

STS-122 Integrated Delta Launch Site Flow Review

Presenter
Stephen Reilly

Date
PRCB 03-08-07

Program Freeze Point

PRCB Presentation

S115122D

STS-122 Integrated Delta Launch Site Flow Review

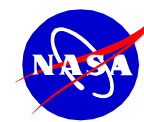
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PRCB 03-08-07

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

The STS-122 Integrated Launch Site Flow Review requirements were established by PRCBD S115122R1 dated 12/14/06. This CR and the Associated Data Package were reviewed at the 03/05/07 FRWG.

KSC Integration*		MK-SIO
<u>Orbiter Engineering*</u>	<u>Requesting Approval</u>	<u>USA-OE</u>
GFE FCE*		MV5
<u>SSME*</u>	<u>Requesting Approval</u>	<u>MP21</u>
Shuttle Processing*		PH-B2
	<u>Status in BackUp</u>	
Flight Integration		MO3/USA-PI
Flight Software		USA-FSW
GFE EVA		XA
Payload/Cargo Engineering		USA-PI
ISS/Payload Operations		UB-N



STS-122 DELTA LAUNCH SITE FLOW REVIEW

Presenter Ken Nowak
Date March 8, 2007

LAUNCH

10/17/07
 39A/ MLP1
 CREW SIZE: 7 UP/7 DN

ORBIT

51.6 DEG
 122 NM
 DIRECT INSERTION
 DURATION: 13+1+2 DAYS

CONFIGURATION

OV-103 (34)
 LP01;RP03
 ET-125
 BI-132
 RSRM-99
 PROPOSED: (1) 2059 (2) 2052 (3) 2056
 OI-32
 RMS,ODS,OBSS,SSPTS

CONSUMABLES

CRYO TANK SETS	5 (OFFLOADED)
GN2 TANKS	6 (FULL)
FWD RCS	1912# (2446# FULL)
AFT RCS	4970# (FULL)
OMS	24931#

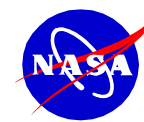
PAYLOAD

ISS-1E
 (COLUMBUS)
 ICC-LITE
 ECHS
 PDGF

LANDING

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

FDRD UPDATE REQUIRED TO MANIFEST SSME'S



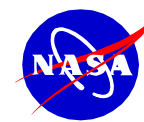
STS-122 DELTA LAUNCH SITE FLOW REVIEW

Presenter Ken Nowak
Date March 8, 2007

PERFORMANCE MARGIN

• SIMULATION MARGIN (CIRAF122)		+2048
• WEIGHT CHANGES SINCE SIMULATION		
• PAYLOAD	-290	
• OPERATOR	-60	
• ORBITER	+65	
• CREW COMPARTMENT	+219	
• ROUND OFF DEVIATION	+1	
TOTAL WEIGHT CHANGES	-65	+65
• OTHER PERFORMANCE PROJECTIONS		
• PROTECTION FOR DOL DISPERSIONS		-700
• SRB – M/P UPDATES		-58
• SRB BR / 0.70 MIL HIGHER THAN 0.3705 AVG		+140
• ISP/THST FOR GEN BLOCK 2 @104.5%		-225
• PROJ TO 5 MIN WINDOW FROM INPLANE		-600
• PERFORMANCE CHANGES ADJUSTMENT		-4
• CURRENT BASELINED APM (03/06/07)		+666
• PROPOSED ENGINE SET 2059, 2052, 2056		-38
• PROJ APM		+628

VOLUME III: ASCENT PERFORMANCE MANAGER'S RESERVE GUIDELINE (POST-CIR/FPSR) IS 800 LBS



STS-122 DELTA LAUNCH SITE FLOW REVIEW

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FLIGHT MASS PROPERTIES

<u>CASE</u>	<u>TOUCHDOWN</u>		<u>MACH 3.5</u>	
	<u>WEIGHT pounds (LIMIT)</u>		<u>X C.G. inches (LIMIT)</u>	
NOMINAL	206596	(233000)	1077.3	(1075.7)
RTLS	240237	(245000)	1080.0	(1077.2)
TAL	238814	(244000)	1080.0	(1077.2)
AOA	235100	(242000)	1077.6	(1075.7)
CONT RTRN**	236507	(233000)	1079.5	(1075.7)

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

NOTES: RTLS: 185 SEC ARCS DUMP; 25 SEC FRCS DUMP
 TAL: 120 SEC ARCS DUMP; 65 SEC FRCS DUMP
 104 LBS. AFT FUS BALLAST (BOXES ONLY)

ESTIMATES BASED ON CIRAF122 AND MODIFIED FOR WEIGHT CHANGES THRU 03/06/07.

STS-122 DLSFR OV-103 FLIGHT 34 CONFIGURATION UPDATES

**Alan Ling
USA Orbiter Element**

March 8, 2007

STS-122 OV-103 Flt 34 – DLSFR Updates

Modifications To Be Baselined for OV-103 Flight 34

- 1 new mandatory mod to be baselined
- Update to previously baselined mandatory mod
- 1 new “opportunity” mod to be baselined
- 3 Tech Order updates to be baselined for GFE mods
- Mods baselined since LSFR (Info Only)
- Potential modifications (Info only)

Additional Requirements being tracked:

- Chits
 - Approved
 - In Approval Process / Potential

Authorization Requested for MECSLSI and CCCD Updates for STS-122 Orbiter Mods

- Incorporate updates to CCCD and V072-200202 (OV-103 Flight 34)

Backup

- Engineering, Hardware and Certification Status / Mod Records for Proposed Mods
 - Mandatory and Opportunity Modification Details
-



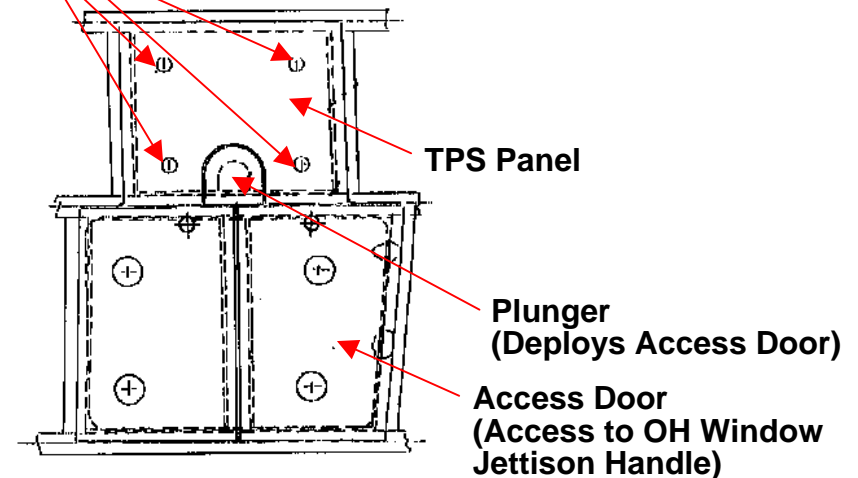
Mandatory Mod to be Baselined for STS-122

- **30005 Bond FRSI Plugs Into Emergency Egress Access Door TPS Panel**

The four FRSI plugs installed in the TPS panel of the RH forward fuselage emergency egress access door installation are a potential debris source. This mod will apply RTV bond to the FRSI plug installation to reduce the likelihood of dislodging during flight. This change does not affect ground crew rescue procedures.



Location of Modified FRSI Plugs



Note: The changes to the above holes do not affect the ground crew rescue procedures.

Update to Previously Baselined Mandatory Mod

- **23488 ECO Sensor Instrumentation (Baselined at STS-122 LSRR)**

Baselined mod implements voltage measurements for all four MPS ECO LO2 and LH2 Sensor Transducer Circuits to provide insight into ECO sensor system performance anomalies.

Potential design changes are currently being evaluated to address a recently discovered design deficiency. The current design can potentially induce a failure in the MPS Point Sensor Box (resulting in erroneous sensor reading) due to inadvertent short circuit on the ECO Sensor instrumentation return circuit wiring, which is not electrically isolated.

