET	+9	
• ROUND OFF DEVIATION	+1	
TOTAL WEIGHT CHANGES	-1050	+1050
• OTHER PERFORMANCE PROJECTIONS		
• PROTECTION FOR DOL DISPERSIONS		-700
• 12/06/07 LAUNCH DATE (PMBT&ATMOS)		-560
• PARTIAL PROJ FOR MPS BGT GEN 0701S		+7
• OMS ASSIST UPDATE FOR COPV		-105
• SRB – M/P UPDATES		-70
• SRB BR / 1.00 MIL HIGHER THAN 0.3705 AVG		+200
• ISP/THST FOR ENG SET 2059, 2052, 2056		-263
• PROJ TO 5 MIN WINDOW FROM INPLANE		-600
• PERFORMANCE CHANGES ADJUSTMENT		-72
• CURRENT BASELINED APM (05/22/07)		+935
• PROPOSED ENGINE SET (2059, 2052, 2057)		+106
• PROJECTED APM		+1041



STS-122 LAUNCH SITE FLOW REVIEW

Presenter
Ken Nowak

Date
MAY 24, 2007

FLIGHT MASS PROPERTIES

CASE	TOUCHDOWN		MACH 3.5	
	WEIGHT pounds (LIMIT)		X C.G. inches (LIMIT)	
NOMINAL	205806	(233000)	1077.1	(1075.7)
RTLS	239198	(245000)	1080.4	(1077.2)
TAL	237775	(244000)	1080.4	(1077.2)
AOA	234061	(242000)	1078.0	(1075.7)
CONT RTRN**	235468	(233000)	1079.9	(1075.7)

**Contingency Return case exceeds 233K NEOM weight limit. (See Vol. X Bk.1 Sec. 3.3.1.1.9)

NOTE: RTLS: 185 SEC ARCS, 25 SEC FRCS DUMPS
 TAL: 120 SEC ARCS, 65 SEC FRCS DUMPS
 102 LBS. AFT FUS BALLAST (EMPTY BOXES)

ESTIMATES BASED ON CIRAF122 AND MODIFIED FOR WEIGHT CHANGES THRU 05/22/07.

STS-122 LSFR OV-104 FLIGHT 29 CONFIGURATION UPDATES PRCB

**Joe Rodriguez
USA Orbiter Element**

May 24, 2007



5-24-07

Page 6 of 100



STS-122 OV-104 Flight 29 – LSFR Updates

Program Authorization Is Requested For The Following:

- Baseline six (6) Orbiter modifications
- Baseline two (2) mission equipment modifications
- Authorize three (3) mission equipment engineering records

Information Only:

- 1 potential modification under review
- 1 modification authorized by separate CR
- OPF processing requirements
 - Chits, RCNs

Back-up:

- Modification details

STS-122 OV-104 Flight 29 – Modifications To Be Baselined

MCR 11620 – ECLSS Air Duct Bracket / Clamp Installation

- Completes per print duct assembly by installing a shim to eliminate a gap between the duct and a support bracket
 - Existing bracket could not be removed with the MO10W panel installed
 - Thicker duct insulation and a larger clamp were installed by MR and remaining work was deferred to next removal of the panel (ref. PRCBD S115121N)

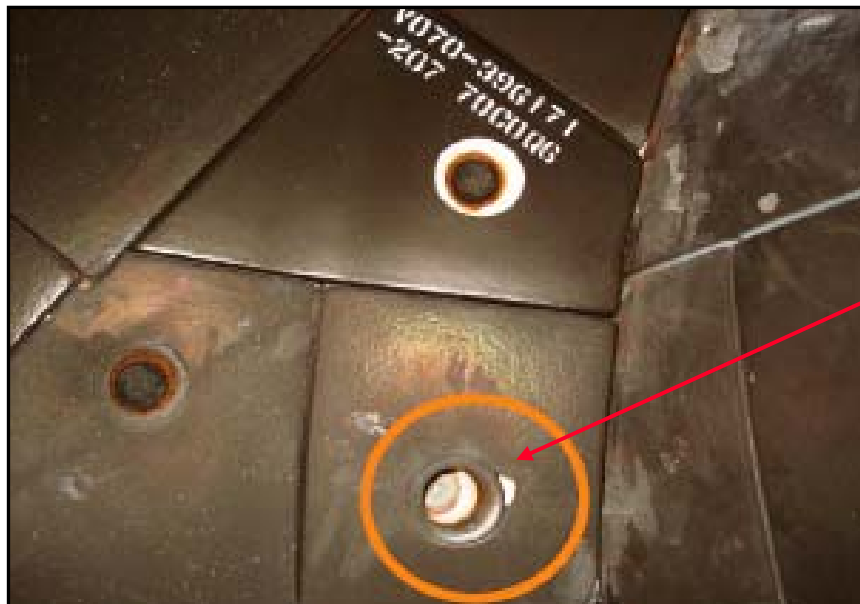
TAD 30005 – Arrowhead Blanket Sleeving Rework

- Adds a requirement to tie-off the blanket sleeve sub-assembly stitches at one inch intervals to minimize future sleeving protrusion (ref. IFA STS-116-V-06)
 - Paper verification only for OV-104 – implemented by MR for STS-117

STS-122 OV-104 Flight 29 – Modifications To Be Baselined (Cont.)

TAD 30005 – Oversize FRSI Plugs On OMS Pod Forward Edges

- Replaces FRSI plugs with oversize plugs in six tiles on the composite carrier panels on the forward edges of each OMS pod to reduce the likelihood of the plugs becoming dislodged during flight
 - The carrier panel can be exposed to temperatures above their material limits if the FRSI plugs are inadvertently released



Missing Plug on RH OMS Pod

STS-122 OV-104 Flight 29 – Modifications To Be Baselined (Cont.)

TAD 30005 – Bond FRSI Plugs On Emergency Egress Access Door TPS Carrier Panel

- RTV bonding of the four FRSI plugs in place as part of their installation into the TPS panel (ref. PR FWD-4-28-6522)
 - The change does not affect ground crew rescue procedures
 - Paper verification only for OV-104 – implemented by MR for STS-117



Locations of Modified FRSI Plugs

TPS Panel

Plunger (Deploys Access Door)

STS-122 OV-104 Flight 29 – Modifications To Be Baselined (Cont.)

TAD 30005 – OMS Pod Ceramic Inserts Replacement With Bonded FRSI Plugs

- Eliminates ceramic inserts in the forward areas of the OMS pods in order to reduce the risk of the inserts becoming a debris source during flight
 - Replaces inserts with bonded FRSI plugs in 20 tiles on each side of the vehicle at the forward edge interface and the forward/outboard corner of each OMS pod
 - Tiles are installed on carrier panels that are rarely removed as part of normal OPF flow operations

TAD 30070 – ECO Point Sensor System Wire Separation

- Implementation of hardware changes to mitigate critical wire redundancy separation violation
 - Installs in-line resistors to the return lines for each of the LH2 and LO2 ECO sensor circuits (8 total) to completely isolate the instrumentation circuit from the sensor circuit
 - Physically separates the ECO 1 sensor wiring from the ECO 2 wiring and the ECO 3 sensor wiring from the ECO 4 wiring (both LO2 and LH2 circuits)
 - Installs arc-track protection barrier material where physical separation is not possible

STS-122 OV-104 Flight 29 – Mission Equipment Modifications

MCR 19586 – Airlock Muffler Foam Insulation Replacement

- Replaces the foam insulation material inside the airlock muffler
 - The foam material has a ten year limited age life that expires 10/9/2007

GFE – IBA Thermal Isolation Washers Inspection And Rework

- Adds a requirement to chamfer thermal isolation washers to reduce the probability of the washers being damaged during grapple fixture installation/removal
 - The washers located between the grapple fixture and the adapter plates on the IBA forward and mid transitions can be chipped by the threads of the grapple fixture EVA bolts
 - The inner diameter of the washers will be inspected on the top surface and modified to add a chamfer

STS-122 OV-104 Flight 29 - Mission Kit Record / Tech Order Changes To Be Authorized

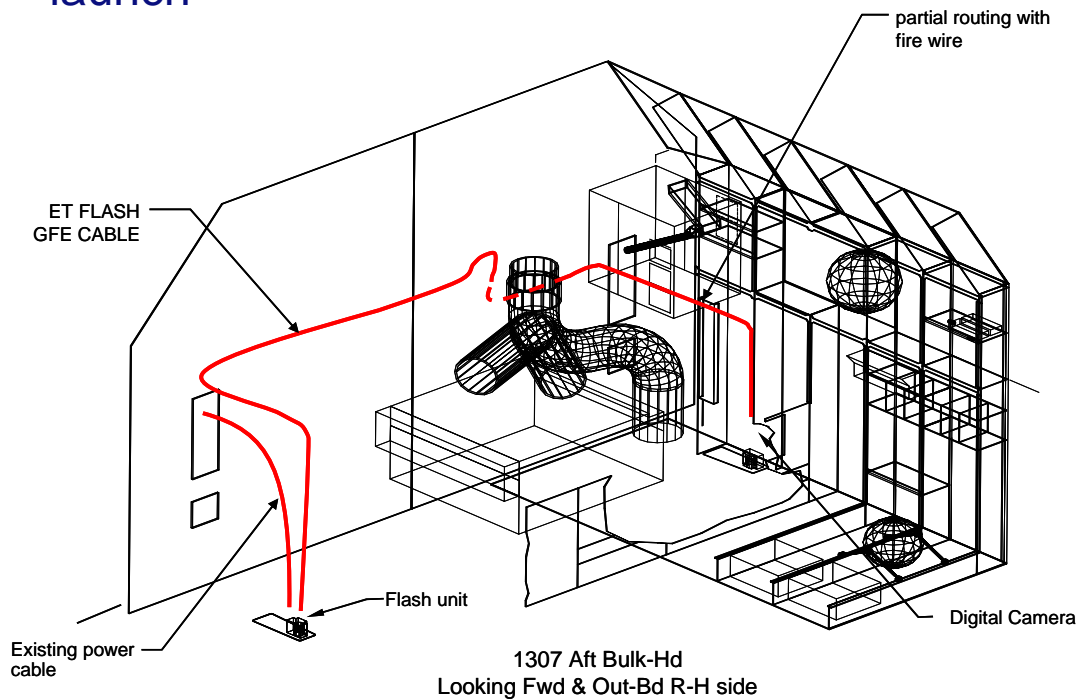
MCR 17222 – Camera PTU And Illuminator Fastener Change

- Authorization is requested for mission equipment engineering drawing updates associated with tech order changes presented at LSRR
 - Modification increases the strength of the pan-tilt unit (PTU) of the four payload bay bulkhead cameras, the OBSS Sensor Package 1, the RMS Elbow camera PTU and the RMS Wrist Camera fasteners in the CTVC Illuminator Assembly
 - Fastener change will eliminate the current negative margin of safety for yielding and associated waivers
- Affected mission equipment engineering drawings:
 - PLB Bulkhead CCTV Camera Assembly (MV00548A)
 - RMS End Item (MV0082A)
 - OBSS End Item (MV0092A)
- Modification record and tech order dash number details in back-up
- MECSLSI update is scheduled for release on 5/30/07

STS-122 OV-104 Flight 29 – Potential Modification

TAD 30001 – ET Umbilical Camera Flash Installation (Sync Cable and Flash)

- Installs flash unit in the LH ET umbilical well with data cable routed to the digital camera in the RH umbilical well
 - Flash unit replaces one of two LH 16mm cameras to provide supplemental light to illuminate the external tank (ET) for imagery during separation
 - Flash will fill in shadow areas during daylight and provide illumination for night launch



Orbiter Wiring Installation Concept

STS-122 OV-104 Flight 29 – Information Only

MCR 18985 – MO10W Panel - N2 and O2 Mass Flow Sensor Development / Qualification

- Installs upgraded MO10W panel with redesigned N2 & O2 flow sensors
 - Sensors were redesigned due to a high failure rate of the previous sensors (zero spares)
 - The upgraded panel (S/N 005) was delivered to KSC 03/07
 - Implementation authorized by attrition PRCBD S086425FN

Chits

CHIT	TITLE
J5765	WSB POST FLIGHT TANK OFFLOAD QUANTITY
J5881A	LOWER LESS ACCESS CARRIER PANEL POST FLIGHT TORQUE CHECK VERIFICATION
J5919B	O-GAUGE PROTECTION FOR OV-103 FLIGHT 32-35 AND OV-104 FLIGHT 27-30
J5926	OV-104 BODY FLAP (BF) POWER DRIVE UNIT (PDU) GEARBOX FLUID LEVEL
J5930CR1	ORBITER STRUCTURE IML SURFACE CORROSION SAMPLING INSPECTION
J6116	AMES GAP FILLER REMOVAL AND REPLACEMENT
J6154	POSTFLIGHT DAMAGE 3-D ACQUISITION
J6162	PERFORM MEASUREMENTS ON THE OBSS MPM SHOULDER AND X-GUIDE ON THE IBA
J6166	E/AMEC TIN WHISKER MITIGATION & SMIA NUT MOD COMPLETION FOR OV-104
J6187	ADTA #3 AND #4 RETROFIT FOR OV-104, FLT. 29
J6196	CERAMIC INSERT INSPECTION
J6198	OV-104 MID FUSELAGE LOCK BOLT OPPORTUNITY SAMPLING AND FASTENER REPLACEMENT
J6201	RJDF AND RJDA R/R FOR TIN WHISKERS
J6202	REMOVAL AND REPLACEMENT OF OV-104 WINDOWS THERMAL PANE 1 THROUGH 6
J6207	REMOVAL / REPLACEMENT OF OV-104 SYSTEMS 1, 2 & 3 WATER SPRAY BOILERS AGING
J6216	WLEIDS VOLTAGE REGULATOR CHECKOUT
J6204	POST FLIGHT AMES GAP FILLER VERIFICATION AND PULL TEST
J6221	REMOVAL AND REPLACEMENT OF OV-104 40" HELIUM TANKS
J6231	RADAR ALTIMETERS INSPECTION TO ASSESS TIN USAGE AND MITIGATION AS APPROPRIATE

RCNs Under Review – Potentials for STS-122

RCN	SUBJECT
OV17337R1	THRUSTER PC TUBE FLUSH
OV17367	V41 – LH2 12 IN FEEDLINE FLOW

Issues Under Review

Issues That Could Drive Significant Work Growth:

- COPV Review of MPS Midbody Helium Tanks
 - Chit J6221 requests removal of Tanks S/N 6 & 7 due to volume growth concern
 - Note: Tank locations 6 & 8 in the midbody
 - Disposition pending resolution of liner waviness observed during recent borescope inspections of other tanks



Atlantis STS-122

Launch Site Flow Review

Space Shuttle Main Engine

21 May 2007

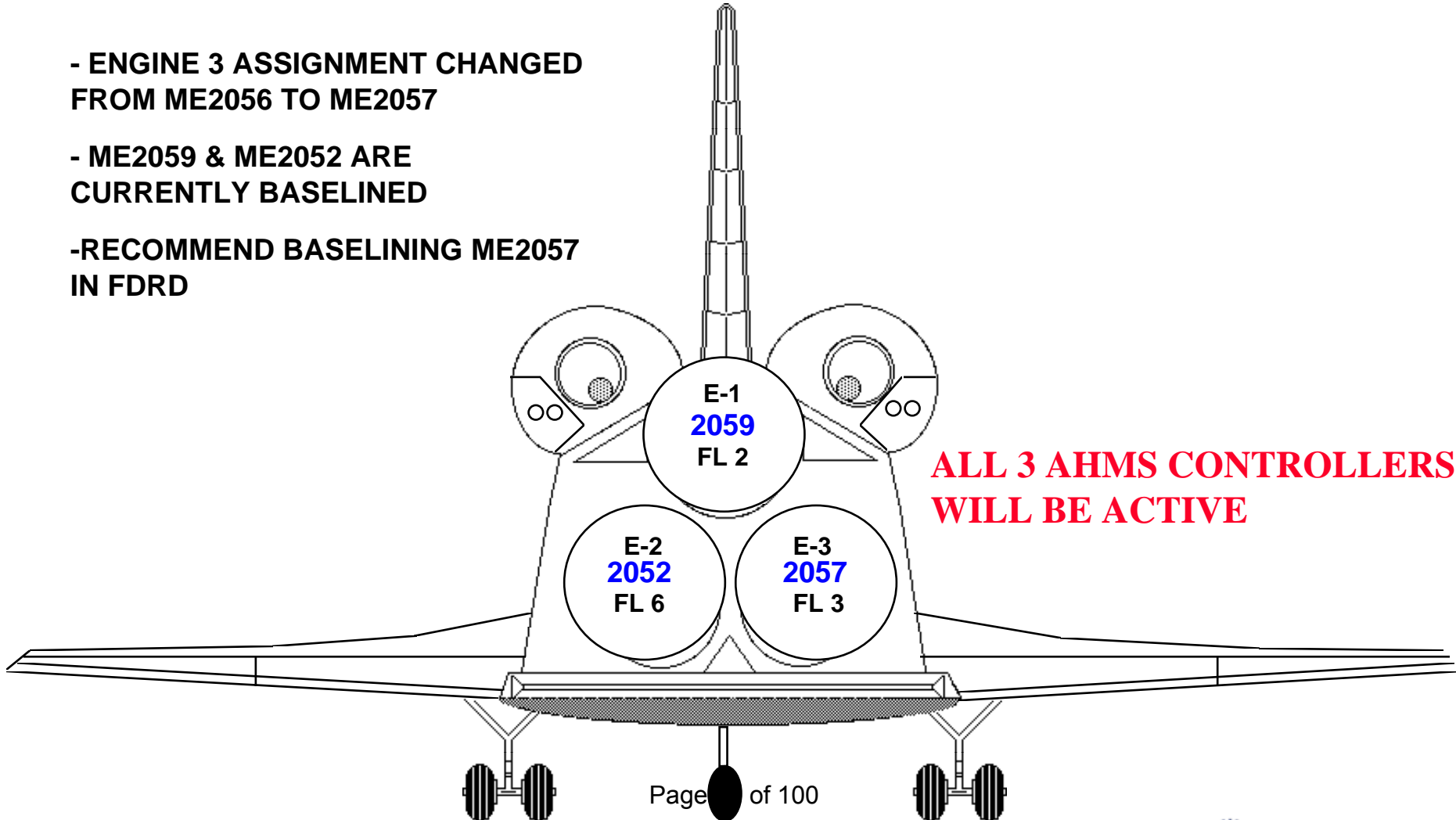
SSME- KSC
Greg Haile
(321) 861-4060



STS-122 Launch Site Flow Review

Engine Allocation/Location

- ENGINE 3 ASSIGNMENT CHANGED FROM ME2056 TO ME2057
- ME2059 & ME2052 ARE CURRENTLY BASELINED
- RECOMMEND BASELINING ME2057 IN FDRD