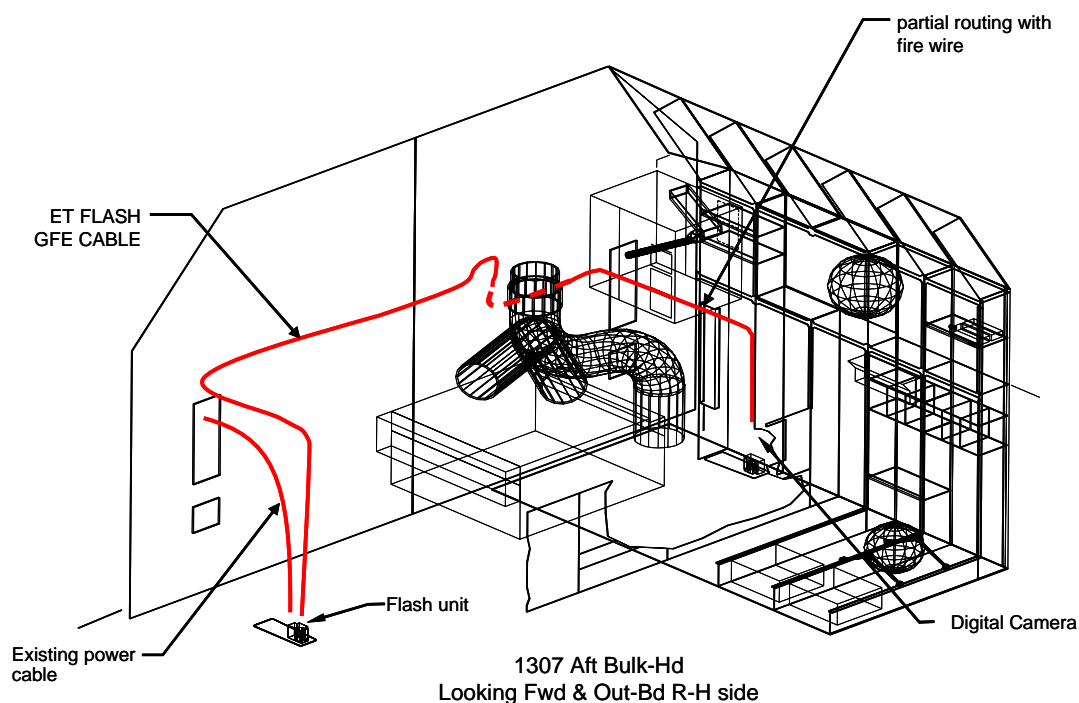
Installation of this mod on OV-103 has not yet begun, and is on hold pending final re-design definition. A decision to implement the re-design for STS-122 (vs. de-baselining) will be made based on engineering and hardware availability to support remaining processing schedule.

Opportunity Mod to be Baselined for STS-122

- **30001 ET Umbilical Camera Flash Installation (Wiring Scar Only)**

This modification will install a flash unit in the RH ET Umbilical to be utilized with the ET Umbilical Digital Camera 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.

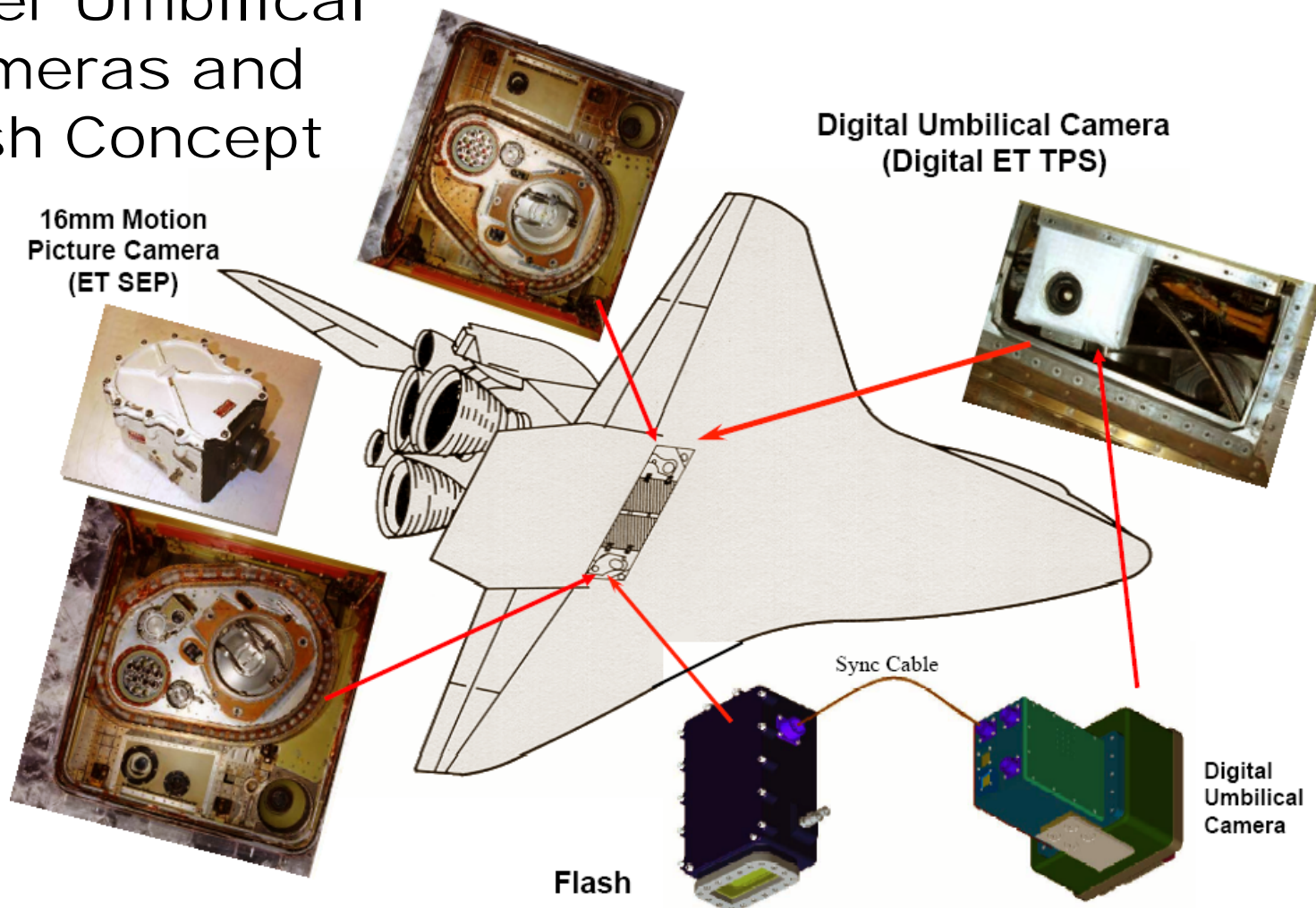
If the GFE cable delivery dates support implementation, GO has the option of installing the GFE cable scar in the aft fuselage during the STS-122 (flight 34) flow (and install the flash unit during flight 35 flow when remaining hardware is available)



Orbiter Wiring
Installation Concept

Opportunity Mod to be Baselined for STS-122 (cont.)

Orbiter Umbilical Cameras and Flash Concept



Orbiter Tech Order Updates to be Baselined for GFE Mods

- **WLE sensor system Voltage Boost Regulator**

The WLE sensor system is being updated with a Voltage Boost Regulator (VBR) circuit to expand the on-orbit operational temperature range of the WLEIDS hardware to allow operation at lower temperatures. Currently, the WLEIDS sensor system battery voltage is limited below ~ 0 degrees F

The VBR will be installed in series internal to the WLEIDS hardware, between the battery assembly and the WLE electronics (sensor and sensor-side relay units)

M072-756111-005 & -006 replace -003 & -004 (MV0886A)

- **IBA Worksite Interface Fixture (WIF) Socket Addition**

The Integrated Boom Assy (IBA) aft transition will be modified by adding one EVA Worksite Interface Fixture (WIF) socket interface which will allow EVA on the end of the IBA if required to reach the under belly of the vehicle in support of potential on-orbit tile repair operations.

M072-544506-003 replaces -002 (MV0092A)

Orbiter Tech Order Updates to be Baselined for GFE Mods

- **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 OBSS sensor package 1 PTU, 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.

Bulkhead cameras: M072-750025 -072, -073, -074 & -075 replace -058, -067, -060 & -061 (MV0548A)

OBSS Sensor Package 1: M072-710282-008 (MECSLSI update in place) (MV0092A)

RMS Elbow Camera: M072-544504-005 replaces -001 (MV0082A)

RMS Wrist Illuminator: M072-544504-006 replaces -003 (MV0082A)

Mods Baselined Since LSFR (Info Only, No Authorization Req'd)

- **19874 BRI-18 Tile, Other Locations (Attrition)**

Implements BRI-18 tile on ET Door perimeter location (NLGD, LESS, and Window 1-6 Carrier Panel locations previously baselined)

- **19001 Elevon Cove Seal Stiffer Spring (Attrition)**

This mod implements the redesigned elevon cove columbium seal spring to provide greater seal stiffness. Stiffer spring will improve sealing and reduce potential for cove structure damage.

- **23141 Thermal Window 7/8 Thicker Pane Mod (Attrition)**

This mod implements a thicker thermal pane for overhead observation windows 7 and 8, which is more tolerant to debris damage during ascent or MMOD.

This mod also includes redesigned window retainer and reversed installation of the Window 8 pyro sep bolt, which will allow R&R of window 8 without scrapping the pyrotechnic cord

Mods Baselined Since LSFR (Info Only, No Authorization Req'd)

- **19896 Emergency Egress Slide Lanyard Mod (CCCD Mod / NFS)**

This mod adds a shorter lanyard to the Emergency Egress Slide to reduce the risk of an incomplete deployment

- **30005 Arrowhead Blanket Stitch Mod**

This mod adds robustness to the Arrowhead RCC thermal blanket (by tying off stitches at one inch intervals on the inboard attachment sleeving) to mitigate blanket protrusion and potential for early boundary layer transition during re-entry. This will reduce the potential for increased heating on the lower surfaces and prevent blanket sleeving from liberating and becoming a debris source.

Potential Mods (Info Only)

- **23452** Fiducial Markings on WLE RCC T-Seals
Design proposal to implement fiducial markings on wing leading edge T-seals 6-11 and nosecap reinforced carbon-carbon (RCC) to facilitate on-orbit imagery X-Y-Z coordinate location identification on RCC inspection areas of interest.
- **30006** Aft Fuselage Access Door (50-1 & 50-2) Fastener Change
Recent measurements on 50-1 & -2 door attach holes (82 per side) found that a majority of the holes exceed design tolerance dimensions, most likely due to ground handling during installation/removal of the access doors and GSE frames. Design options being evaluated to mitigate further damage to structure.
- **30006** ET Umbilical Vent Adjustment Capability
Design options being evaluated to provide adjustment capability to quickly adjust PVD vent hole orifice size in the ET structural access doors to meet structural leakage requirements.

Approved Chits – Info Only

TPS

- J6117B Putty Repairs
- J5883A Hub Tile Deflection
- J5884A Thermal Barrier Inspections
- J5885A Arrowhead Tile Inspections
- J6196 Ceramic Insert Inspections
- J6104 Gapfiller Pull Testing
- J6116 Gapfiller R & R
- J5881A LESS Carrier Panel torque Check
- J6115 Micro Inspection Of FRSI Blankets
- J6119 ET Door Cavity Screed Verification
- J6120 Large Tile Damage Scanning
- J6118 ET Door Paint Stripe Verification

Structures / Mechanisms

- J6176A Lockbolts (Option 3)
- J5930C Corrosion Sampling
- J6141 OBSS Shoulder Measurements
- J6178 Windows 1 – 6 Removal

Approved Chits – Info Only

Fluids

- J6192 Rad Retract Hose Sniff Checks
- J6139 Vernier Thruster Pc Tube Flush
- J6200 WSB Hardware Changeout
- J6208 Landing Gear & Brake Iso valve R & R

Avionics / GFE / Other

- J6106A ASA & ATVC & RJD R & R For Tin Whiskers
- J6165 AMEC / EMEC R & R For Tin Whiskers
- J6179 ADTA Replacement
- J6186 OBSS Post Flight Inspections
- J6194 SCU R & R
- J6193 TPS Photographs On Runway
- J6109 Radiometer 9 L R & R
- J5919B '0' gauge Wire Protection
- K6182 New Procedure For In Place WCCS Dessicant Cannister Flow Verification

Chits – Info Only

In Approval Process

- J6212 Evaluation Of Ceramic Inserts
- J6132A MPCA Removal For Fuse Holder Solder Joints
- J6216 VBR System Acceptance Testing
- JXXXX SSPTS Checkout
- JXXXX Radar Altimeter R & R For Tin Whiskers

Potential Chits

- OBSS Cable inspections (RCN OV17273)
- Install GPS MAGR Link – 008 Software
- IMU R & R For Modified Slip Ring
- Interface Verification Test (IVT) Procedure Changes
- Body Flap PDU R & R (Flt 35 Chit that can be worked on Flt 34 if opportunity arises)



STS-122 DLSFR Flight Crew Equipment/GFE	Presenter MV5 / Kenneth Brown	
	Date March 8 th , 2007	Page 1

STS-122 DLSFR

FCE/GFE Status

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



STS-122 DLSFR Flight Crew Equipment/GFE	Presenter MV5 / Kenneth Brown	
	Date March 8 th , 2007	Page 2

- Majority of need dates and delivery dates have been partnered through CIR, IPT and weekly GFE telecons; team working to partner remaining dates

- Tech orders and hardware list noted in backup charts

- Major changes since STS-116
 - New Pan Tilt Units (-510) to be delivered for cameras A, B, C, D, elbow and OBSS.
 - First flight of third OBSS
 - WIF install to occur at KSC
 - New Wing Leading Edge Voltage Regulator
 - Will extend life of battery at cold temperature