**ALL 3 AHMS CONTROLLERS
WILL BE ACTIVE**

KSC Launch and Landing Project

STS-122

Launch Site Flow Review

May 24, 2007



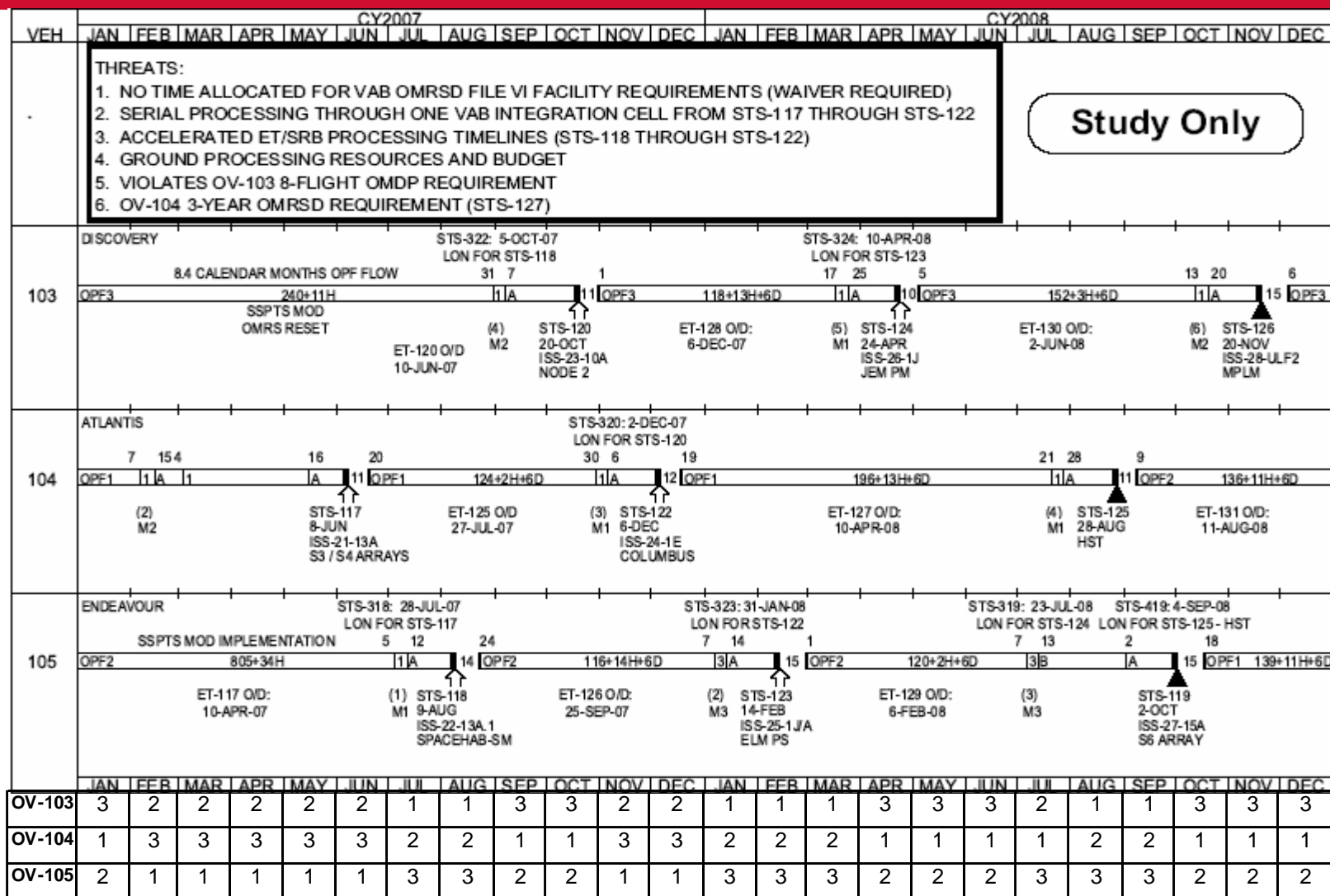


Multi Flow

A. Brewer



OPF Resource Summary 07A - 29, 2007 - 2008

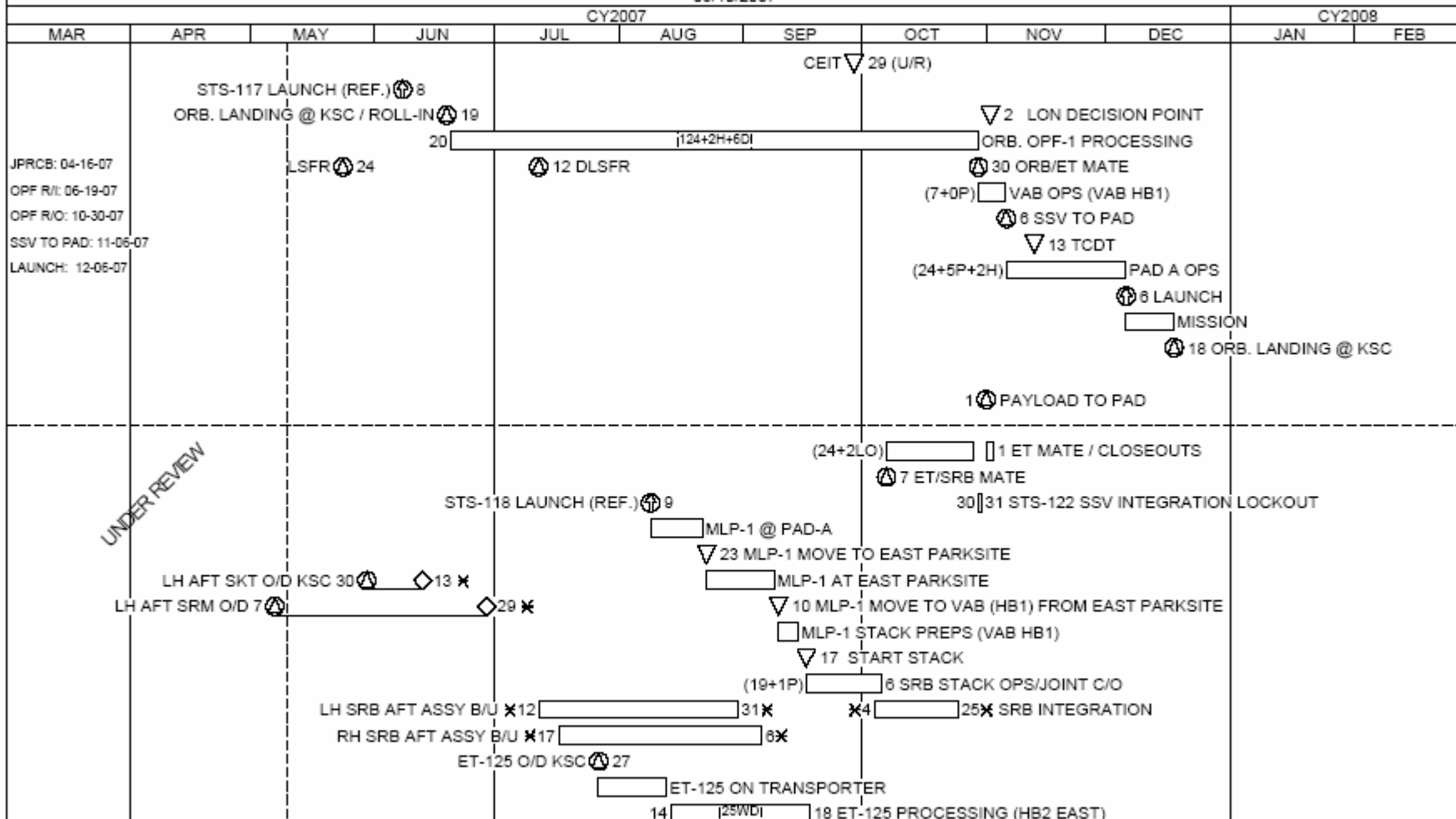


STS-122 KSC Milestone Interface Chart

OPR: USA - J. HAZELTON, INTEG. OPS.
NASA - S. FORD, PH-O

OV-104 /29 / ISS-24-1E / COLUMBUS
CREW / DURATION: 7 / 12
ET-125 / BI-132 / RSRM 99 / MLP-1 / PAD-A / VAB HB1

SSP APPROVED MANIFEST 04-16-07 (REF. CR #S042013GH)
Status as of:
05/10/2007



THREATS:
1. SRB STACKING
2. ET MATE & CLOSEOUTS

NOTES:
1. TWENTY-FOURTH ISS/SSP FLIGHT
2. ORB. REASSIGNMENT (FROM OV-103)

Flight Element Processing

M. Chappell



Flight Element Processing Overview

- **Significant Processing Deltas** **Presented**
- **Modification Summary** **Presented**
- **Chit Summary** **Presented**
- **OPF Flow Milestones** **Presented**
- **Issues and Concerns** **Presented**
- **TPS Work Content** **Presented**
- **Stoplight Chart** **Presented**
- **Integrated Operations Summary** **Presented**



Significant Processing Deltas

- Panel MO10W Replacement/Retest
- MPS GHe Tanks S/N #6 & 7 Replacement for COPV
- MPS PV-3 Insp./Potential Replacement
- Tin Whiskers Remediation (4 LRU's Planned)
- WSB #1 Removal for Aging Hardware Replacement
- MPS PD-4 Insp./Potential Replacement
- Windows # 1-6 Replacement
- ECO Sensor Wire Rework
- OMDP Reset Requirements (29 non-extendable req's)
- TPS Processing
 - BRI Tile Implementation
 - Ceramic Insert Inspections
 - Gap Filler Replacements
 - Elevon Cove/Columbium Seal Inspections



Modification Work Summary

Approved

- MCR-11620 WCS Duct Assembly Modification
- MCR-17222 WLE Voltage Regulator Mod
- MCR-17222 OBSS Aft Transition Socket Addition for EVA Worksite Interface Fixture (WIF)
- MCR-19810 AMEC/EMEC & SMIA Mounting Nuts
- MCR-23467 Modified Waste Collection System
- MCR-30005 Arrowhead Blanket Sleeving Rework
- TAD-30005 Oversize FRSI Plugs on OMS Pod Leading Edge
- TAD-30070 OMS Pod Ceramic Insert Replace with FRSI plugs
- MCR-19586 ECO Point Sensor System Wire Separation
- MCR-17222 Airlock Muffler Foam Insulation Replacement
- TAD-XXXX Camera PTU and Illuminator Fastener Change
- TAD-XXXX IBA Thermal Isolation Washers Insp & Rework



Modification Work Summary

Attrition

- MCR-19743 BRI-18 Tile MLG Door
- MCR-19874 BRI-18 Tile NLG & Other Locations
- MCR-19735 WLE Spar “Sneak Flow” Protection
- MCR-19763 Lower WLE Carrier Panel Horse Collar G/F
- TAD-30005 OMS Pod Ceramic Insert Replace with FRSI plugs
- MCR-18985 Panel MO10W Replacement/Upgrade

Potential

- TAD-30001 ET Umbilical Camera Flash Wiring



Chits Work Summary

<u>Chit</u>	<u>Title</u>
J5765	WSB Post Flight Tank Offload Quantity
J5881/A	Lower LESS Access Carrier Panel Post Flt Torque Check Verification
J5919B	O-Gauge Wire Protection
J5926	Body Flap Power Drive Unit Gearbox Fluid Level
J5930CR1	Orbiter Structure IML Surface Corrosion Sampling Inspection
J6116	Ames Gap Filler R&R
J6154	Post Flight Damage 3-D Acquisition
J6162	Perform Measurements on OBSS MPM Shoulder & X-Guide on IBA
J6166	E-AMEC Tin Whisker Mitigation & SIMA Nut Mod Completion
J6187	ADTA #3 & #4 Retrofit
J6196	Ceramic Insert Inspection
J6198	Mid Fuselage Lockbolt Opportunity Sampling & Fastener Replacement
J6201	RJDA #2 and RJDF #1 R&R
J6202	R&R Windows Thermal Panes 1-6
J6204	Post Flight Ames Gap Filler Verification & Pull Testing
J6207	WSB #1/2/3 Component Replacement
J6216	WLE VBR Installation
J6221	R/R MPS Helium Tanks for COPV
J6231	Radar Altimeter Inspections for Tin Whiskers

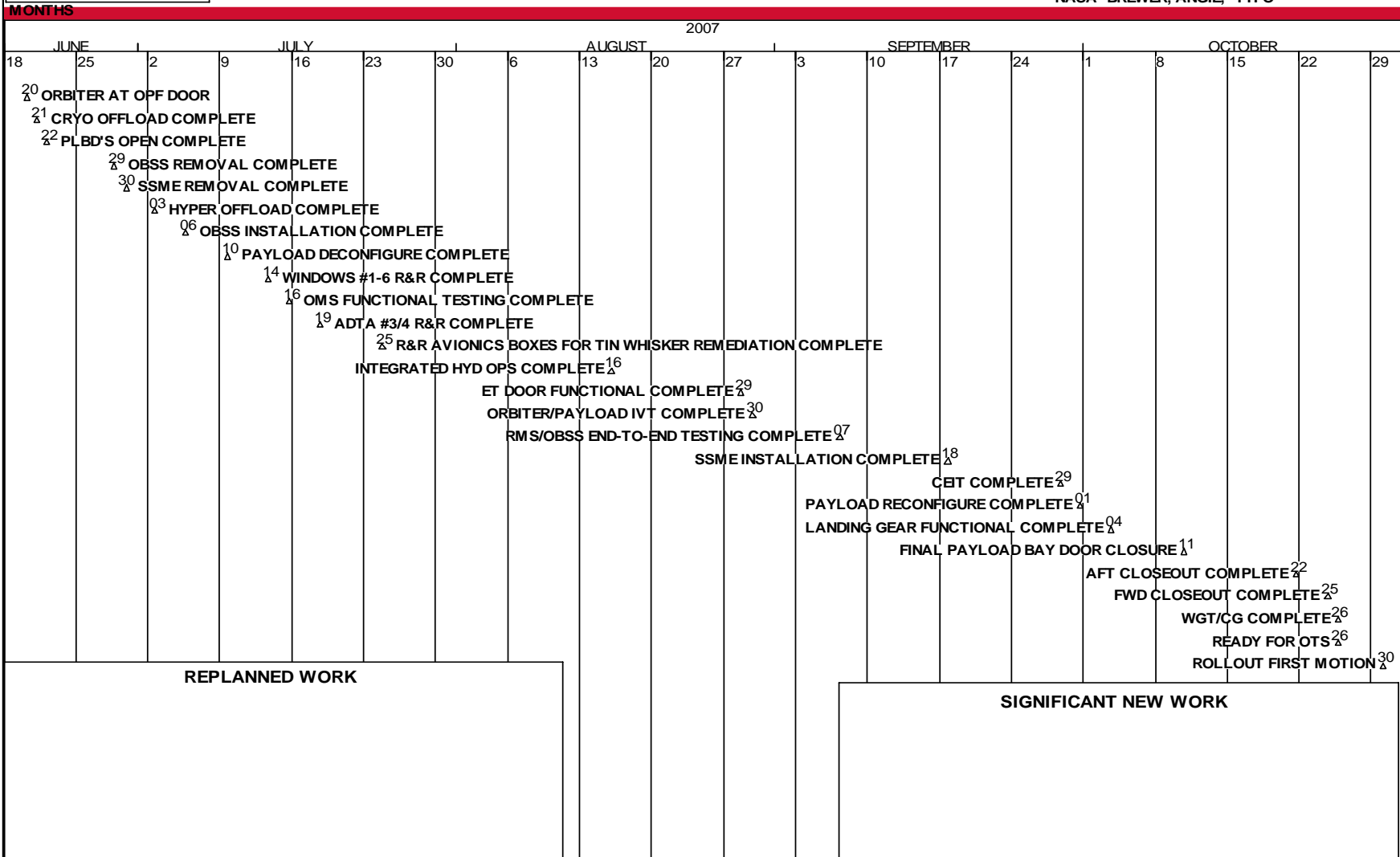


STATUS	
USA	NASA
C	C
C=Concur	NC=Not-concur

**STS-122 / OV-104
OPF FLOW MILESTONES**

CONTACT : MIKE CHAPPELL 1-5837
 CREATION DATE : 13 FEB 2006
 REVISION DATE : 21 MAY 2007
 REVISION : A

OPR : USA-CHAPPELL, MIKE, FM
 NASA- BREWER, ANGIE, PH-O



\\mini_projects\mike chappell\STS120104MS.ARP

NOT ON WEBSITE

PRODUCTION CONTROL 1-0544 & 1-8318



Issues and Concerns

- **High Work Content/Growth**
 - MPS Tanks, Panel MO10W, MPS PV-3/PD-4, WSB & ECO Sensor Wire Rework
 - IFA'S
 - IPR'S
 - TPS Work Content/Growth
- **Tin Whiskers Box R/R Could result in Coldplate Damage / Removal**
 - Extended Orbiter Power Down Required for Coldplate R/R
- **DFRC Landing**