Discovery STS-122

Delta Launch Site Flow Review

Space Shuttle Main Engine

08 March 2007

**SSME- KSC
Greg Haile
(321) 861-4060**

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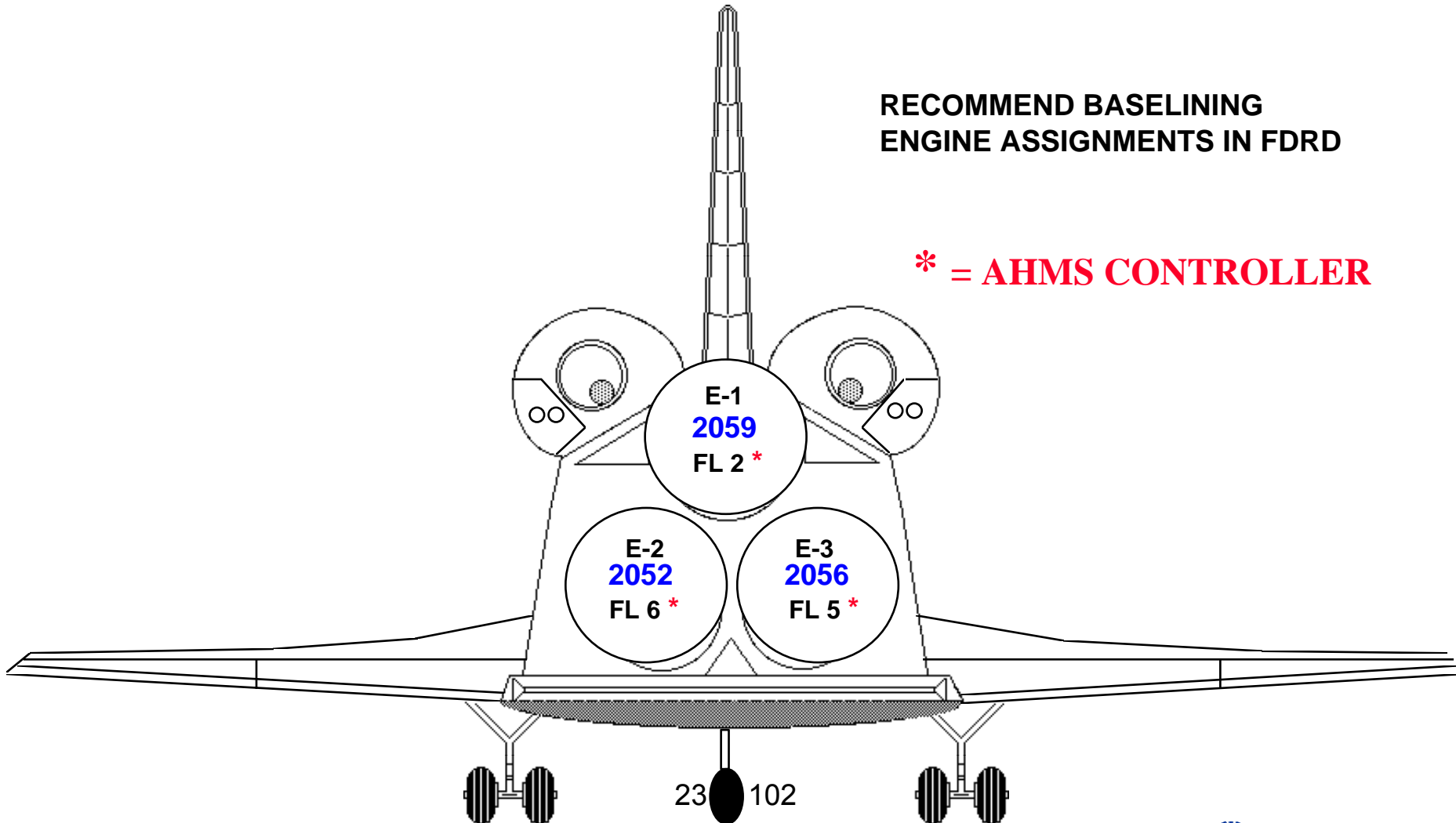


STS-122 Delta Launch Site Flow Review

Engine Allocation/Location

RECOMMEND BASELINING
ENGINE ASSIGNMENTS IN FDRD

*** = AHMS CONTROLLER**



KSC Launch and Landing Project

STS-122

Delta Launch Site Flow Review

March 8, 2007

Agenda

- Multi Flow S.Stilson / NASA
- Flight Element Processing W.Bingham / USA

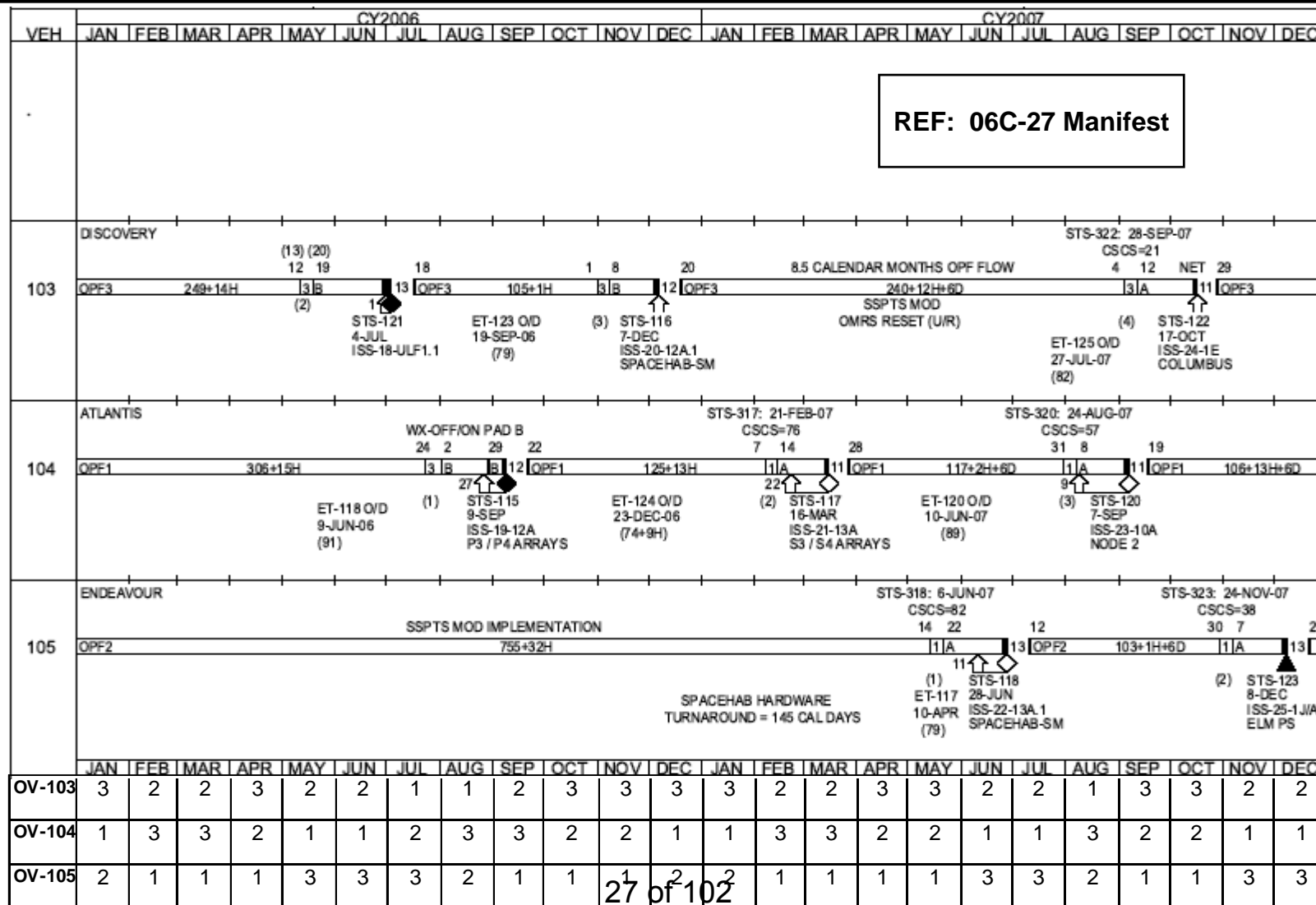


Multi Flow

S.Stilson

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Vehicle/TPS Manpower Allocation Priority



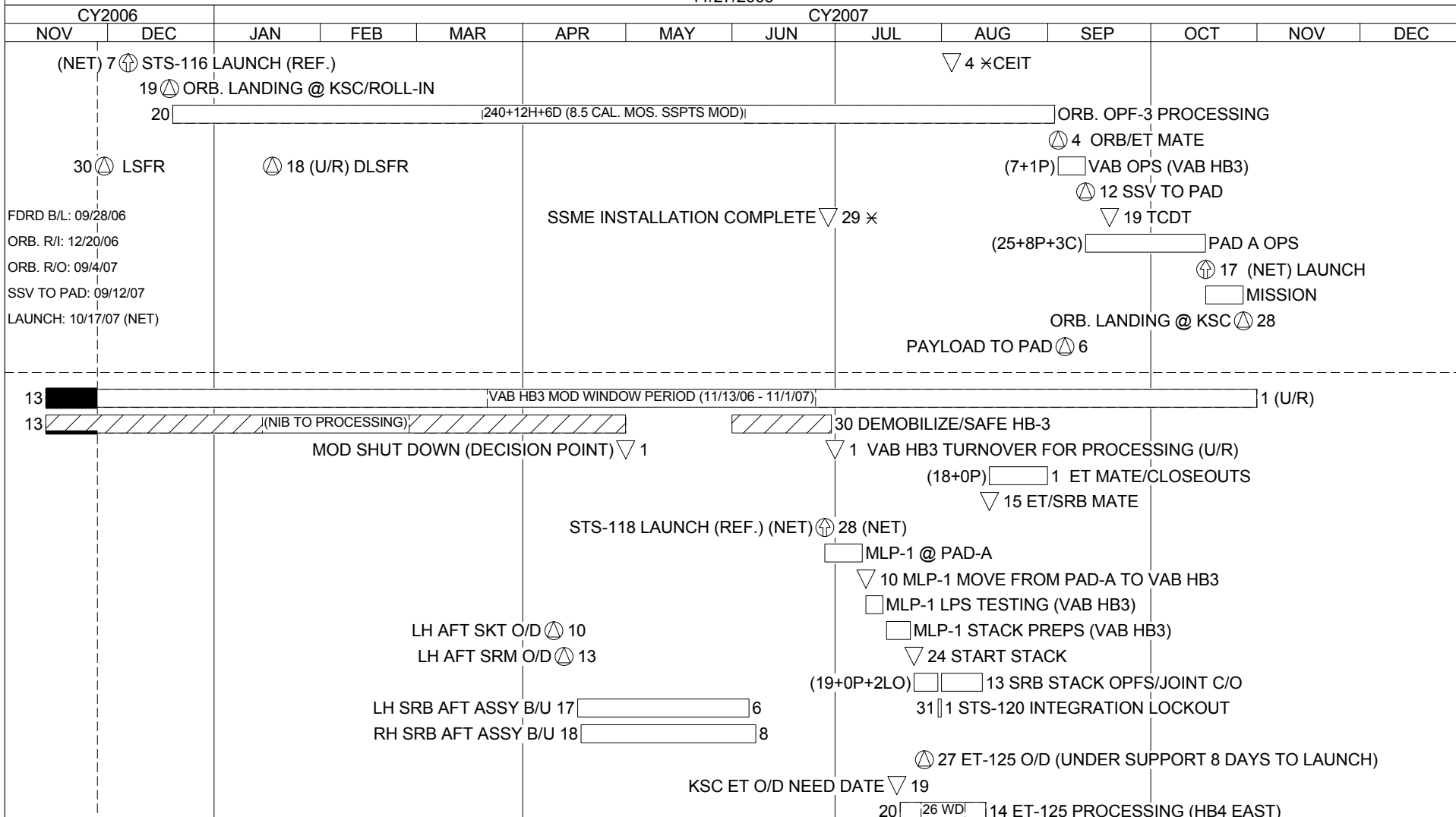
STS-122 KSC Milestone Interface Chart

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

OV-103/34/ ISS-24-1E / COLUMBUS
CREW / DURATION: 7UP - 7DWN / 11
ET 125/ BI132 RSRM 99 / MLP-1 / PAD-A / VAB HB3

(REF. LR 06C-5A)

Status as of:
11/27/2006



THREATS: 1. ET DELIVERY & PROCESSING
2. VAB HB3 DOOR MOD SHUT DOWN (DECISION PT. 5/1/07)

NOTES: 1. TWENTY-FOURTH ISS/SSP FLIGHT

Flight Element Processing

W. Bingham

Flight Element Processing Overview

- Milestone Summary To Be Presented
- Significant Processing Deltas To Be Presented
- TPS Status To Be Presented
- Issues and Concerns To Be Presented
- Backup Not Presented
 - Stoplight Chart To Be Presented

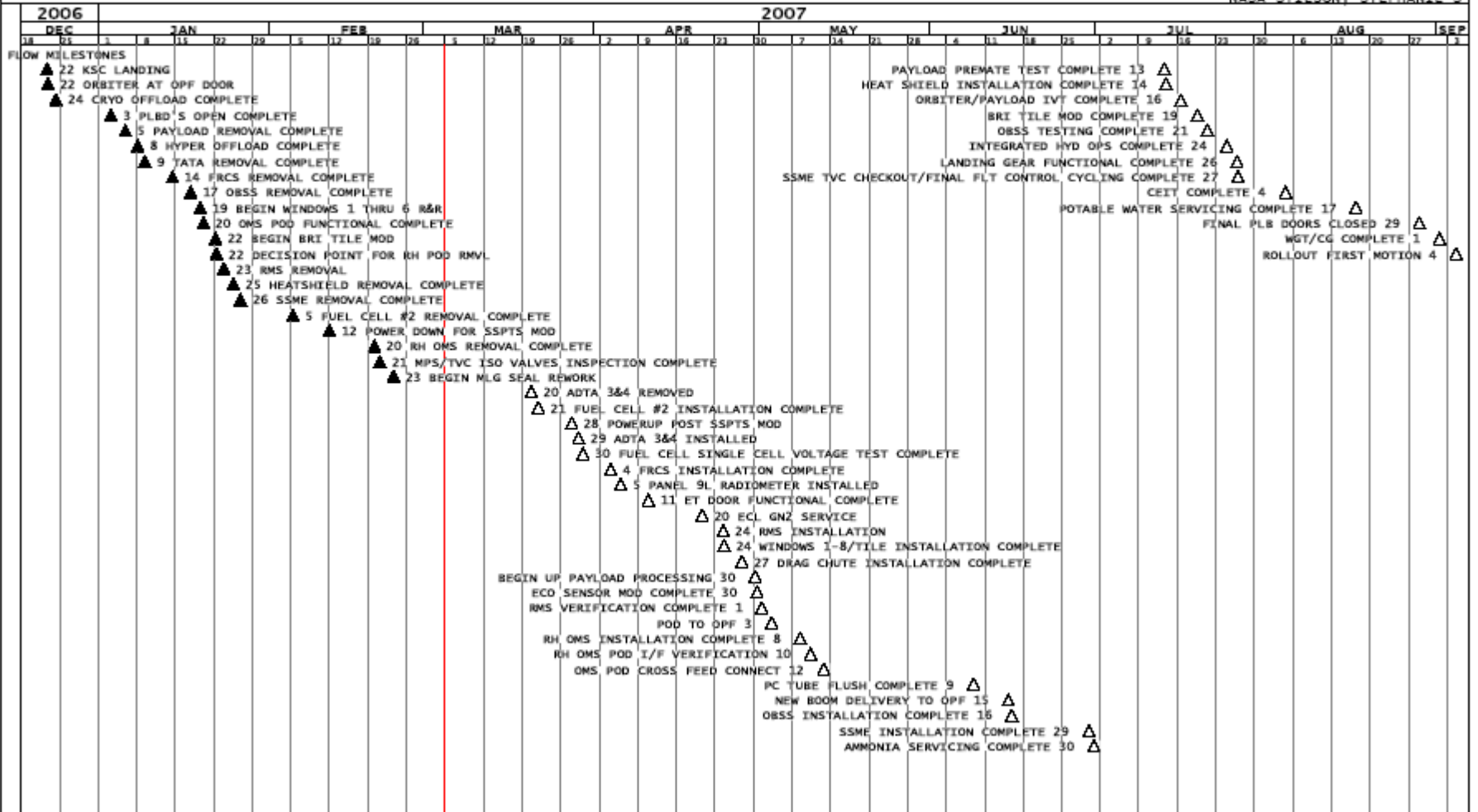
STATUS

USA	NASA
C	C
CoConcur	NCWOT-coconcur

Creation Date: 3-OCT-2006
 Revision Date: 5-MAR-2007
 Revision :5

STS-122/OV-103 OPF FLOW MILESTONES
 DOWN PAYLOAD:ISS-20-12A.1/SHAB UP PAYLOAD:ISS-24-1E/COLUMBUS

OPR:USA-BINGHAM, WAYNE W
 NASA-STILSON, STEPHANIE S



▲ PLAN/BASELINE ◆ DEVIATION FROM BASELINE ▲ ◆ ACTIVITY COMPLETED △ ACTIVITY CANCELED △ △ ACTIVITY DURATION **** SCHEDULE CHANGE

STATUS DATE: 5-MAR-2007 11 PLOT DATE: 5-MAR-2007, 12.08 pm NETWORK: OPF122.280 CONTACT: B. COREY ,7-8334 OPF BAY-3 EXECUSOPFSU.27