TPS Work Content

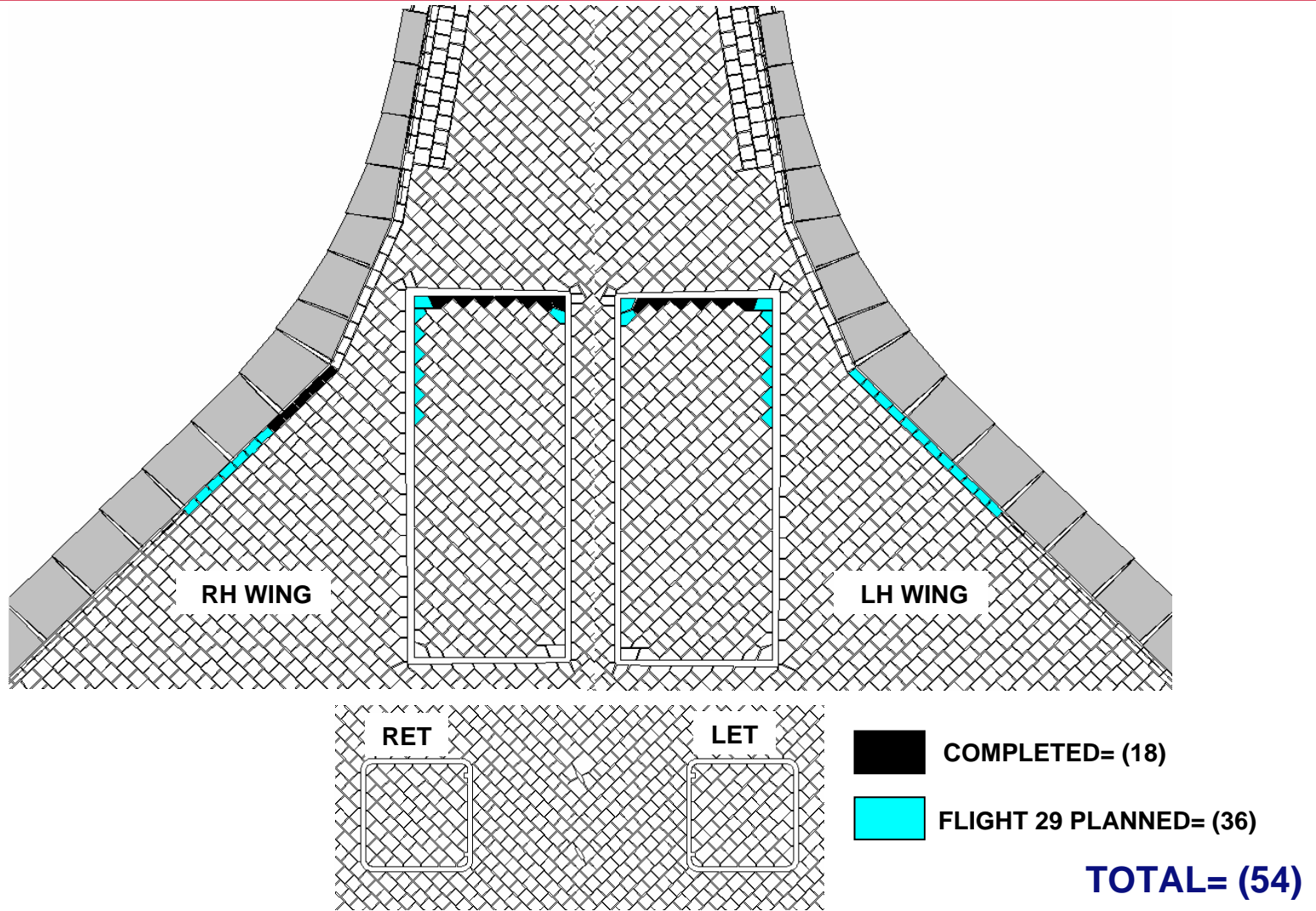
Planned Projected TPS Removals

• Deferred Tile/ Fib For 1 Flight (Minimum)	20
• In-flight Tile/Blanket Damage (Estimate)	80
• Operational Damage (Estimate)	15
• Insert/Gap Filler Replacements - Result in Tile R/R	3
• BRI Tile Implementation	
– MLG Door (Priority 1-3)	17
– ET Doors (Priority 4)	0
– LESS C/P's (Priority 5)	19
– Window C/P's	0
– NLG Door	0
– Additional Priority 6 & 7 (Attrition)	0
• Projected TPS Removals TOTAL	154

NOTE: Final TPS Work Content Will Be Baselined After Post Flt Assessment



BRI Tile OV-104 Flight 29



STS-122/OV-104 Ground Ops Processing

Overall to Launch Window Opening Y →		Milestones (07A-29)															
Critical Path: STS-120 SSV Rollout/ SRB Stack / ET-SRB Ops	Schedule		Milestones	Date	Status												
	INTEGRATED		LAUNCH	12/6/07	G												
	OPF		ORBITER ROLL OVER	10/30/07	G												
	ET/SRB INTEGRATED		ORBITER ROLL OVER	10/30/07	Y →												
	SRB STACKING		ET/SRB MATE	10/7/07	Y →												
ET STANDALONE		ET/SRB MATE	10/7/07	G													
ISSUES / CONCERNS / POTENTIALS / REMARKS																	
OPF		130 + 2H															
High Work Content	Y →	Panel MO10W, ECO Sensor, WSB, MPS Tank & BRI Tile															
POTENTIALS																	
MPS PD-4 & PV-3	U/R	Potential replacement															
IFA's	U/R	TBD															
SRB / ET																	
ET Standalone Ops	G	ET-125 on dock date of 7/27/07, ET mate 10/7															
SRB Stack and ET/SRB Integrated	Y →	Stack start 9/17, SRB & ET/SRB processing critical path to Orbiter Mate															
LON STS-326 (LON on OV-105)	LON	ET-126 on dock date of 9/25/07															
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <table border="0"> <tr> <td style="background-color: green; color: white; padding: 5px; text-align: center; width: 20px;">G</td> <td>No Significant Risk</td> </tr> <tr> <td style="background-color: yellow; padding: 5px; text-align: center;">Y</td> <td>Significant Risk Identified that Threatens a Program Milestone, Recoverable with Mitigation</td> </tr> <tr> <td style="background-color: lightblue; padding: 5px; text-align: center;">R</td> <td>Unachievable, Impact to a Program Milestone</td> </tr> </table> </div> <div style="width: 45%;"> <table border="0"> <tr> <td style="border: 1px solid gray; padding: 5px; text-align: center; width: 20px;">→</td> <td>Remains Unchanged</td> </tr> <tr> <td style="border: 1px solid gray; padding: 5px; text-align: center;">↑</td> <td>Improving</td> </tr> <tr> <td style="border: 1px solid gray; padding: 5px; text-align: center;">↓</td> <td>Deteriorating</td> </tr> </table> </div> </div>		G	No Significant Risk	Y	Significant Risk Identified that Threatens a Program Milestone, Recoverable with Mitigation	R	Unachievable, Impact to a Program Milestone	→	Remains Unchanged	↑	Improving	↓	Deteriorating				
G	No Significant Risk																
Y	Significant Risk Identified that Threatens a Program Milestone, Recoverable with Mitigation																
R	Unachievable, Impact to a Program Milestone																
→	Remains Unchanged																
↑	Improving																
↓	Deteriorating																



STS-122 Integrated Launch Site Flow Review

Presenter

Stephen Reilly

Date

05-24-07

Backup Material

FRWG Presentation (With Minor Changes)



STS-122 Launch Site Flow Review	Presenter MK-SIO / A. Swift	
	Date 5-24-07	Page 1

Mandatory RCNs:

OV17337R1

V42 - THRUSTER PC TUBE FLUSH

05/22/07 DPRCB

Non-Mandatory Value Added RCNs:

OV17367

V41 - LH2 12 IN FEEDLINE FLOW

05/18/07

BACKUP

- **Modification Record and MECSLSI Updates Summary**
- **Engineering, Hardware and Certification Status**
- **TAD 30005 OMS Pod Ceramic Inserts**
- **BRI – 18 Implementation Plans**

Modification Records and MECSLSI Update Summary

MCR/ TAD NO.	TITLE	KIT / MOD RECORD & DESCRIPTION	TECH ORDER IMPACT	REMARKS
<u>Modifications To Be Baselined</u>				
11620	<u>ECLSS Air Duct Bracket/Clamp Installation</u> Installs shim to complete the portion of the WCS duct assembly modification deferred from OV-104 flight 27.	TCTIV6111620REF_0104_016 - Installs shim between the duct clamp and structure	No Tech Order Impact	No MECSLSI Impact
30005	<u>Arrowhead Blanket Sleeving Rework</u> Modifies sleeving sub-assembly on inboard attachment of the Arrowhead Blanket to tie-off stitches at one inch intervals.	TCTIV3930005REF_0104_0 - Modifies blanket sleeving to minimize future protrusions	No Tech Order Impact	No MECSLSI Impact
30005	<u>Install Oversize FRSI Plugs On OMS Pod Forward Edges</u> Installs oversize FRSI plugs into six tiles on composite carrier panels on the forward edges of each OMS Pod.	TCTIV3930005REF_0014_0 - Modifies the carrier panel to use oversize FRSI plugs (LP04) TCTIV3930005REF_0021_0 - Modifies the carrier panel to use oversize FRSI plugs (RP01)	No Tech Order Impact	No MECSLSI Impact
30005	<u>Bond FRSI Plugs On Emergency Egress Access Door TPS Carrier Panel</u> Bonds the four FRSI plugs in place following installation into the door TPS carrier panel.	TCTIV3930005REF_0104_1 - Modifies blanket to reduce the likelihood of the FRSI plugs becoming dislodged during flight	No Tech Order Impact	No MECSLSI Impact
30005	<u>OMS Pod Ceramic Inserts Replacement With Bonded FRSI Plugs</u> Eliminates ceramic inserts in the forward areas of the OMS Pods.	TCTIV3930005REF_0104_2 - Replaces ceramic inserts in the fwd edge interface area SUB-EQ-30005.0014_0 - Replaces ceramic inserts in the fwd/outbd corner (LP04) SUB-EQ-30005.0021_0 - Replaces ceramic inserts in the fwd/outbd corner (RP01)	No Tech Order Impact	No MECSLSI Impact
30070	<u>ECO Point Sensor System Wire Separation</u> Implementation of hardware changes to mitigate critical wire redundancy separation violation.	030070_0104_0 - De-pins, caps and stows existing wiring, and routes new wiring for LH2 and LO2 sensor circuits	No Tech Order Impact	No MECSLSI Impact
<u>Mission Equipment Modifications To Be Baselined</u>				
19586	<u>Airlock Muffler Modification</u> Modifies the muffler assembly to replace a ten year limited age life foam insulation that is about to expire.	TCTIM6419586REF_0001_0 - Replaces the foam insulation material inside of the airlock muffler	No Tech Order Impact	No MECSLSI Impact
GFE	<u>IBA Thermal Isolation Washers Inspection And Rework</u> Modifies IBA grapple fixture adapter thermal isolation washers to prevent from being damaged during grapple fixture installation/removal operations.	TCTIMGFE0000REF_0000_5 - adds a chamfer to the inner diameter on the top surface of the washer	No Tech Order Impact	No MECSLSI Impact

Modification Records and MECSLSI Update Summary (Cont.)

MCR/ TAD NO.	TITLE	KIT / MOD RECORD & DESCRIPTION	TECH ORDER IMPACT	REMARKS
Mission Kit Record / Tech Order Changes to be Authorized				
17222	Camera PTU and Illuminator Fastener Change Modification to increase the strength of the pan-tilt unit (PTU) of the 4 payload bay bulkhead cameras, the RMS Elbow camera PTU, the OBSS Sensor Package 1 and the RMS Wrist Camera fasteners in the CTVC Illuminator Assembly. Fasteners change will eliminate the current negative margin of safety for yielding and associated waivers.	TCTIM0017222REF.0006.3 - End item update to V082-000002 for new GFE camera and illuminator part numbers 017222.0104.2 - Placeholder for end item updates to V548-000002 017222.0104.3 - Placeholder for end item updates to V092-000002	Bulkhead Cameras*: M072-750025 -076, -077, -078, -079 (is) -058, -067, -060, -061 (was) Model MV0548A OBSS Sensor Package 1: M072-710282-008 (is) M072-710282-001 (was) Model MV0092A RMS Elbow Camera*: M072-544504-007 (is) M072-544504-001 (was) Model MV0082A RMS Wrist Illuminator*: M072-544504-008 (is) M072-544504-003 (was) Model MV0082A	MECSLSI update was in place for STS-120 (Revision A), MECSLSI for STS-122 is scheduled for release on 5/30/07 * Actual camera configuration requirements are controlled by USA FCE CCTV options list drawing 528-21401
Potential Modifications				
30001	ET Umbilical Camera Flash Installation (Sync Cable and Flash Unit) Installs a flash unit in the LH ET Umbilical to provide supplemental light to illuminate the ET for imagery during separation.	TCTIV7930001REF.0104.0 - Installs a flash unit which will fill in shadow areas during daylight and provide illumination for night launch	Flash Unit: M072-705001-027 (is) M072-705001-017 (was) RH 35mm Camera: M072-705001-029 (is) M072-705001-024 (was) Model MV0456A	MECSLSI update will be required
Previously Approved Modifications				
19810	MEC SMIA Mounting Nuts Replaces five 4-40 MS35649-244 nuts used to mount the SMIA to the parent CCA with MS21043-04 nuts.	TCTIV7019810REF.0104.0 - Replaces mounting nuts with the smaller diameter nuts	No Tech Order Impact	No MECSLSI Impact
23467	Modified Waste Collector System Changes dual vane compactor material vendor, revises heat shrink to eliminate need for MUA and increase processing efficiency, changes silicone rubber type for gasket and o-ring seat material (original is no longer available), changes check valve lubricant to reduce cost, adds back shells to all fan separators to provide strain relief on wiring, provides new heel cups for the WCS foot restraint.	TCTIV6223467REF.0104.0 - Updates the WCS installation drawing	No Tech Order Impact	No MECSLSI Impact

Modification Records and MECSLSI Update Summary (Cont.)

MCR/ TAD NO.	TITLE	KIT / MOD RECORD & DESCRIPTION	TECH ORDER IMPACT	REMARKS
<u>Previously Approved Mission Requirements</u>				
17222	OBSS IBA Mod Modifies OBSS aft transition to add one socket for the EVA Worksite Interface Fixture (WIF).	TCTIM0017222REF.0002.0 - IBA mod tracking record	WIF Socket: M072-544506-003 (is) M072-544506-002 (was) Model MV0092A	MECSLSI Update Required
17222	Wing Leading Edge Voltage Regulator Mod Adds Voltage Boost Regulator (VBR) to WLEIDS to extend battery life at lower temperature.	TCTIM0017222REF.0004.4 - VBR mod tracking record	VBR: M072-756111 -005/LH (is); -003 (was) -006/RH (is); -004 (was) Model MV0886A	MECSLSI Update Required
<u>Information Only</u>				
18985	N2 & O2 Mass Flow Sensor Development/Qualification* Installs upgraded MO10W panel with redesigned N2 & O2 flow sensors.	INT-EO-18985_0104_0 - Provides interchangeability for N2O2 control panel	No Tech Order Impact	No MECSLSI Impact * Authorized separately by CR S086425FN

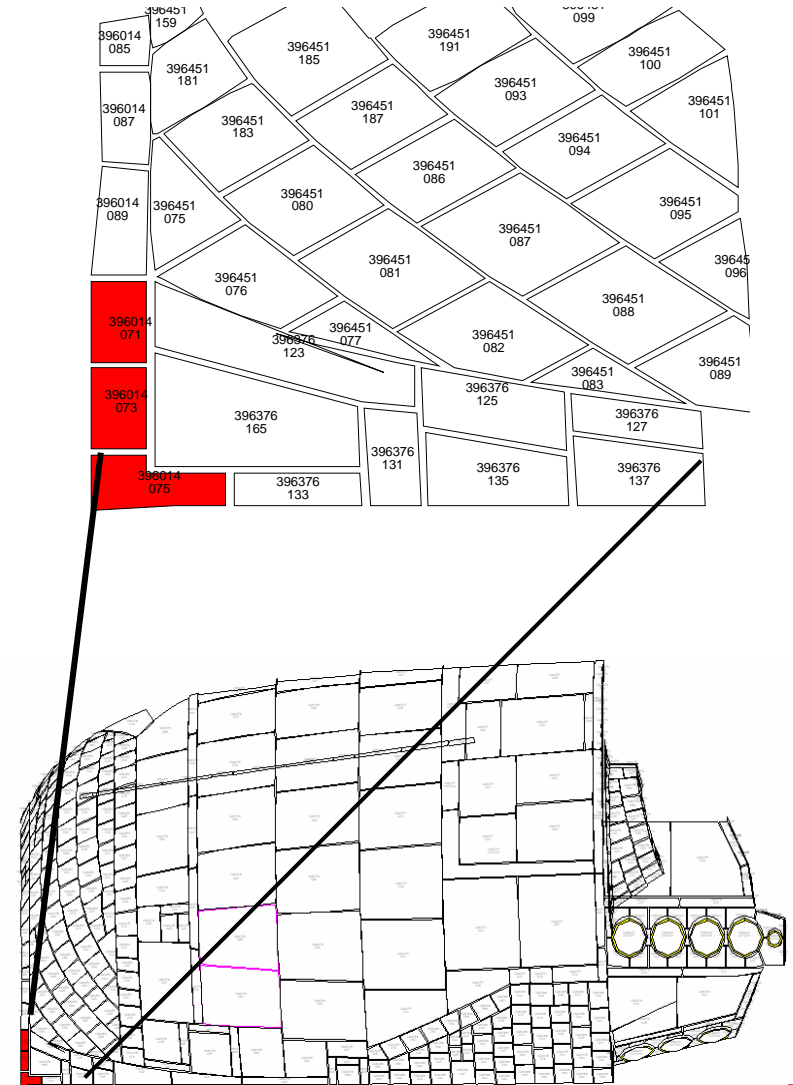
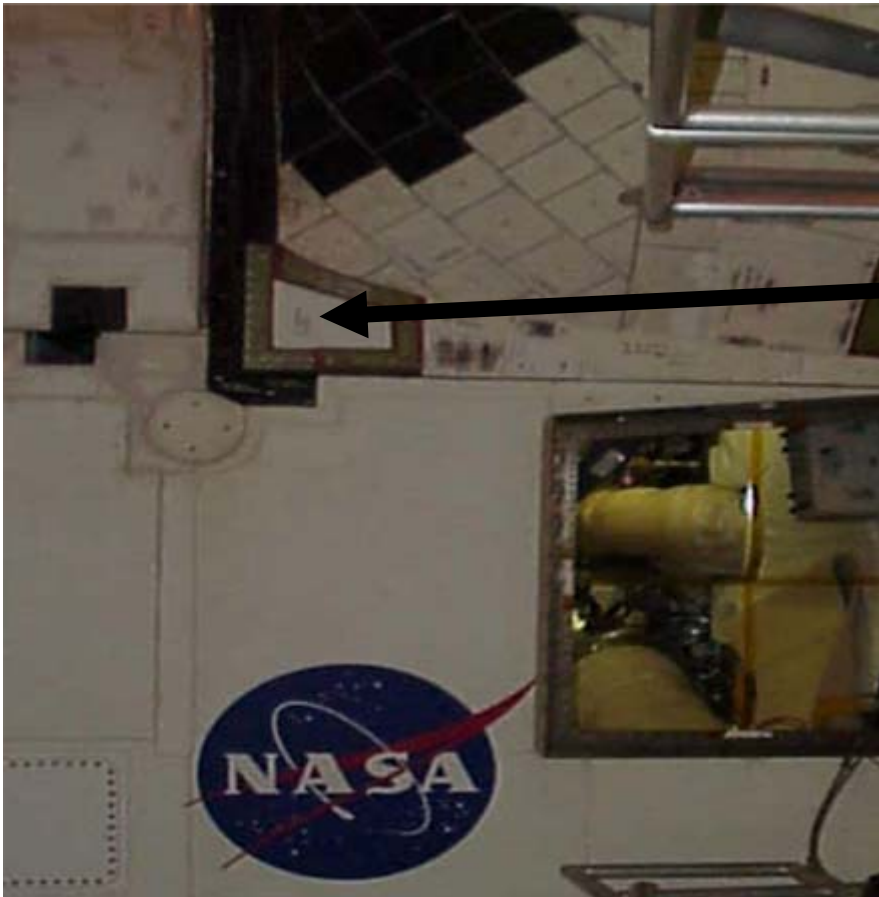
Engineering, Hardware and Certification Status