Significant Processing Deltas

- FRCS R/R
- R/H POD R/R
- Reset of OMRSD to fly out to end of Program

TPS Status

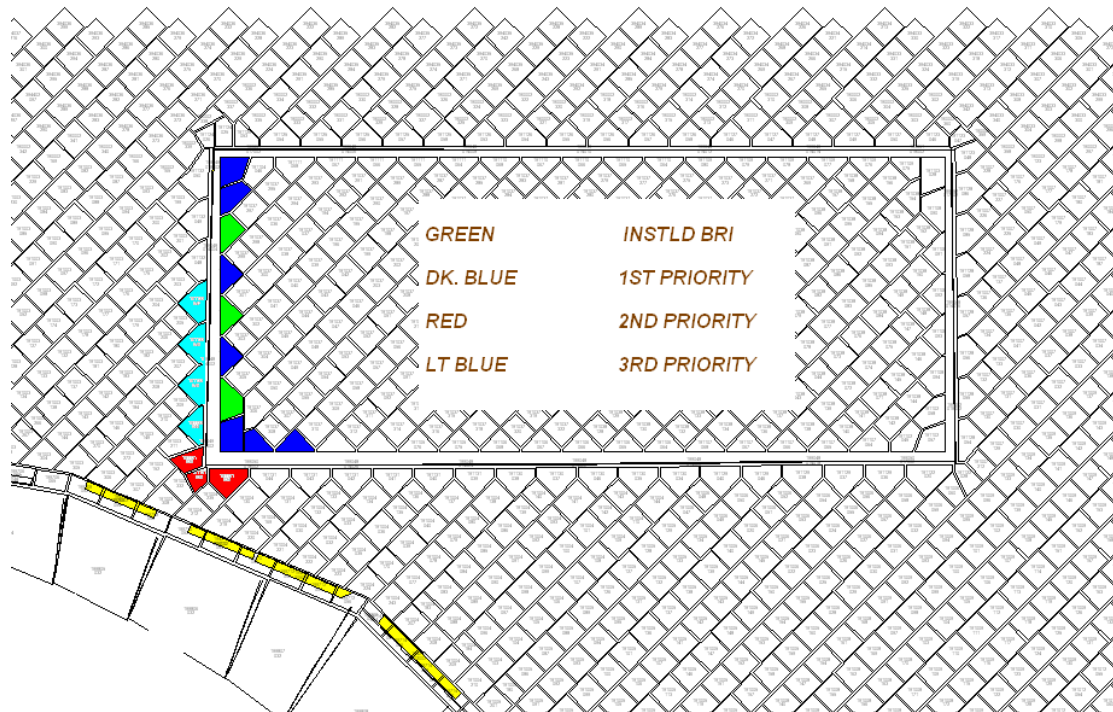
- **TPS Inspections 97% complete**
 - 117 Cavities
 - 1127 Total WADs
 - 370 Closed WADs
 - 177 Need Engineering Dispo
 - 757 Open WADs
- **Gap fillers**
 - To Accomplish ~ 1400
 - Zonal Boundary Inspections

LSFR/ Δ LSFR TPS Cavity Comparison

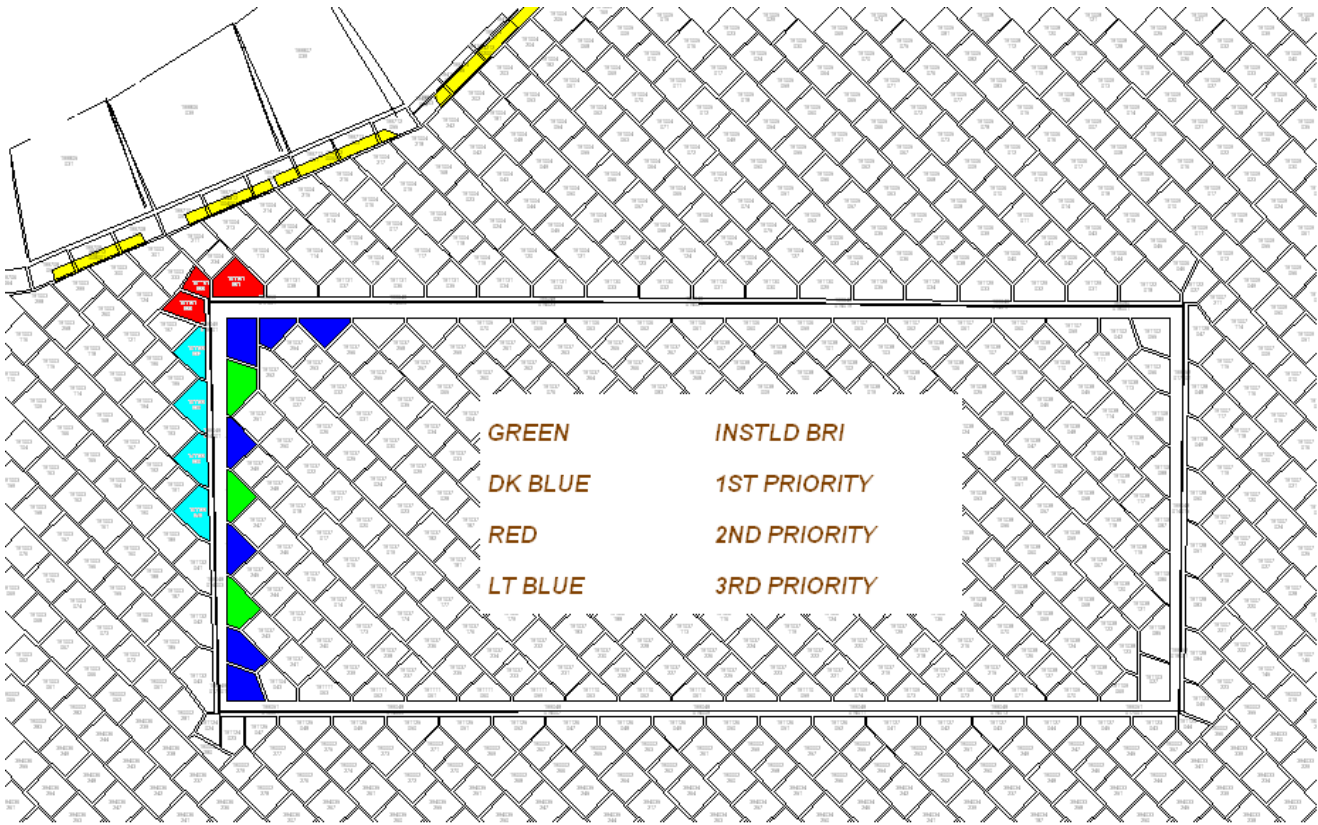
	LSFR	Δ LSFR
● Deferred Tile/ Fib For 1 Flight (Minimum)	19	19
● In-Flight Damage	60*	8*
● Putty Repair Inspection	10*	18*
● FIB Inspection	20*	20
● Operational Damage / Processing Support	12*	9*
● Removals From 1400 Gap Filler R & R	4*	4*
● Radiometer	1	1
● BRI		
● MLG	28	28
● ET DOORS (Part of Flight Damage)	0	11
● Lockbolts	20*	9
Totals	174	127

* = estimation

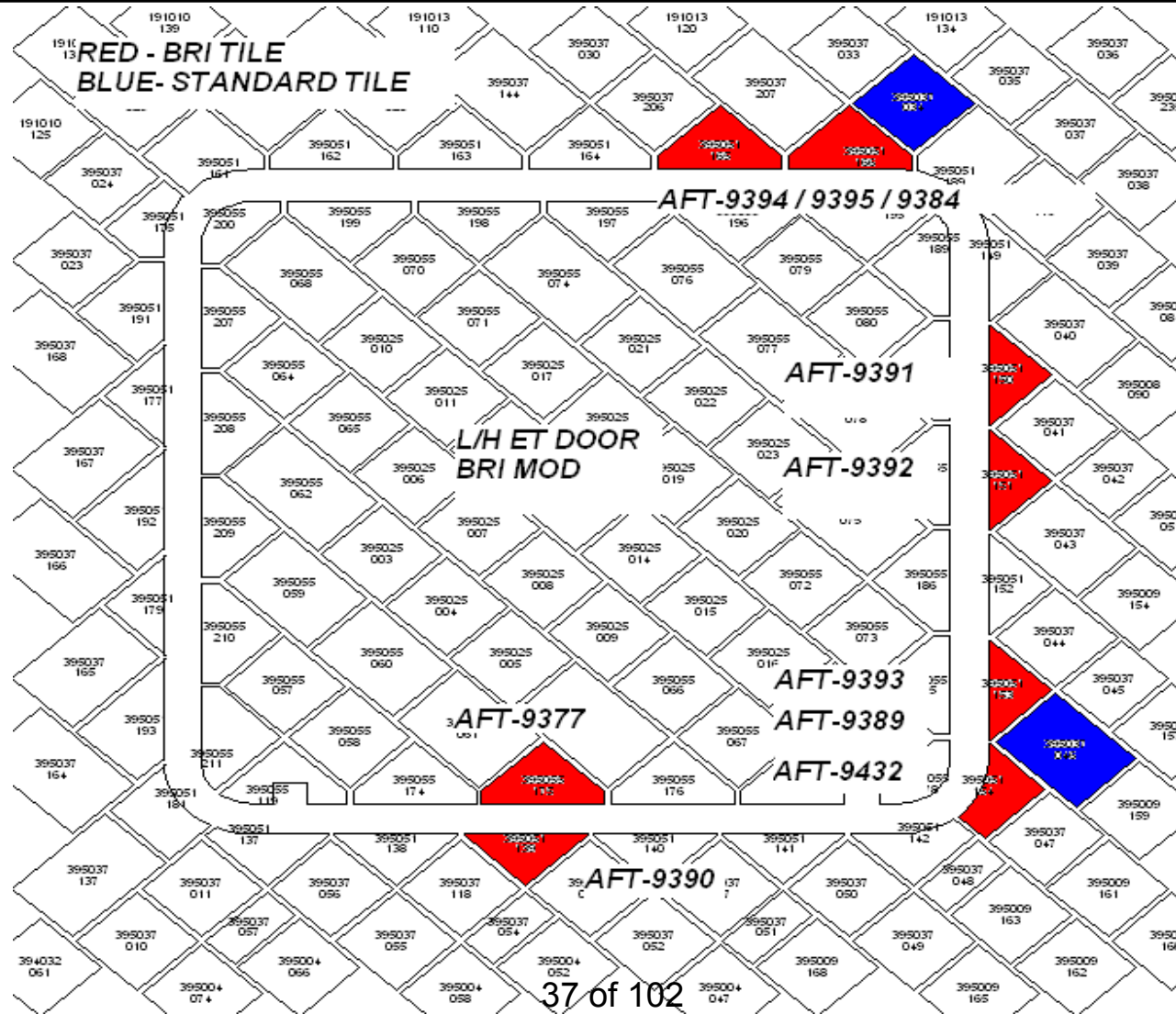
R/H MLG Door BRI



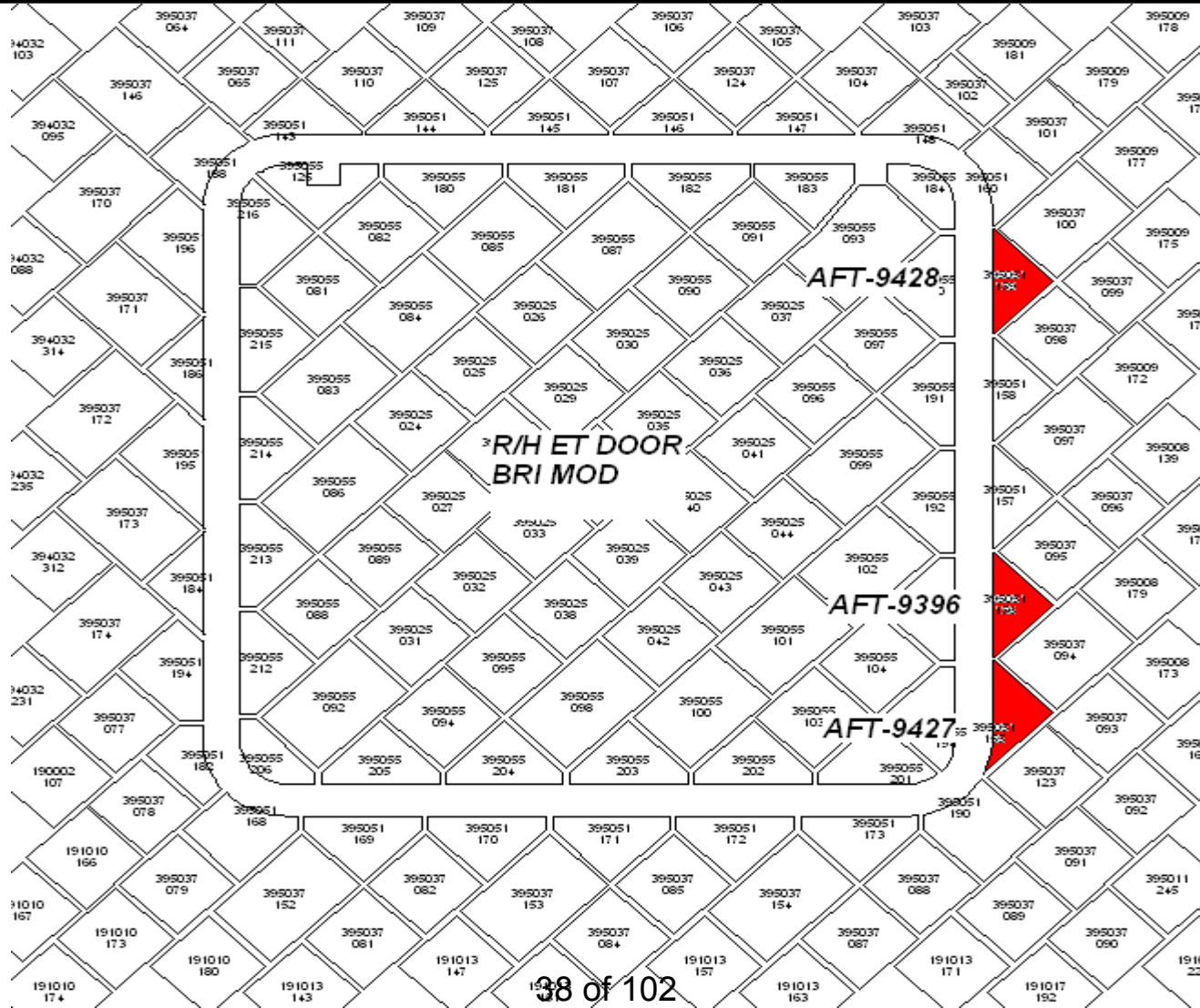
L/H MLG BRI



L/H ET Door BRI



R/H ET Door BRI



Additional BRI Considerations

- **Determine final cavity count**
 - Evaluation to be complete in April; configuration driven
- **Based on cavity count being lower than expected define how much more BRI can be accomplished**
 - **Use updated BRI priorities**
 - OPO provided updated maps 3/7
 - **Evaluate TPS resource allocation across the fleet**
 - OV-103 third priority – minimal resources
 - TPS Quality / High Crew supporting STS-117
 - **Evaluate TPS Backshop production capabilities**
 - Longer Optigo Process
 - **Vehicle Configuration Requirements**
 - MLGD / ET Door / Jack Configurations / Door Cycle
 - Phased Implementation Approach
- **Potential for OPF rollout date to move to the right could further increase the amount of BRI this flow**
 - Assessment is being developed based on current manifest options

Issues and Concerns

- **Vehicle Priority**
 - Vehicle Processing
 - TPS Processing
- **Work Content Growth**
 - 14 Additional Chits Since LSFR
- **FRCS Rework**
- **R/H POD Rework**
 - Attach point # 2
- **SSPTS**
 - Fallout PR's / IPR's / PTU Delivery
- **LOB Columbia Seal Rework**