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
Modifications To Be Baselined										
11620	<u>ECLSS Air Duct Bracket/Clamp Installation</u> Installs shim to complete the portion of the WCS duct assembly modification deferred from OV-104 flight 27.	Released	N/A	N/A	N/A	Go	N/A	N/A	N/A	
30005	<u>Arrowhead Blanket Sleeving Rework</u> Modifies sleeving sub-assembly on inboard attachment of the Arrowhead Blanket to tie-off stitches at one inch intervals.	Released	N/A	N/A	N/A	Go	N/A	N/A	N/A	
30005	<u>Install Oversize FRSI Plugs On OMS Pod Forward Edges</u> Installs oversize FRSI plugs into six tiles on composite carrier panels on the forward edges of each OMS Pod.	Released	N/A	N/A	N/A	Go	N/A	N/A	N/A	
30005	<u>Bond FRSI Plugs On Emergency Egress Access Door TPS Carrier Panel</u> Bonds the four FRSI plugs in place following installation into the door TPS carrier panel.	Released	N/A	N/A	N/A	Go	N/A	N/A	N/A	
30005	<u>OMS Pod Ceramic Inserts Replacement With Bonded FRSI Plugs</u> Eliminates ceramic inserts in the forward areas of the OMS Pods.	5/31/07	5/31/07	N/A	N/A	Go	N/A	N/A	N/A	
30070	<u>ECO Point Sensor System Wire Separation</u> Implementation of hardware changes to mitigate critical wire redundancy separation violation.	TBD*	TBD*	TBD**	TBD**	Go	N/A	N/A	N/A	* USA G.O. to set engineering release date after TPS EOTF (OV-105) work is complete ** The parts list requirements in work
Mission Equipment Modifications To Be Baselined										
19586	<u>Airlock Muffler Modification</u> Modifies the muffler assembly to replace a ten year limited age life foam insulation that is about to expire.	Released	N/A	TBD*	TBD*	Go	N/A	N/A	N/A	* Two week turnaround post STS-117 muffler removal
GFE	<u>IBA Thermal Isolation Washers Inspection And Rework</u> Modifies IBA grapple fixture adapter thermal isolation washers to prevent from being damaged during grapple fixture installation/removal operations.	N/A*	N/A*	N/A*	N/A*	Go	N/A*	N/A*	N/A*	* Hardware and certification dates to be provided by GFE
Mission Kit Record / Tech Order Changes to be Authorized										
17222	<u>Camera PTU and Illuminator Fastener Change</u> Modification to increase the strength of the pan-tilt unit (PTU) of the 4 payload bay bulkhead cameras, the RMS Elbow camera PTU and the RMS Wrist Camera fasteners in the CTVC Illuminator Assembly. Fasteners change will eliminate the current negative margin of safety for yielding and associated waivers.	Released**	N/A	9/5/07	9/15/07	Go	6/1/07	6/12/07	TBD*	* Hardware and certification dates to be provided by GFE **USA 528-21401 drawing will be released in mid June





Engineering, Hardware and Certification Status

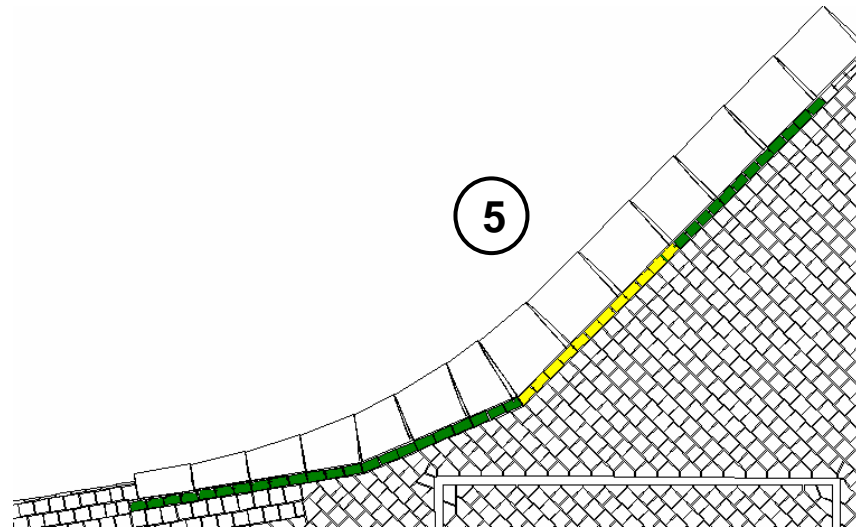
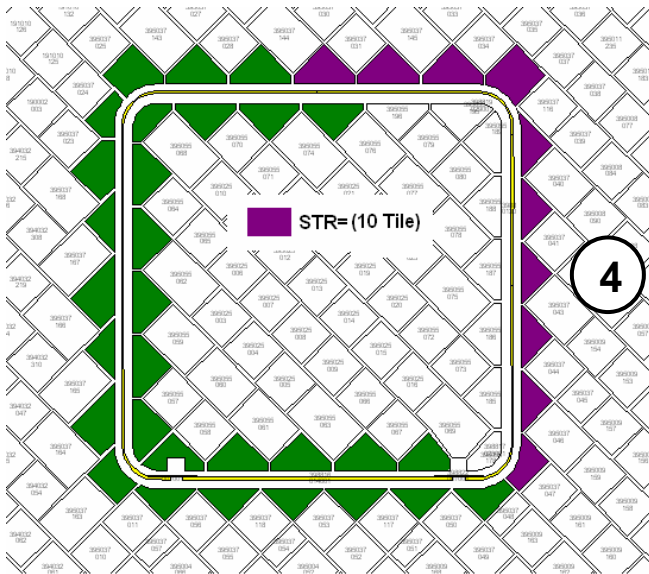
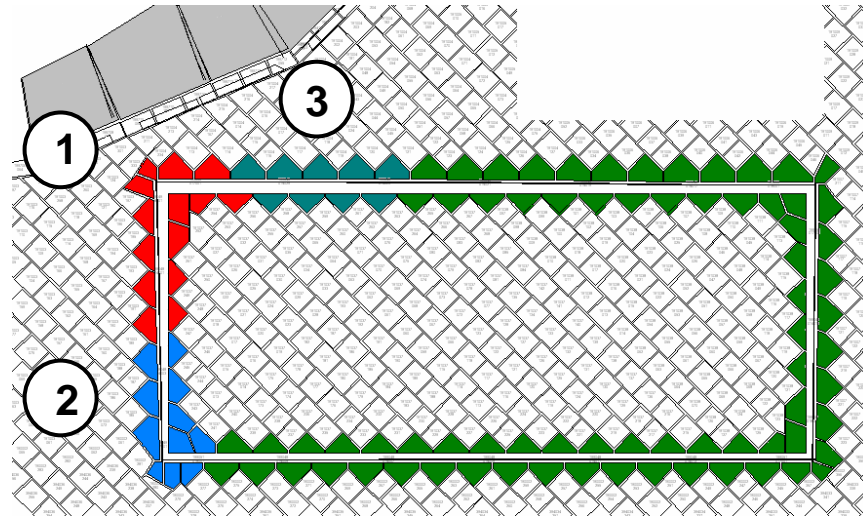
MCR/ TAD NO.	TITLE	Est. Engr Release (MM/DD/YY)	G.O. Engr Need (MM/DD/YY)	Est. Hdwe Delivery (MM/DD/YY)	G.O. Hdwe Need (MM/DD/YY)	MOD/CERT GO / NO-GO	CERT SUBMITTAL DATE	CERT APPROVAL DATE	CERTIFICATION CR / CAR (BOEING)	REMARKS
Potential Modification										
30001	ET Umbilical Camera Flash Installation (Sync Cable & Flash Unit) Installs a flash unit in the LH ET Umbilical to provide supplemental light to illuminate the ET for imagery during separation.	8/15/07	8/15/07	8/15/07 (cable) 10/24/07 (flash)	TBD*	Go	10/24/07	10/31/07	TBD*	* Hardware and certification dates to be provided by GFE
Previously Approved Modifications										
19810	MEC SMIA Mounting Nuts Replaces five 4-40 MS35649-244 nuts used to mount the SMIA to the parent CCA with MS21043-04 nuts.	Released*	N/A	Delivered	N/A	Go	Submitted Submitted	Approved Approved	CAR 02-21-450-0016-0007C CAR 02-21-450-0016-0009C	* OCR/D is in work to change effectivity from flt 32 to flt 29
23467	Modified Waste Collector System Changes dual vane compactor material vendor, revises heat shrink to eliminate need for MUA and increase processing efficiency, changes silicone rubber type for gasket and o-ring seat material (original is no longer available), changes check valve lubricant to reduce cost, adds back shells to all fan separators to provide strain relief on wiring, provides new heel cups for the WCS foot restraint.	Released	N/A	TBD*	8/13/07	Go	Submitted Submitted	Approved Approved	CR 23-623000-001G CAR 06-23-623000-001G	*Vendor hardware delivery date is pending flight 29 launch date
Previously Approved Mission Requirements										
17222	OBSS IBA Mod Modifies OBSS aft transition to add one socket for the EVA Worksite Interface Fixture (WIF).	Released	N/A	Delivered	N/A	Go	N/A*	N/A*	GCAR G5389A*	* To be certified by GFE
17222	Wing Leading Edge Voltage Regulator Mod Adds Voltage Boost Regulator (VBR) to WLEIDS to extend battery life at lower temperature.	Released	N/A	Delivered	N/A	Go	N/A*	N/A*	GCAR 5357*	* To be certified by GFE
Information Only										
18985*	N2 & O2 Mass Flow Sensor Development/Qualification Installs upgraded MO10W panel with redesigned N2 & O2 flow sensors.	Released	N/A	Delivered	N/A	Go	Submitted Submitted Submitted**	6/11/07 5/25/07 5/11/07	CAR 05-22-250-0002-0001P CR 22-250-0002-0001P QSA 01-22-250-0002-0001N	* Authorized separately by CR S086425FN ** Certified by QSA for OV-104 Flight 29 (QSA submitted 1/23/07)

TAD 30005 – OMS Pod Ceramic Inserts Replacement With Bonded FRSI Plugs



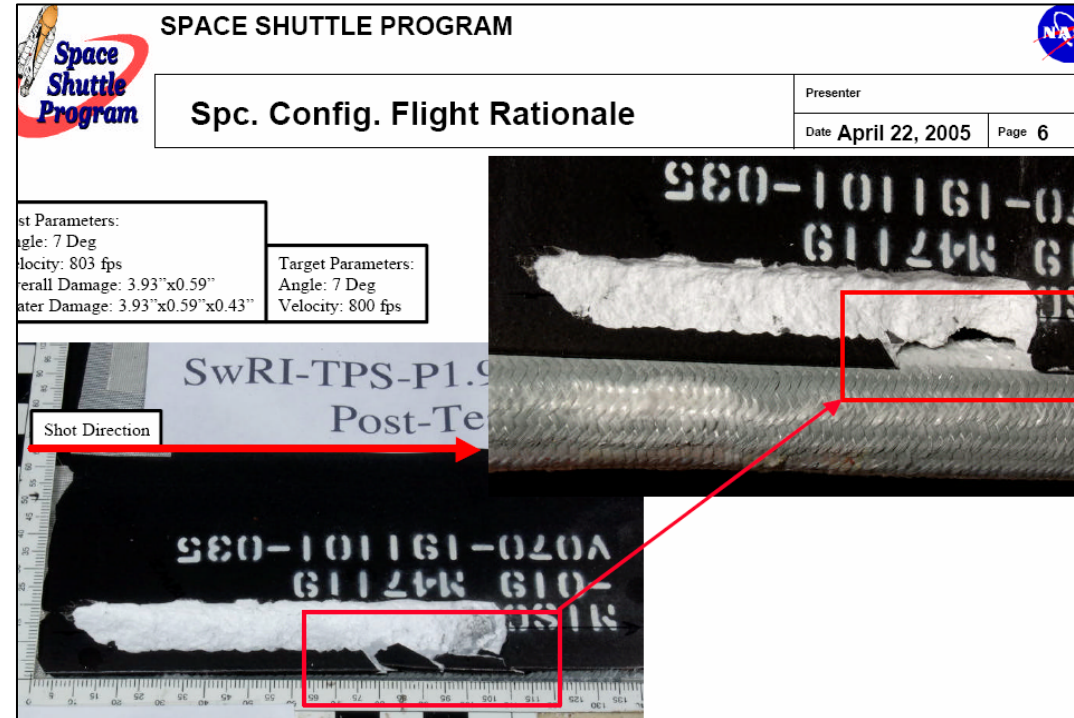
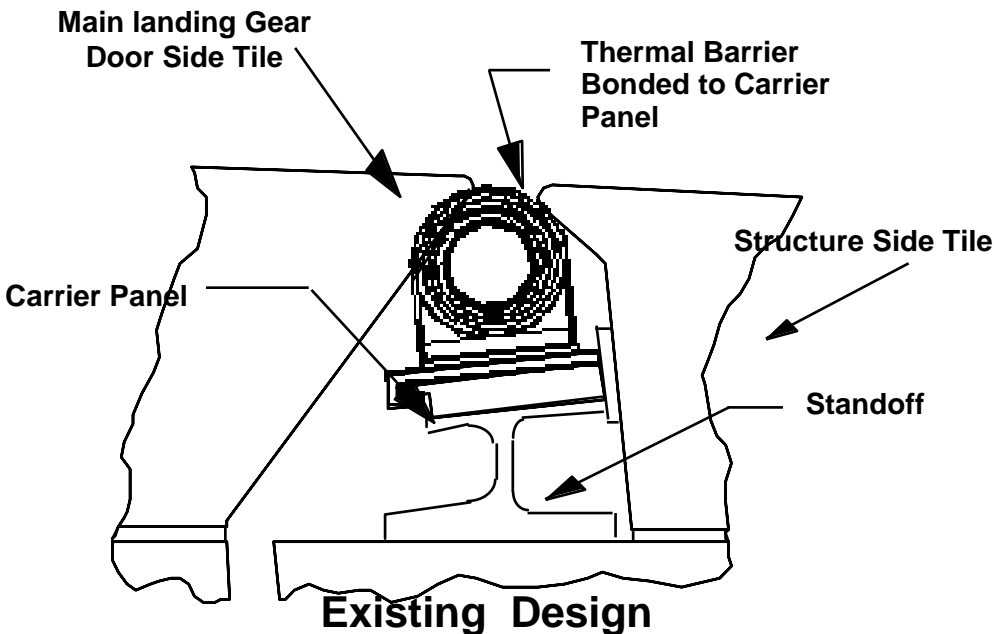
BRI Top Risk Reduction Areas (Priority 1-5)

1.  **MLGD- FWD/OB Corner**
2.  **MLGD-(2A) Subset**
3.  **MLGD-(2B) Subset**
4.  **ET Doors- STR Side**
5.  **LESS "Hot Panels" (8-10)**



Priority 1-3 Rationale (MLGD Area)

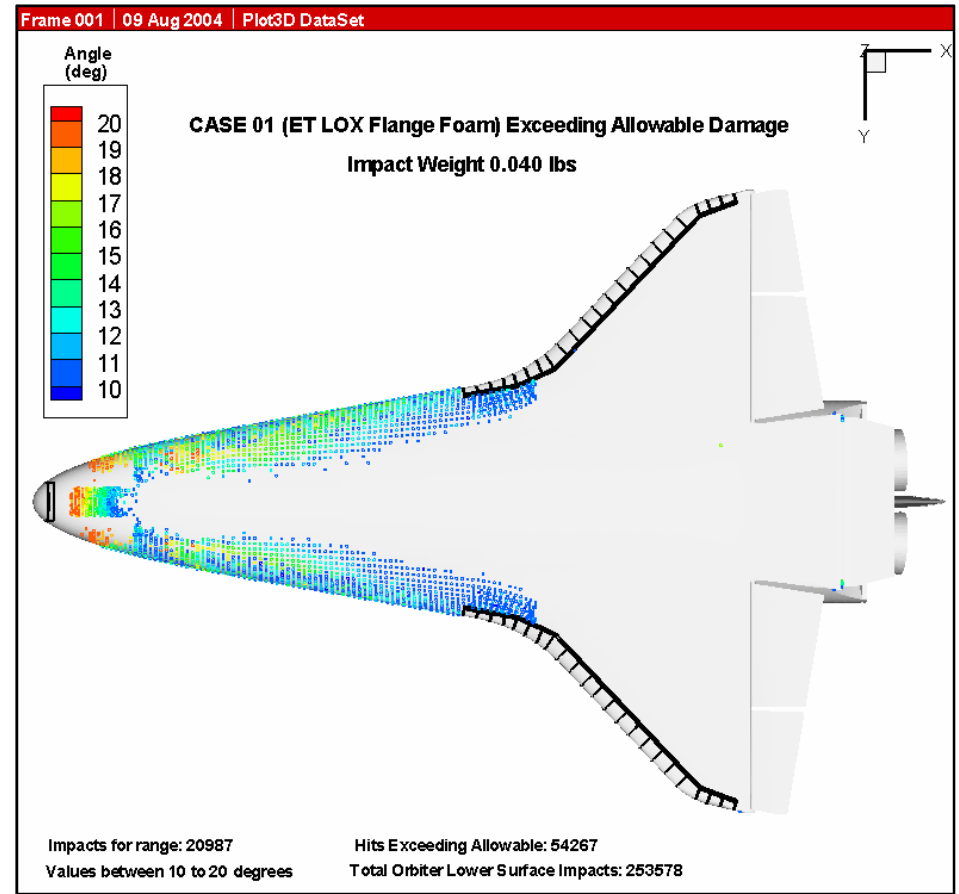
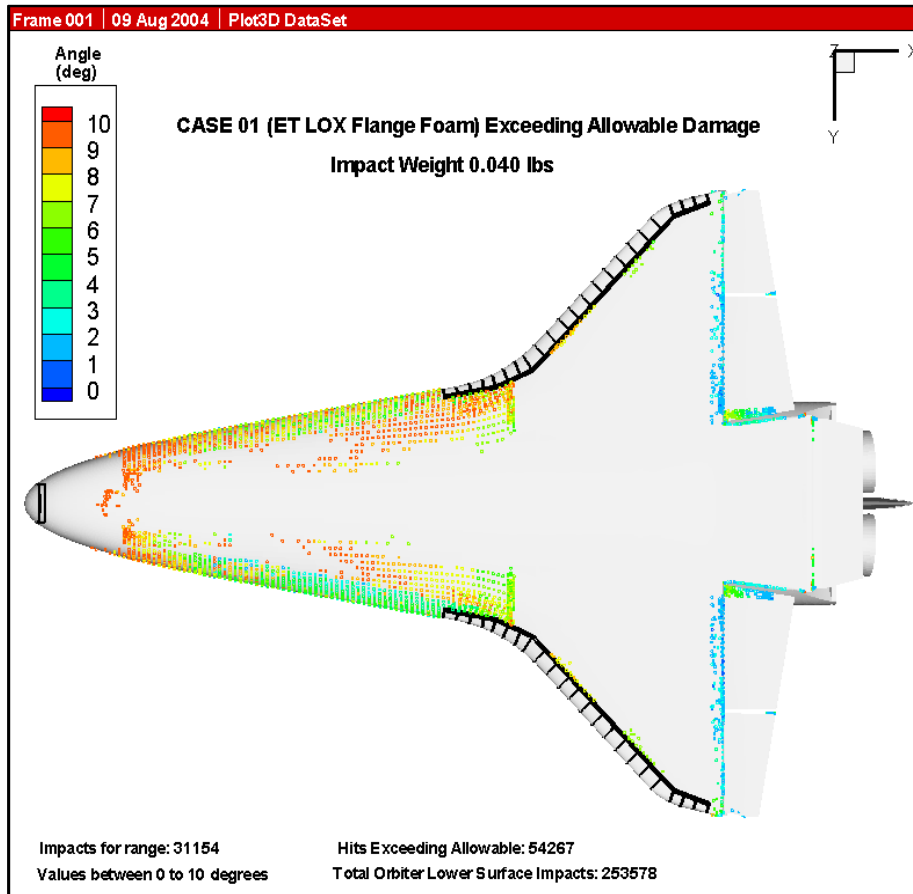
MLG Thermal Barrier Configuration



- **MLGD Single Thermal Barrier design is less tolerant of perimeter tile damage**
 - NLGD T/B design has full depth redundancy
- **Fwd Outboard cavity is the largest**

Priority 1-3 Rationale (MLGD Area)

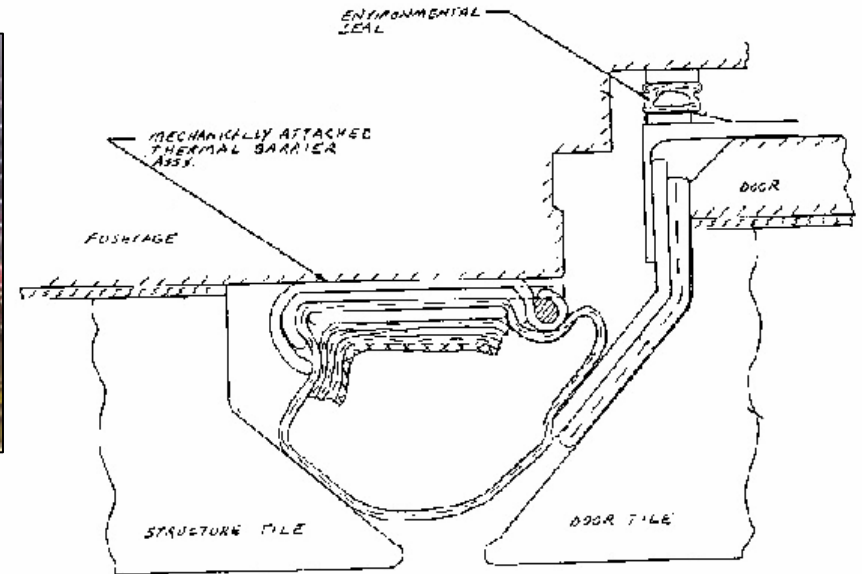
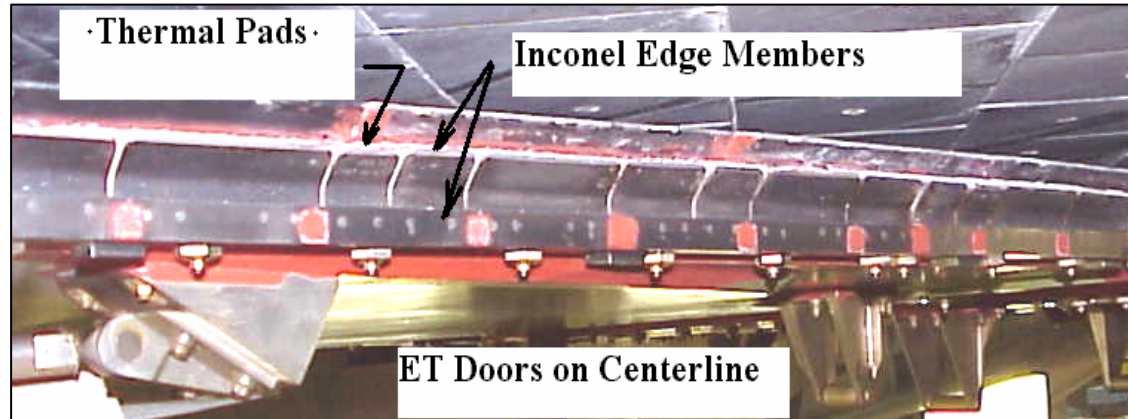
DTA Impact Pattern vs. angle of incidence



Fwd O/B corner & FWD side of MLGD are exposed to higher angle DTA conditions

Priority 4 Rationale (Aft ET Door Area)

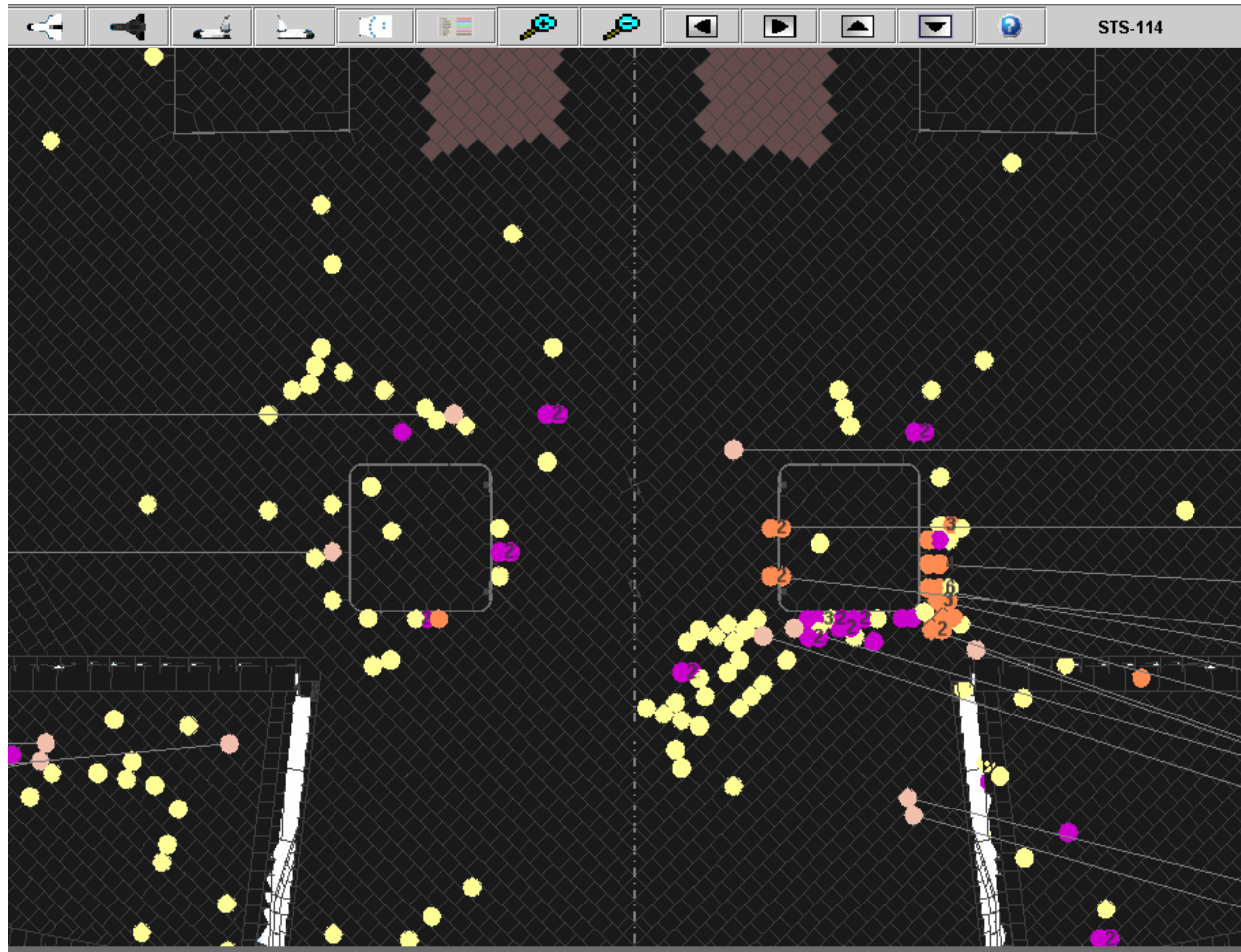
ET Door Thermal Barrier Configuration



- ET Doors are at centerline during ascent
 - Edge members / inconel fingers protect door tiles
- Umbilicals tend to protect AFT edge tiles from potential foam impacts
- Damage experienced on ET Door AFT STR tile OML each flight
 - Baggie / Ice induced ascent damage

Priority 4 Rationale (ET Door Area)

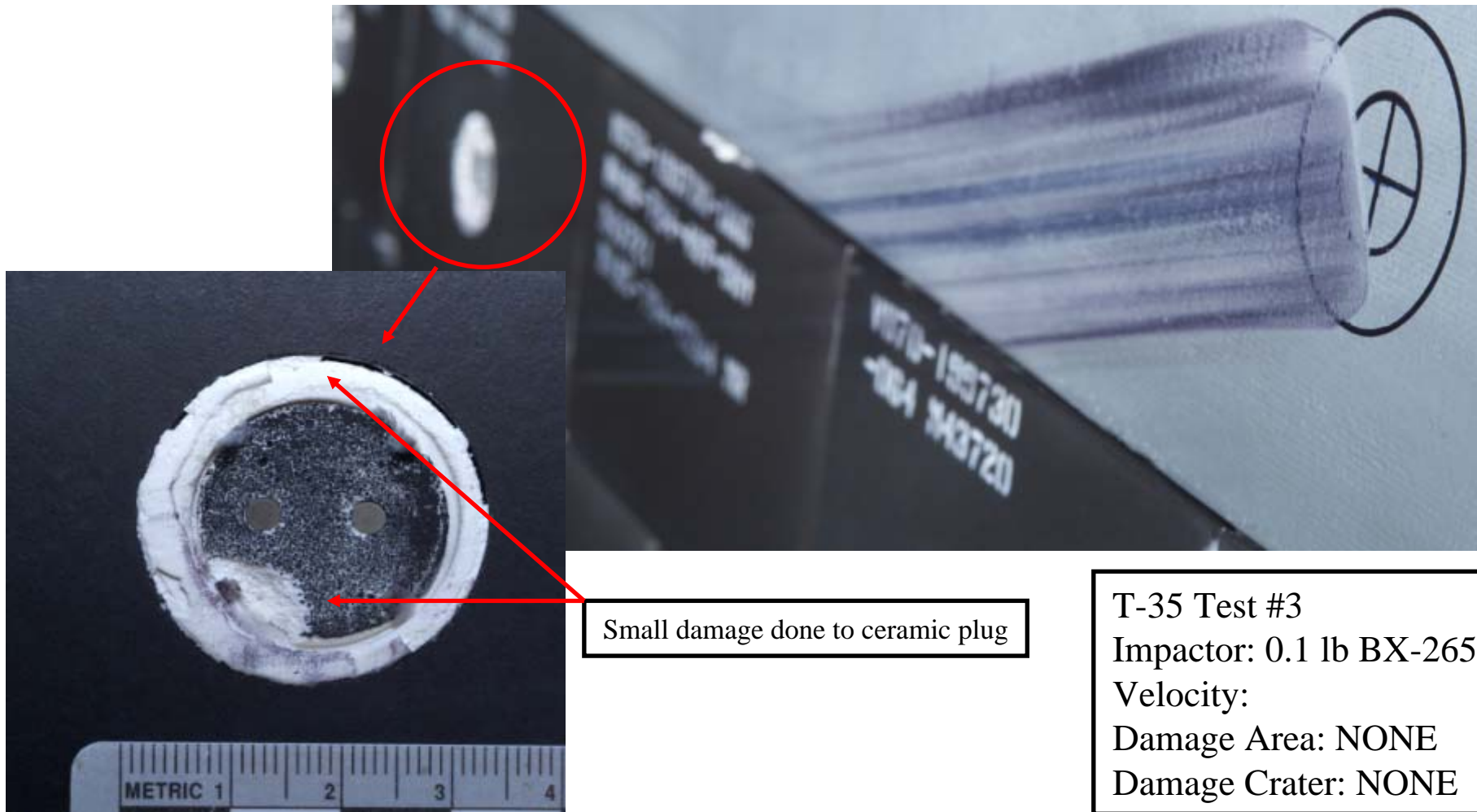
ETD Damages – Last 4 missions



ET Door Aft Edge Damage is Consistent

Priority 5 Rationale (Lower LESS C/P Area)

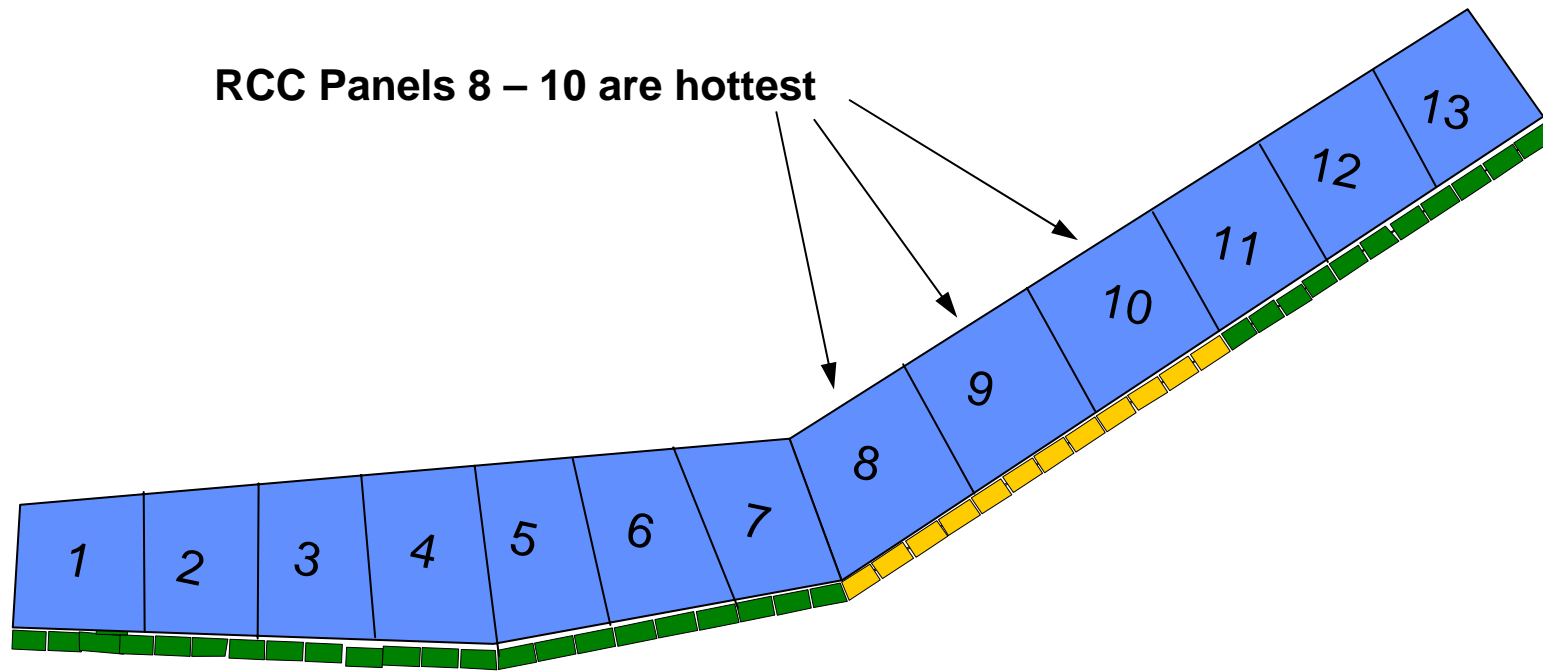
LESS tile harder to damage during test - foam compresses against RCC minimizing impact to carrier panel lip



Small damage done to ceramic plug

T-35 Test #3
Impactor: 0.1 lb BX-265
Velocity:
Damage Area: NONE
Damage Crater: NONE

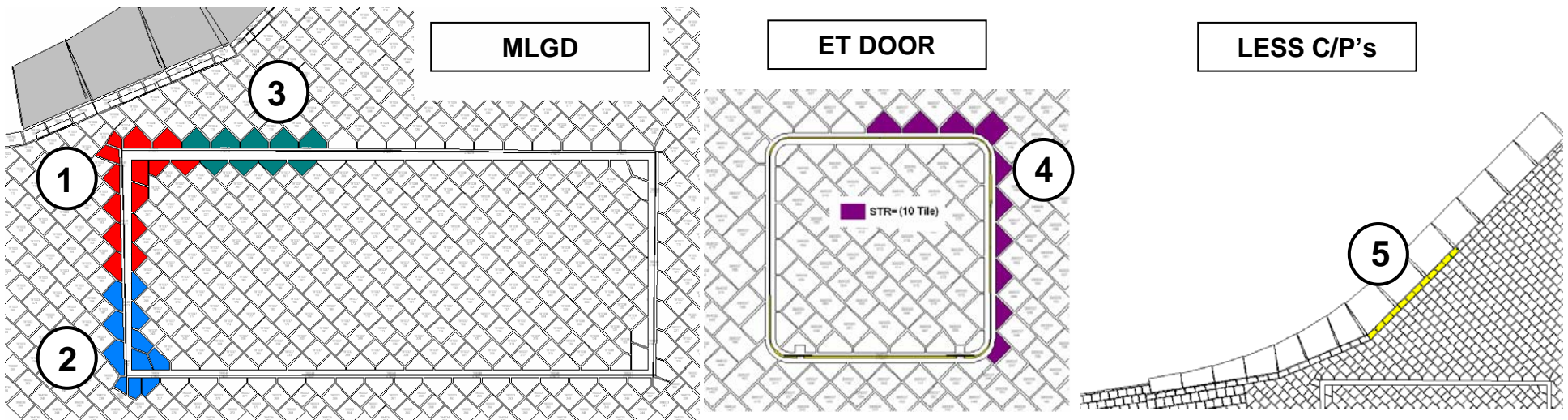
Priority 5 Rationale (Lower LESS C/P Area)



Lower LESS Panels 8 – 10 See the Most Entry Heating

Current BRI Top Risk Area Status

BRI COMPLETION	PRIORITY-1 (28) MLGD FWD/OB CORNER		PRIORITY-2 (22) MLGD FWD/IB CORNER		PRIORITY-3 (18) MLGD OUTBOARD EDGE		PRIORITY-4 (20) ET DOORS STR SIDE		PRIORITY-5 (24) LESS 8-10		TOTAL (112) PRIORITY 1-5	
	COMP	TO GO	COMP	TO GO	COMP	TO GO	COMP	TO GO	COMP	TO GO	COMP	TO GO
OV-103	28	0	22	0	0	18	20	0	24	0	94	18
OV-104	6	22	7	15	0	18	0	20	5	19	18	94
OV-105	12	16	8	14	2	16	0	20	2	22	24	88
TOTAL	46	38	37	29	2	52	20	40	31	41	136	200



Priority 1-5 per vehicle= (112)

Priority 1-5 Total= (336)

★ Includes current flow totals

BACKUP



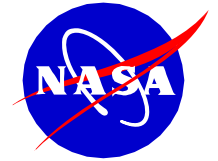
CONFIGURATION / Facilities

- **OV-104: Flight 29**
- **OMS Pods: LP04 / RP01**
- **ET: 125**
- **SRB: BI-132/RSRM 99**
- **SSME: 2059 (#1), 2052 (#2), 2057 (#3) U/R**
- **Payload: ISS-24-1E1/Columbus**
- **Flight Software: OI-32**
- **Firing Room: 4**
- **OPF Bay: 1**
- **MLP: 1**
- **VAB High Bay: 1**
- **Pad: A**





SPACE SHUTTLE PROGRAM
Space Shuttle Flight Management Office
NASA Johnson Space Center, Houston, Texas



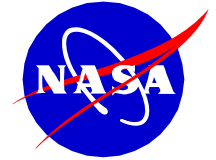
STS-122 (1E) Delta/Delta LSFR

Flight Requirements Status

FRWG 05/21/07

PRCB 05/24/07

Ann M. Patterson, Lead MIM
James Flores, USA Flight Mgr.

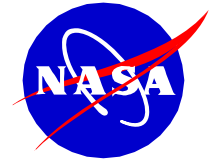


STS-122 Documentation Status

Presenter	MO3/Ann M. Patterson	
Date	May 2007	Page 2

DOCUMENTATION

- MIP
- MIP - NSTS 21396 Revision B 22 February 2007
 - CR # MIP21396-0004 STS-122/1E MIP Update Approved 18 April 2007



STS-122 Flight Requirements Status

Presenter	MO3/Ann M. Patterson	
Date	May 2007	Page 3

- **Latest Revision: eFRD Revision 002, April 26, 2007**

- **Closed CR for Revision 003**
 - None

- **Open CRs**
 - **FRD17462-122-0014: Add OMS Pod Micro WIS-Strain Gauge (SGU)**
ECD: 05/21/07
 - **FRD17462-122-0015: Update Oxone Hose Section in Table 2**
ECD: 05/21/07
 - **FRD17462-122-0016: Update LiOH Canisters in Table 2**
ECD: 05/21/07

STS-122/320 OV-104 Launch Site Flow Review Flight Software Overview

**Tom Stansel
Flight Software
5/21 FRWG
5/24/07 PRCB**

STS-122/320 LSFR (FSW)

- **STS-122/OV-104 Base 2 System is the Second Scheduled Flight of Operational Increment (OI) 32 Flight Software (FSW)**
- **STS-122/OV-104 Flight Software Payload Support:**
 - ISS-1E
 - Orbiter Interface Unit (OIU)
 - Sequential Still Video (SSV)
 - Orbiter Docking System (ODS)
 - Trajectory Control System (TCS)
 - Assembly Power Converter Units (APCUs) & Station to Shuttle Power Transfer System (SSPTS) (generic support for both configurations)
- **Major New Flight Software Support Items:**
 - First OV-104 implementation of MCR 23448 (ECO Sensor System Instrumentation Installation)
 - First implementation of MCR 18985 (N2 O2 Control Panel Upgrade Flow Sensor)

STS-122/320 LSFR (FSW)

- **STS-122 Source Changes/Edits for Primary Flight Software (Base and Base2)**
 - SCR 93160B - Year End Roll Over (YERO) Reset
 - SCR 92962 - Effectivity Change for SCR 92880 (STS-114 SSME Downlist Requirements)

- **STS-122 Patch Implementation for Primary Flight Software (Base2)**
 - None

- **STS-122 Patch Implementation for Backup Flight Software (Base2)**
 - SCR 93158, BFS GMT/MET Update for TAL Aborts, will be patched on the delivered mass memory

STS-122/320 LSFR (FSW)

- **Products**

- **STS-122/OV-104 Base2 software production schedule (available to field)**
 - **Shuttle Data Tape** Aug 29, 2007
 - **Mass Memory Unit Contents** Sept 14, 2007
- **STS-320/OV-104 Base deliveries will consist of the STS-320 Base SDT/Mass Memory containing the STS-320 Flight Specific I-Loads**
 - **STS-320/OV-104 Base software production schedule (available to field)**
 - **Shuttle Data Tape** TBD
 - **Mass Memory Unit Contents** Aug 20, 2007
 - **Pre call-up changes (included in Mass memory release)**
 - **PASS support for MCR 18985 (N2 O2 Control Panel Upgrade Flow Sensor) Implementation**
 - **PASS SCR 93175 Expand effectivity of SCR 93160B (Year End Roll Over (YERO) Reset) (source change)**
 - **BFS SCR 93158, BFS GMT/MET Update for TAL Aborts, will be patched on the delivered mass memory**
 - **Post call-up changes if required**
 - **BFS support for MCR 18985 (N2 O2 Control Panel Upgrade Flow Sensor) Implementation**
 - **Other mandatory changes**

STS-122/320 LSFR (FSW)

- **Open Items**

- **STS-122/OV-104 Base2 Flight Specific I-Load DCRs are scheduled for SASCB approval on 8/16/07**
- **Living SCR 98098, defining the Rescue LON Flight Software Configuration for OV-104 (STS-320) targeted for mod A to reflect orbiter swap on 7/05/07**
- **BFS planned implementation of MCR 18985 (N2 O2 Control Panel Upgrade Flow Sensor)**
 - **K-Load patch SCR planned to support new sensor FDA limits**
 - **SCR scheduled for SASCB approval on 8/16/07**
 - **I-Load change for potential cabin pressure scaling and FDA changes**
 - **New calibration data SEPAR available from N2/O2 panel swap out by 8/1/07**
 - **I-Load DCR scheduled for SASCB approval on 8/16/07**
 - **BFS display support not required**

- **Issues or Concerns**

- **There are no known issues or concerns with Flight Software in supporting STS-122 or STS-320**



STS-122 LSFR Flight Crew Equipment/GFE	Presenter MV5/Kenneth Brown	
	Date May 24, 2007	Page 1

STS-122 LSFR

FCE/GFE Status

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



STS-122 LSFR Flight Crew Equipment/GFE	Presenter MV5/Kenneth Brown	
	Date May 24, 2007	Page 2

- **Delivery dates and need dates not completely partnered – expect to be partnered by DLSFR through IPT and weekly GFE telecons**

- **Tech orders and hardware list noted in backup charts**

- **Changes since LSRR:**
 - **Vehicle swap CR places ET sep camera flash as a potential mod first flight on OV-104/STS-122 (CR S061990Y).**
 - **New Pan Tilt Units (-510) delivery plan/schedule discussed at 2/7/07 OPO technical tagup and 4/12/07 Summit. Need dates and delivery dates under review. If new design does not support, pursue extending current waiver.**
 - **OBSS WIF hardware delivered and cert in review.**
 - **WLE VBR hardware delivered and cert in review.**



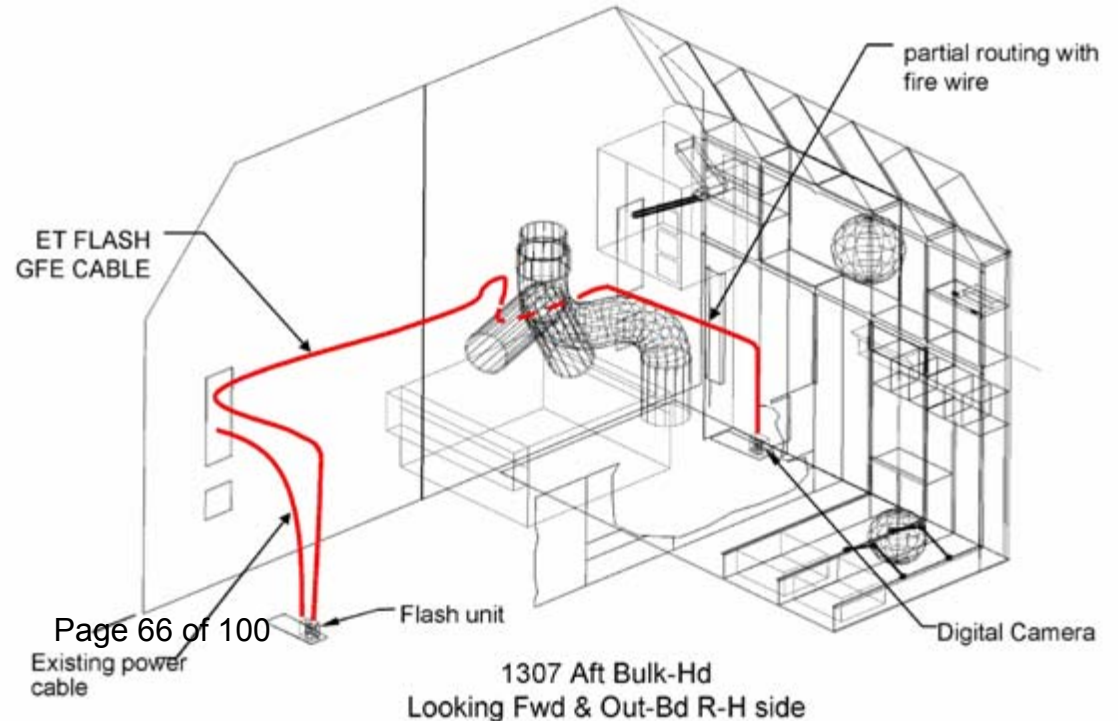
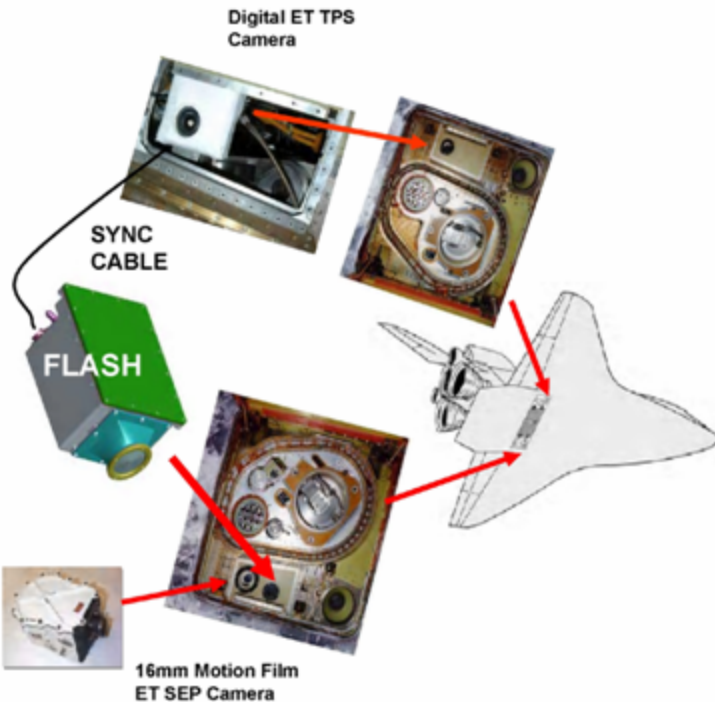
STS-122 LSFR
Flight Crew Equipment/GFE

Presenter
MV5/Kenneth Brown

Date May 24, 2007

Page 3

- **Potential Mod**
 - **TAD 30001/CR S061990Y Orbiter Umbilical Well Flash**
 - **Replace one 16mm high-speed film camera in LH umbilical with flash**
 - **Wiring mod adds synch cable from flash (LH) to digital camera (RH)**





STS-122 LSFR Flight Crew Equipment/GFE	Presenter MV5/Kenneth Brown	
	Date May 24, 2007	Page 4

BACKUP



STS-122 LSFR
Flight Crew Equipment/GFE

Presenter MV5/Kenneth Brown	
Date May 24, 2007	Page 5

Tech Order numbers are identified for reference only. Report generated May 15, 2007.

Hardware	Tech Order	KSC Eng Need	Eng(TO) Release	Cert O/C	HWD Need	HDW Planned	JSC Remarks	JSC Contact
A (port forward)	M072-750025-076	8/3/07	1/17/07	O	9/5/07	9/5/07	The camera is not available until removal from STS-118. Assume 1 week to assemble camera/PTU and perform PIA. PTU's are modified from STS-117 and can delivered to KSC NET 9/5/07. Open FIARs applicable to STS-122 (BFCE029A127, BFCE029A128, BFCE029A129, BFCE029A131, BFCE029A168, BFCE029A113, BFCE029A115). The first Flight on OV-104 of the -510 Pan Tilt Units.	Randy Moore
B (port aft)	M072-750025-077	8/3/07	1/17/07	O	9/5/07	9/5/07	The camera is not available until removal from STS-118. Assume 1 week to assemble camera/PTU and perform PIA. The PTU's are modified from STS-117 and can delivered to KSC NET 9/5/07. Open FIARs applicable to STS-122 (BFCE029A127, BFCE029A128, BFCE029A129, BFCE029A131, BFCE029A168, BFCE029A113, BFCE029A115). The first Flight on OV-104 of the -510 Pan Tilt Units.	Randy Moore
C (starboard aft)	M072-750025-078	8/3/07	1/17/07	O	9/5/07	9/5/07	The camera is not available until removal from STS-118. Assume 1 week to assemble camera/PTU and perform PIA. The PTU's are modified from STS-117 and can delivered to KSC NET 9/5/07. Open FIARs applicable to STS-122 (BFCE029A127, BFCE029A128, BFCE029A129, BFCE029A131, BFCE029A168, BFCE029A113, BFCE029A115). The first Flight on OV-104 of the -510 Pan Tilt Units.	Randy Moore
D (starboard forward)	M072-750025-079	8/3/07	1/17/07	O	9/5/07	9/5/07	The camera is not available until removal from STS-118. Assume 1 week to assemble camera/PTU and perform PIA. The PTU's are modified from STS-117 and can delivered to KSC NET 9/5/07. Open FIARs applicable to STS-122 (BFCE029A127, BFCE029A128, BFCE029A129, BFCE029A131, BFCE029A168, BFCE029A113, BFCE029A115). The first Flight on OV-104 of the -510 Pan Tilt Units.	Randy Moore
SRMS elbow camera	M072-544504-007	7/20/07	1/17/07	O	8/20/07	8/30/07	The camera is not available until removal from STS-118. Assume 1 week to assemble camera/PTU and perform PIA. The PTU's are modified from STS-117 and can delivered to KSC NET 8/30/07. Note: JSC is assessing options to provide an alternate camera on 8/20/07. Open FIARs applicable to STS-122 (BFCE029A127, BFCE029A128, BFCE029A129, BFCE029A131, BFCE029A168). The first Flight on OV-104 of the -510 Pan Tilt Units.	Randy Moore



STS-122 LSFR
Flight Crew Equipment/GFE

Presenter MV5/Kenneth Brown	
Date May 24, 2007	Page 6

Tech Order numbers are identified for reference only. Report generated May 15, 2007.

Hardware	Tech Order	KSC Eng Need	Eng(TO) Release	Cert O/C	HWD Need	HDW Planned	JSC Remarks	JSC Contact
SRMS wrist camera	M072-544504-008	8/3/07	1/17/07	O	9/5/07	9/5/07	The camera bracket is returned to JSC after STS-117 for modification. Open FIARs applicable to STS-122 (BFCE029A127, BFCE029A128, BFCE029A129, BFCE029A131, BFCE029A168).	Randy Moore
Centerline Airlock Camera (stowed)	M072-660828-002, plus CCCD stow		3/17/99	C			Same Camera as STS-118. Hardware resides at KSC. Open FIARs applicable to STS-122 (BFCE029A127, BFCE029A128, BFCE029A129, BFCE029A131, BFCE029A168).	Randy Moore
Lefthand Umbilical Camera (forward)	M072-705001-017	9/21/07	6/7/07	C	10/23/07	10/23/07	Flash module, if available, to replace this camera. Tech Order will roll to M072-705001-027.	Randy Moore
Lefthand Umbilical Camera (aft)	M072-705001-016	9/21/07	10/28/04	C	10/23/07	10/23/07		Randy Moore
Righthand Umbilical Camera	M072-705001-024	9/21/07	6/7/07	O	10/23/07	10/23/07	Camera modified to support flash. Tech order dash will roll to -29.	Randy Moore
Digital Television (DTV)	M072-710570-007			C			Installed hardware.	Larry Schmidt
MCIU/RMS Situational Awareness Display (RSAD)	M072-710543-001		3/7/00	O			Installed hardware. Part number not in GFE cert database.	Larry Schmidt
Portable Foot Restraint (PFR)	M072-661568-029	7/20/07	3/11/05	C	8/20/07	8/20/07		Jack Coverdale
Tools for Rendezvous and Docking (TRAD)	M072-730021-017		3/9/05	O			Installed hardware. Open Cert. TCS S/N 1007 remains installed. The unit is changed out post STS-122.	Larry Schmidt
Tool Stowage Assembly (TSA)	M072-660853-002 M072-660850-005	8/20/07		C	9/20/07	9/20/07		Jack Coverdale
Video Processing Unit (VPU)	M072-710338-006		7/5/01	C			Installed hardware.	Larry Schmidt
Winches	V070-650007-085		11/19/04	C			Open FIARs applicable to STS-122 (BFCE026A061). Aft Winch installed from STS-117. Will remain installed in vehicle for STS-122.	Jack Coverdale



SPACE SHUTTLE PROGRAM
Space Shuttle Orbiter Project Office
 NASA Johnson Space Center, Houston, Texas



STS-122 LSFR		Presenter MV5/Kenneth Brown	
Flight Crew Equipment/GFE		Date May 24, 2007	Page 7

Tech Order numbers are identified for reference only. Report generated May 15, 2007.

Hardware	Tech Order	KSC Eng Need	Eng(TO) Release	Cert O/C	HWD Need	HDW Planned	JSC Remarks	JSC Contact
Wireless Video System (WVS)	M072-744007-001 UHF M072-344828-001 mount M072-744004-014 S-BAND 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 M072-744004-016 S-BAND			C			Installed hardware. Question concerning potential interference with antenna locations 3 and 9 in Bay 10 and those locations were removed.	Randy Moore
Space to Space Orbiter Radio (SSOR)	M072-344828-002 M072-740828-002 antenna			C			Installed hardware.	Larry Schmidt
RMS Sideview Camera (RSC)	M072-710281-002 M072-000416-004 camera	9/28/07	11/24/04	C	10/30/07	10/30/07	Pad Instl.	Randy Moore
Wing Leading Edge (WLE) Instrumentation - Left Wing	M072-756111-005			O			Adding Voltage Regulator and decals. Part number and Tech Order changes required. Open Cert after STS-117 as part of Voltage Boost Regulator certification for STS-118. Open FIARs applicable to STS-122 (JSCEB0353, JSCEB0361, JSCEB0366, JSCEB0373F, JSCEB0377, JSCEB0379F).	Gary Cox
Wing Leading Edge (WLE) Instrumentation - Right Wing	M072-756111-006			O			Adding Voltage Regulator and decals. Part number and Tech Order changes required. Open Cert after STS-117 as part of Voltage Boost Regulator certification for STS-118. Open FIARs applicable to STS-122 (JSCEB0353, JSCEB0361, JSCEB0366, JSCEB0373F, JSCEB0377, JSCEB0379F).	Gary Cox
OBSS Sensor Package 2 (OPF)	M072-710282-006			C			Same hardware from STS-117. Delivery date of LCS is under review. Swap of LCS and change of IDC is required.	Larry Schmidt
OMS POD Micro-SGU	M072-755111-001		3/19/02	C				Gary Cox
WING LEADING EDGE BATTERIES	M072-756111-005 M072-756111-006	8/7/07		O	9/7/07	9/7/07	Open Cert after STS-117 as part of Voltage Boost Regulator certification for STS-118. Note: Tech Order was released on 3/6/07.	Gary Cox



STS-122 LSFR
Flight Crew Equipment/GFE

Presenter MV5/Kenneth Brown	
Date May 24, 2007	Page 8

Tech Order numbers are identified for reference only. Report generated May 15, 2007.

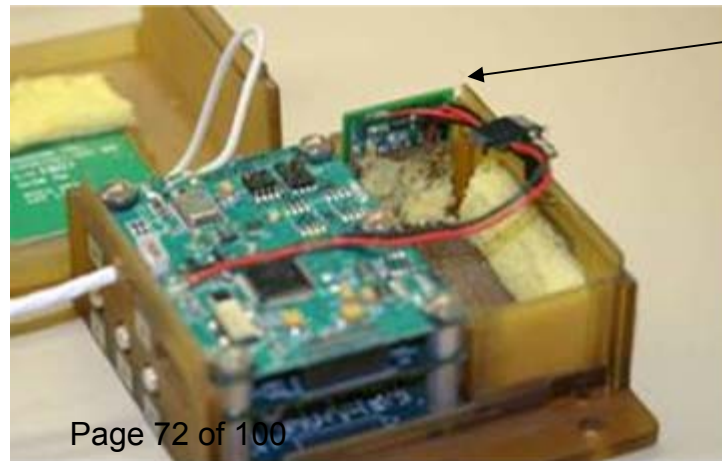
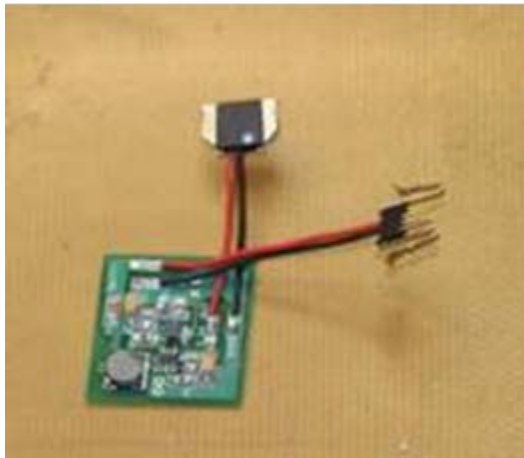
Hardware	Tech Order	KSC Eng Need	Eng(TO) Release	Cert O/C	HWD Need	HDW Planned	JSC Remarks	JSC Contact
OMS POD MICRO-SGU Batteries				C				Gary Cox
Airlock Adapter Plate				O			Installed. Only record in GFE cert database is Retired.	Jack Coverdale
Service and Cooling Umbilical				O				Jack Coverdale
WLE Batteries - Voltage Regulator	M072-756111-005 M072-756111-006	2/28/07		O	3/30/07	3/15/07	The voltage regulators will be installed on STS-122/103 as part of the battery changeout. Open Cert after STS-117 as part of Voltage Boost Regulator certification for STS-118.	Gary Cox
WLE Software Upgrade	M072-756111-003 M072-756111-004		10/17/05	O			The software update is currently planned for STS-122, based on today's manifest. Delivery date is under review.	Gary Cox
OBSS SENSOR PACKAGE 1 ** (OPF)	M072-710282-008	7/20/07		O	8/20/07		SP1 will have the 2294822-510 PTU. 1 FIAR with ISOD on the Laser Dynamic Range Imager (LDRI) of SP1 ecd 3/5/2007. Note: the PTU is modified from STS-117. Delivery date of PTU is under review. The first flight on OV-104 of the -510 Pan Tilts Units.	Randy Moore
OBSS WORKSITE INTERFACE FIXTURE (WIF)	M072-544506-003						Hardware delivered to KSC.	Ken Ruta
Flash Sync Cable Assembly		6/15/07		O	8/15/07	8/1/07	Cert is open.	Randy Moore



STS-122 LSFR Flight Crew Equipment/GFE

Presenter MV5/Kenneth Brown	
Date May 24, 2007	Page 9

- **Mod to be baselined - Wing Leading Edge Voltage Regulator**
 - FCE CR G09290 authorized design, fabrication, test and certification of voltage boost regulator (VBR) to be added to the WLEIDS
 - VBR to be added between the battery and the WLE electronics to extend battery life at lower temperatures
 - OCR/D S165150 directs drawing updates to incorporate mod
 - MECSLSI updates to be developed



Voltage
Regulator

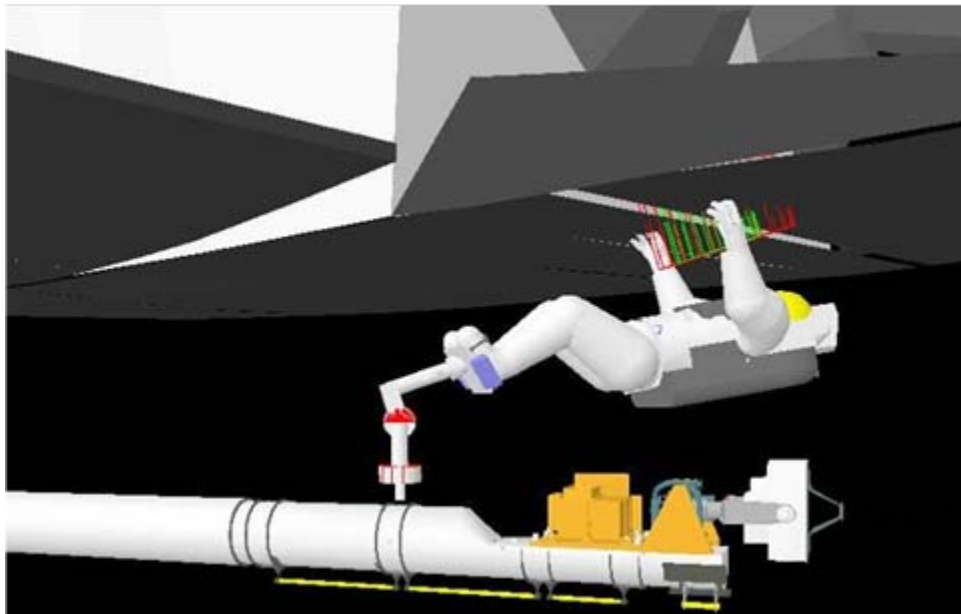


STS-122 LSFR Flight Crew Equipment/GFE

Presenter
MV5/Kenneth Brown

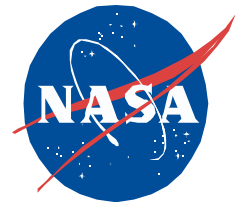
Date May 24, 2007 Page 10

- **Mod to be baselined - OBSS Worksite Interface Fixture**
 - OCCB SR3518 approved feasibility study of adding WIFs
 - Provides additional capability for a crewmember to access and repair orbiter aft TPS tiles
 - OCR/D S165172 directs drawing updates to incorporate mod
 - MECSLSI updates to be developed
 - Socket already delivered to MDA; bracket being fabricated





*Extravehicular
Activity
Office*



EVA Status

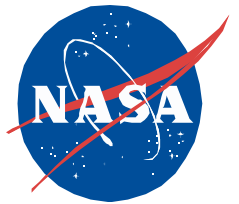
STS-122/1E

Launch Site Flow Review (OV-104)

XA/Linda Thomas & Maria Tullar

Johnson Space Center

May 2007



- **Bulkhead PFR, SED33105308-307**
 - Bulkhead PFR installation – Tech Order: M072-661568-029
- **Winches**
 - Forward Winch, SED33101570-327
 - Aft Winch, SED33101570-325
- **Port TSA (Lightweight)**
 - Port LWTSA installation – Tech Order: M072-660850-005
 - Port LWTSA Tools installation – Tech Order: M072-660853-002
- **No Starboard TSA**
- **No Safety Tethers Routed in PLB**
- **No Slidewires**

BACK-UP CHARTS

STS-122
ISS – 1E COLUMBUS, ICC-LITE
LAUNCH SITE FLOW REVIEW

PAYLOAD CARGO ENGINEERING STATUS

MICHAEL BARIDO

281.212.6072

MAY 24, 2007

STS-122 LSFR

ENGINEERING FLIGHT PRODUCT STATUS

<u>DRAWING NO</u>	<u>TITLE</u>	<u>REV</u>	<u>EO</u>	<u>RELEASED</u>
V072-200202	MECSLSI	B	B01	04-11-2007
VA72-200202	CARGO ARRANGEMENT	NC	-	01-25-2007
VD72-200202	AVIONICS DIAGRAM	NC	A01	04-11-2007
VS72-200202	INTEGRATED SCHEMATIC	NC	A01	04-11-2007
VS70-540393	RETENTION SCHEMATIC	A	A01	04-11-2007

RESCUE FLIGHT STATUS

- STS-320 RECONFIGURATION ENGINEERING PRODUCTS WILL BE DEVELOPED BY THE ENGINEERING ORDER TO FOLLOW (EOTF) PROCESS.

ENGINEERING OPEN WORK

- LSFR UPDATE 05-30-2007
- DELTA FRED 06-04-2007
 - EXCEPT MECSLSI 05-30-2007
 - EXCEPT VA 06-29-2007 (U/R)

STS-122 LSFR

CARGO CLOSE CLEARANCE PROCESS

- THE FOLLOWING CLOSE CLEARANCE AREAS HAVE BEEN IDENTIFIED:
 - COLUMBUS AFT PORT SCUFF PLATE TO RMS MPM
 - COLUMBUS LANYARD (UNRESTRAINED) NEAR AFT PORT SCUFF PLATE TO RMS MPM
 - COLUMBUS PDGF RING (HARDWARE REMAINING AFTER PDGF REMOVAL) TO OBSS
- A DRAFT CHIT JXXXX HAS BEEN DEVELOPED TO TAKE CLOSE CLEARANCE MEASUREMENTS OF ALL CLOSE CLEARANCE POINTS **AND WAS SENT OUT FOR COMMUNITY REVIEW**
- **SINCE ALL DATA REQUIRED FOR THE CHIT (FIGURES) ARE NOT AVAILABLE, THE CHIT SUBMITTAL IS DELAYED UNTIL ALL DATA IS AVAILABLE. ECD: 06-22-2007**
- CHIT MEASUREMENTS WILL BE PERFORMED AT THE PAD AFTER PAYLOAD INSTALLATION AND RMS AND OBSS INSTALLATION (ROLLED IN FOR LAUNCH)

STS-122 LSFR

OMRS STATUS

BASELINED FILES

- NONE

OPEN WORK

- **BASELINE OMRS**

- **FII, V2 POST MATE**

- **PP17315R2**

PAYLOAD (P509)

ECD

BASELINE

06/12/07

- **FII, V4 PRE-MATE**

- **PSTBD**
 - **PSTBD**
 - **PSTBD**

MISSION UNIQUE LIST

FIII MUL

ADJACENT PIN

BASELINE

07/06/07

07/06/07

07/06/07

- **FII, V6 SHUTTLE EXPERIMENTS - NONE**

ISSUES/CONCERNS

- NONE

STS-122 LSFR

ANNEX 1

BASELINED FILES

- COLUMBUS & ICC-L BASELINE

ECD

02/23/07A

OPEN WORK

- POST CIR UPDATE

ECD

06/08/07

ISSUES/CONCERNS

- NONE

TGHR STATUS

CUSTOMER SUBMITTAL

06/17/07

RELEASE FOR REVIEW

07/17/07

BASELINE

08/17/07

ISSUES/CONCERNS

- NONE

STS-122 LSFR

PAYLOAD ICDs/PIRNS

PIRNS THAT IMPACT FLIGHT PRODUCTS

<u>PIRN #</u>	<u>ICD/PAYLOAD</u>	<u>TITLE</u>	<u>ECD</u>
A05221	ICD-A-21396 COLUMBUS	MECH. UPDATES, CLEARANCE VIOLATIONS PER UPDATED CAD MODELS WITH LANYARDS	07/31/07
A05429	ICD-A-21396 COLUMBUS	UPDATE ECSH/BAPC AWAITING RESOLUTION ON CONNECTOR CAPS FROM SAFETY COMMUNITY TO PROCEED.	06/25/07
A05425	ICD-A-21396-ICCL ICC LITE	UPDATE CABLE INFORMATION PENDING LPM APPROVAL	06/18/07

ISSUES/CONCERNS

- NONE

STS-122 LSFR

CARGO INTEGRATION HARDWARE STATUS

OPEN WORK

- DELIVER 2 HARDWARE ITEMS (SUPPORTS KSC NEED DATES)
 - 1 WIRE TRAY CONNECTOR PANEL V785-714001-001
 - 1 BRIDGE ADAPTIVE PAYLOAD CARRIER (BAPC) V725-714065-001
- COMPLETE CIH FLIGHT CERTIFICATION

ECD: **4/27/07A**

ECD: 6/14/07

ECD: 7/17/07

ISSUES/CONCERNS

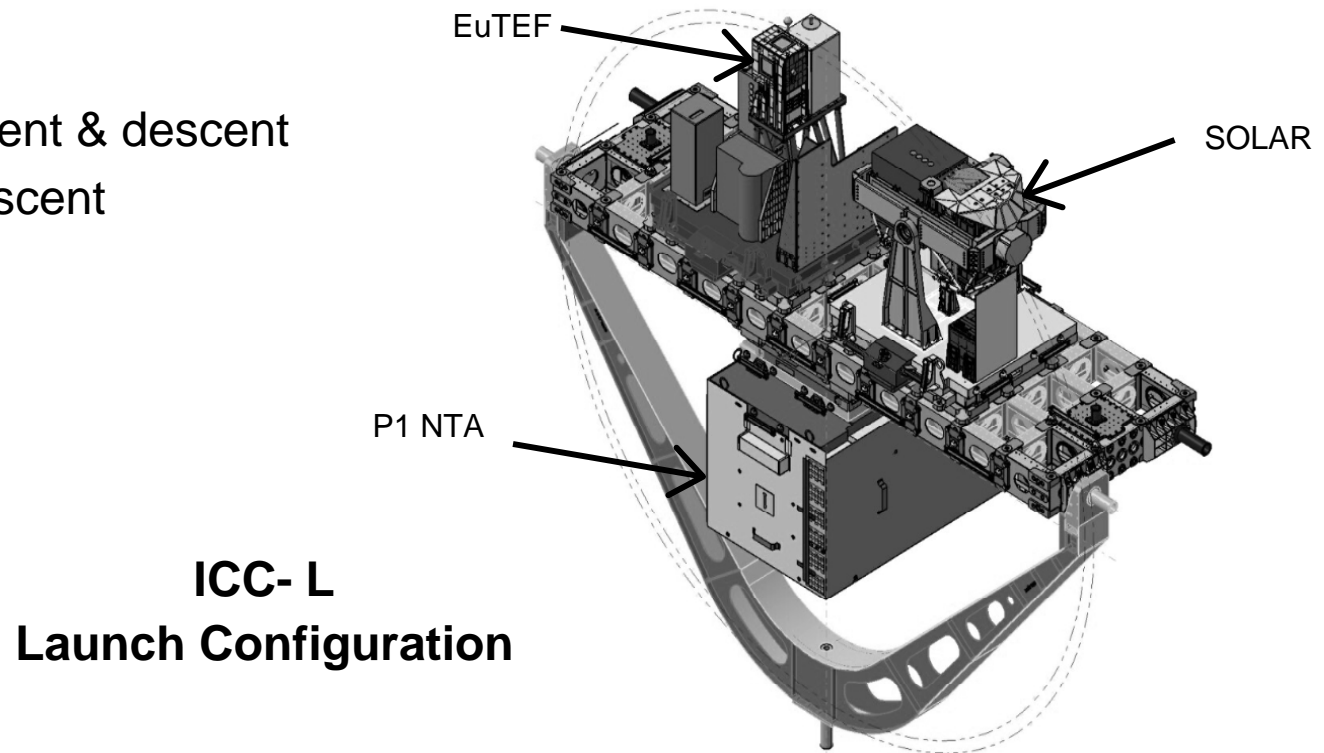
- NONE

ISS AND SPACECRAFT PROCESSING STS-122 LAUNCH SITE FLOW REVIEW

- **ISS Mission 1E Payload Complement**

- Integrated Cargo Carrier – LITE (ICC-L)

- SOLAR
- EuTEF
- NTA ascent & descent
- CMG descent



ISS and Spacecraft Processing
Deborah Hahn/ UB-N
May 15, 2007

Flight 1E/ STS-122 LSFR



ISS AND SPACECRAFT PROCESSING – SHUTTLE INTEGRATED OPERATIONS

SSPF

- Columbus Ext Closeouts Complete 25 Sep 2007(U/R)
- Columbus Hatch Closure 27 Sep 2007(U/R)
- Columbus ICD Walkdown 15 Oct 2007(U/R)
- Columbus transfer to the canister 26 Oct 2007 (U/R)
- ICC-LITE On Dock 29 Oct 2007 (U/R)
- ICC LITE Transfer to Canister 29 Oct 2007 (U/R)

PAD

- Payload Transfer To Pad 01 Nov 2007 (U/R)
- Columbus and ICC-LITE IVT 09 Nov 2007 (U/R)
- Payload Closeouts 02 Dec 2007 (U/R)
- Launch (N.E.T.) 06 Dec 2007 (U/R)



ISS AND SPACECRAFT PROCESSING SUMMARY

- **NO ISSUES OR CONCERNS**
- **The KSC STS-122 ISS and Spacecraft Processing Team is ready to process the 1E Mission payload complement**





STS-122 Launch Site Flow Review

Presenter **Kenneth Nowak**

Date **05-24-07**

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-122 Launch Site Flow Review

Presenter **Kenneth Nowak**

Date **05-24-07**

SSP System Drawings

The Drawings Baseline Was Released By PRCB S0115122B on 11-09-06

- **V072-000001-268** (Rev. UY01) Space Shuttle System (Rel. 5-08-07)
 - **V072-200202-003** (Rev. C01) Mission Equipment Cargo Support (Rel. TBD)
 - **SGD32104445-401** (Rev. TBD) Crew Compartment Configuration (Rel. TBD)
 - 402** Descent
 - **V070-000001-004** Orbiter General Assembly
 - **V070-410100-018** SSME Installation
 - **10100-0061-168** Integrated SRB General Assembly (BI-132)
 - **80901000000-510** External Tank Assembly (ET-125)

- **STS-122 Mission Configuration Product Plan (MCP)** was published at CIR+70 Days on 4-30-2007, and will be republished at ORR-14 Days, date TBD.



STS-122 Launch Site Flow Review

Presenter **Kenneth Nowak**

Date **05-24-07**

SSP System Drawings - Cont'd

Ferry Configuration

- **V072-000001-269** (Rev. UY01) Space Shuttle System Drawing (Rel. 5-08-07)
- **V072-200202-004** (Rev. C01) Mission Equipment Cargo Support (Rel. TBD)
- **SGD32104445-001** (Rev. TBD) Crew Compartment Configuration (Rel. TBD)
- **V072-300055-023** (Rev. BL01) Ferry Flight Configuration (Rel. 6-21-06)

SCA 905



STS-122 Launch Site Flow Review

Presenter **Kenneth Nowak**

Date **05-24-07**

Modification Impact Report

- **Mission Equipment Modifications and Orbiter Modifications analyzed for impact to OMRSD, LCC, ICD, EMI, Software, and GSE.**
- **A total of 19 MCRs have been approved and/or pending mods**
- **Current MCR impact status:**
- **No impacts for all six disciplines 8**
- **One or more disciplines with impacts, documentation approved and/or pending approval 4**
 - **MCRs 19112, 19533, 19563, and 19755 impacts are closed**



STS-122 Launch Site Flow Review

Presenter **Kenneth Nowak**

Date **05-24-07**

Modification Impact Report

- Possible impacts still under review

7

- MCRs 18888, 19114, 19343, 19789, 23411, and 23440 are being reviewed for OMRSD impacts
- MCR 19789 is being reviewed for ICD impacts
- MCR 23448 is being reviewed for EMI impacts

underlined MCRs have impacts in other disciplines

MCR/ECP	STAT	ITEM/KIT NUMBER	SEQ	DESCRIPTION / GENERAL REMARKS	PRCB	PRIO
-----	SITE	TCTI NUMBER	EISN NO.	-----	AUTHDATE	FLT
017222	AUTH KSC	TCTIM0017222REF	0004 004	WLE SENSOR SYSTEM VOLTAGE BOOST REGULATOR MOD ADDED PER VM, MOD ON VENDOR HW BEING DONE AT KSC. MCR 17222. REPLS TCTIMGFE0000REF,0003,0	S115120B 2007-02-08	MAND 029
	AUTH KSC	TCTIM0017222REF	0002 000	OBSS AFT TRANSITION EVA WORKSITE INTERFACE FIXTURE - SOCKET ADDED PER VM REQUEST FOR GFE HDWE BEING INSTALLED BY KSC/ REPLCD RECORD TCTIMGFE0000REF,0002,0	S115120B 2007-02-08	MAND 029

TOTAL MODS = 2

MCR/ECP	STAT SITE	ITEM/KIT NUMBER TCTI NUMBER	SEQ EISN NO.	DESCRIPTION / GENERAL REMARKS	PRCB AUTHDATE	PRIO FLT
	AUTH KSC	J5881A	0104 001 SPAR	LOWER LESS ACCESS CARRIER PANEL POST FLT TORQUE CK VERIF	ORB-0076R09 2006-06-05	SCHD 029
	AUTH KSC	J5883	0104 001 SPAR	HUB AND DRAIN HOLE TILE MANUAL DEFLECTION TEST	ORB-0076R04 2005-08-16	MAND 029
	AUTH KSC	J5884	0104 001 SPAR	THERMAL BARRIER FLOW PATH INSPECTIONS	ORB-0076R05 2005-08-16	MAND 029
	AUTH KSC	J5885	0104 001 SPAR	ARROWHEAD TILE INSPECTION	ORB-0076R06 2005-08-16	MAND 029
	AUTH KSC	J5897	0104 001 NSW	MID FUSELAGE SAMPLING AND FASTENER REPLACEMENT MOVED TO STS-122 FROM STS-120 PER REMANIFEST REF. S042013GH	S052923UZ 2005-06-09	MAND 029
	AUTH KSC	J5919B	0104 002 SPAR	0-GAUGE PROTECTION FOR OV-103 FLIGHT 32-35 AND OV-104 FLIGHT 27-30	ORB-0076R08 2005-11-09	MAND 029
	AUTH KSC	J5926	0104 001 SPAR	BODY FLAP PDU GEARBOX FLUID LEVEL INSPECTION	ORB-0076R02 2005-08-11	SCHD 029
	AUTH KSC	J6116	0104 001 SPAR	AMES GAP FILLER REMOVAL AND REPLACEMENT	ORB-0076R11 2006-08-16	MAND 029
	AUTH KSC	J6154	0104 001 SPAR	POSTFLIGHT DAMAGE 3-D ACQUISITION	ORB-0076R13 2006-08-23	MAND 029
	AUTH KSC	J6162	0104 001 SPAR	PERFORM MEASUREMENTS ON OBSS MPM SHOULDER & X-GUIDE ON IBA	ORB-0076 R14 2006-10-23	MAND 029
	AUTH KSC	J6166	0104 000 SPAR	E/AMEC TIN WHISKER MITIGATION & SMIA NUT MOD COMPLETION FOR OV-104	ORB-0076R23 2007-03-20	MAND 029
	COMP KSC	J6169	0104 000 SPAR	SASA FSE TO GAS BEAM FIT CHECK	ORB-0076R15 2006-11-06	MAND 029
	COMP KSC	J6185	0104 001 SPAR	REMOVAL AND INSPECTION OF BBU'S IN OV-104 GPC'S #1,2,3,& 4, AND INSTALLATION OF REPLACEMENT BBU'S ALL BBU'S COMPLETED ON FLT 28 WAD	ORB-0076R16 2006-12-11	MAND 029
	AUTH KSC	J6187	0104 000 SPAR	ADTA #3 AND #4 RETROFIT FOR OV-104, FLT 29	ORB-0076R17 2007-01-08	MAND 029
	AUTH KSC	J6196	0104 000 SPAR	CERAMIC INSERT INSPECTION	ORB-0076R18 2007-02-05	MAND 029

AUTH KSC	J6198	0104 000 SPAR	OV-104 MID FUSELAGE LOCK BOLT OPPORTUNITY SAMPLING AND FASTENER REPLACEMENT	ORB-0076R21 2007-03-12	MAND 029
AUTH KSC	J6201	0104 000 SPAR	RJDA #2 AND RJDF #1 R&R FOR OV-104, FLT 29	ORB-0076R25 2007-03-22	MAND 029
AUTH KSC	J6202	0104 000 SPAR	REMOVAL & REPLACEMENT OF OV-104 WINDOWS THERMAL PANE 1 THROUGH 6 FOR OV-104 FLIGHT 29	ORB-0076R19 2007-02-14	MAND 029

MCR/ECP	STAT SITE	ITEM/KIT NUMBER TCTI NUMBER	SEQ EISN NO.	DESCRIPTION / GENERAL REMARKS	PRCB AUTHDATE	PRIO FLT
	AUTH KSC	J6204	0104 000	POST FLIGHT AMES GAP FILLER VERIFICATION AND PULL TESTING	ORB-0076R20 2007-03-05	SCHD 029
	AUTH KSC	J6207	0104 000	REMOVAL/REPLACEMENT OF OV-104 SYSTEMS 1,2 & 3 WATER SPRAY BOILERS AGING	ORB-0076R22 2007-03-13	MAND 029
	AUTH KSC	J6216	0104 000	PERFORM VOLTAGE BOOST REGULATOR SYSTEMS ACCEPTANCE TESTING MOVED TO STS-122 FROM STS-120 PER REMANIFEST REF. A042013GH	S052923ZY 2007-03-07	MAND 029
	PLND KSC	J6223	0104 000	MBSU PFAP TO SPA BEAM FIT CHECK	ORB-0076R24 2007-03-20	MAND 029
	PLND KSC	K6182	0103 000	WINDOW CAVITY CONDITIONING SYSTEM MANIFOLD FLOW TEST	ORB-0079R21 2007-02-22	MAND 034
019810	AUTH KSC	TCTIV7019810REF NOT REQUIRED	0104 000	MEC SMIA MOUNTING NUTS ADDED BY EDS I/F, V070-705134 C08 & -705135 C05 MOVED TO STS-122 PER REMANIFEST FROM STS-120	S115120B 2007-02-08	MAND 029
023467	AUTH KSC	TCTIV6223467REF NOT REQUIRED	0104 000	WASTE COLLECTOR SUBSYSTEM ADDED BY EDS I/F & V070-623002#G07 MOVED TO STS-122 FROM STS-120 PER REMANIFEST	S115120B 2007-02-08	MAND 029

TOTAL MODS =

25

MCR/ECP	STAT	ITEM/KIT NUMBER	EISN	SEQ	DESCRIPTION / GENERAL REMARKS	PRCB AUTHDATE	PRIO FLT
008835	APPD KSC	K725-710084-001	0001	000	ADDITIONAL H/W REQMT TO SUPPORT COLUMBUS EVA CABLE STOWAGE ADDED PER V725-714065 NEW & -714066 NEW	NOT REQD	034

TOTAL MODS = 1

MCR/ECP	STAT SITE	ITEM/KIT NUMBER TCTI NUMBER	SEQ EISN NO.	DESCRIPTION / GENERAL REMARKS	PRCB AUTHDATE	PRIO FLT
KLO-1566	COMP KSC	KLO-1566	2056 000	DYE PENETRANT INSPECT HPFTP SPEED SENSORS (POST STS-121) SSME REMANIFEST, PER PRCBD S115122R4, DTD 3/21/07	ME-0220B 2006-08-09	SCHD 005
1354R3	AUTH KAR	2R053848-010	2056 000	REDESIGN OF THE CONTROLLER COOLANT DUCT SSME REMANIFEST, PER PRCBD S115112R4, DTD 3/21/07	ME-0220R02 2006-12-05	SCHD 005
1480	AUTH KAR	2R091575-020	2056 000	ADVANCED HEALTH MANAGEMENT ENGINE CONTROLLER SSME REMANIFEST, PER PRCBD S115122R4, DTD 3/21/07	ME-0220R01 2006-09-29	SCHD 005
	INC KAR	2R091600-020	2056 001	NOZZLE RE-ID ONLY. ABLATIVE REMOVAL PERFORMED IN SEQ 0 SEE SEQ 0 FOR ABLATIVE REMOVAL. NOZZLE RE-ID DEFERRED DUE TO IN-ASSESSABILITY DOING SEQ 0.	S060983TR2 2006-06-21	005
1511	AUTH KAR	2R091613-010	2056 000	WEIGHT UPDATES FOR AHMS ENGINE CONTROLLER SSME REMANIFEST, PER PRCBD S115122R4, DTD 3/21/07	ME-0220R01 2006-09-29	SCHD 005

TOTAL MODS = 5

Approved STS-122 OMRS Waivers and Exceptions

WVR EXC	ELEMENT PROJECT	PRCBD NUMBER WAIVER# (STAT) (INITIAL STS)	ABSTRACT RAS REQUIREMENTS	STS EISN PAYLOAD	BEG	END
+	E	ORB	S053297AU EV10331R1 (A)	OMRSD EXCEPTION REQUEST - V30 INTERVAL EXTENSION TO 6 YEARS (EV10 331R1)	104	027 030
			S053297BP EK10355 (A)	OMRSD EXCEPTION REQUEST - V31 MID FUSELAGE ZONAL INTERNAL SURVEIL LANCEINSPECTIONS (EK10355)	104	027 030
			S053298FM EK10492 (A)	OMRSD EXCEPTION REQUEST - OV-104 VENT DOOR ZONAL INSPECTIONS (EK1 0492)	104	027 029
	SSME		S053298HG EK10501 (A)	OMRSD EXCEPTION REQUEST - SSME HE BARRIER SYSTEM INFLATION EXCEPT ION(EK10501)	2056	005 005
	W	OMS	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
			S053298NV WK10522 (A)	OMRSD WAIVER REQUEST - RIGHT OMS SECONDARY REGULATOR CREEP RATE(W K10522)	0021	035 043
	ORB		S053296YT	OMRSD WAIVER REQUEST - PV6	104	027 031

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	<p>The following requirement is waived to allow OV-104 to fly with the following out-of-configuration condition:</p> <p>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.</p>	OV-104, Flight 27 thru OV-104, Flight 999	STAYS OPEN