STATUS

OPR: USA - J. Taylor, INTEG FM (1-7420)
NASA - D. Lyons, PH-A2 (1-9221)

STS-122 / OV-103

Integrated Operations Assessment Summary

Payloads: ISS-24-1E COLUMBUS (VERT)

USA NASA

CONCUR

Creation Date: 11 JAN 07
Revision Date: 12 FEB 07
Revision: A

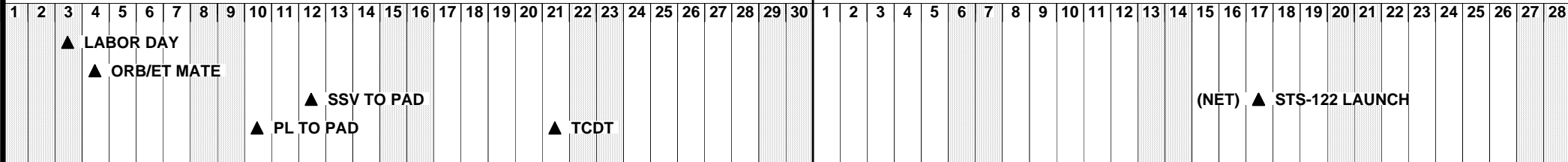
C C

C=Concur NC=Non-Concur

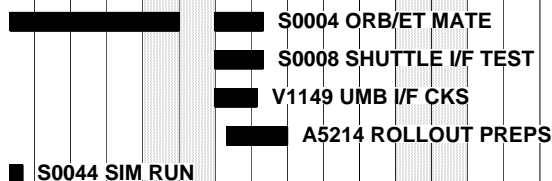
2007

SEPTEMBER

OCTOBER

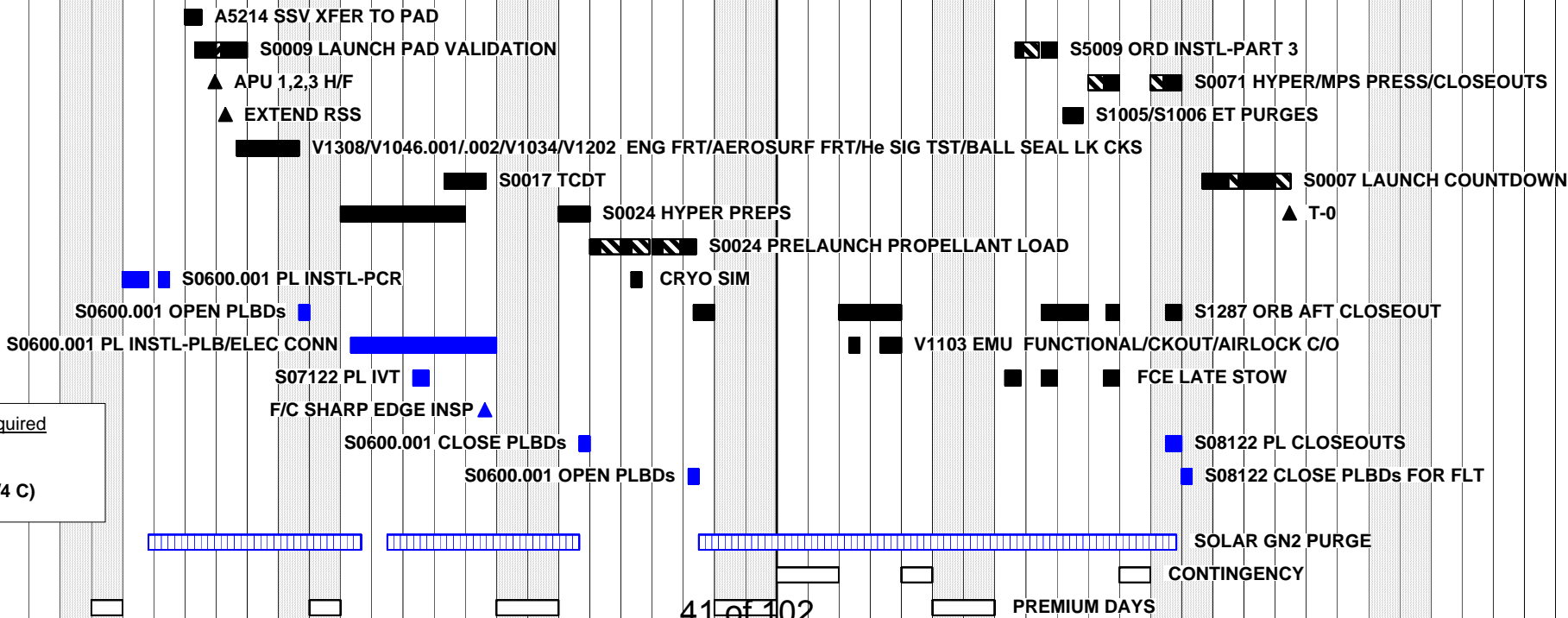


VAB HB-1/MLP-X



PRELIMINARY

PAD A



Workdays Required

7 VAB (1 P)

25 PAD (7 P/4 C)

STS-122 Integrated Delta Launch Site Flow Review

Presenter
Stephen Reilly

Date
PRCB 03-08-07

Backup Material

FRWG Presentation (With Minor Changes)



STS-122 Delta Launch Site Flow Review

Presenter

MK-SIO / A. Swift

Date

3-8-07

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Mandatory RCNs:

None

Non-Mandatory Value Added RCNs:

OV17212R2
OV17232R1
MB17302
OV17231R1
OV17317

V05 - OMDP INTERVAL EXTENSION
V58 - OMDP INTERVAL EXTENSION
B00 - SRB TVC HYDRAULICS
V09 - OMDP INTERVAL EXTENSION
V41 - 750 PSIA REG OUT & CAL CURVE

ECD 3/9/07
03/30/07
03/21/07
ECD 3/9/07
PRELIMINARY

BACKUP

- Mod Record and MECSLSI Updates
- Engineering, Hardware and Certification Status

Mod Record / MECSLSI Updates for STS-122 DLSFR

MCR NO.	MCR TITLE	KIT/ MOD RECORD & DESCRIPTION	TECH ORDER IMPACT	REMARKS
Modification to be Baselined				
30001 Antonios	ET Umbilical Scar Camera Flash Installation (Opportunity) Mod installs a flash unit in the RH ET Umbilical to be utilized with the ET Umbilical Digital Camera to provide supplemental light to illuminate the ET for enhanced photographic and motion picture images during external tank (ET) separation. Flash will fill in shadow areas during day light and provide illumination for night launch. Flash unit and cable are GFE provided hardware. Plan is to install the GFE cable scar in the aft fuselage during this flow and install and utilize the flash unit during flight 35.	030001.0103.0 - Placeholder for installation of GFE cable for umbilical camera flash	No Tech Order Impact for STS-122	No MECSLSI Impact
30005 Barnum	Bond FRSI Plugs Into Emergency Egress Access Door TPS Panel (Mandatory) The four FRSI plugs installed in the TPS panel of the RH forward fuselage emergency egress access door installation are a potential debris source. This mod will apply RTV bond to the FRSI plug installation to reduce the likelihood dislodging during flight. This change does not affect ground crew rescue procedures.	030005.0103.1 - Placeholder for bonding Emergency Access Door Panel FRSI plugs	No Tech Order Impact	No MECSLSI Impact
Mission Kit / Tech Order Changes to be Baselined				
17222	WLE Sensor System Voltage Boost Regulator The WLE sensor system is being updated with a Voltage Boost Regulator (VBR) circuit to expand the on-orbit operational temperature range of the WLEIDS hardware to allow operation at lower temperatures (currently limited below ~ 0 degrees F). The VBR will be installed in series internal to the WLEIDS hardware, between the battery assembly and the WLE electronics (sensor and sensor-side relay units)	017222.0103.3 - End item update to V886-000002 for new GFE WLE IDS part number	(IS) M072-756111-005 & -006 (WAS) M072-756111-003 & -004 Model MV0886A	MECSLSI update required
17222	IBA Worksite Interface Fixture (WIF) Socket Addition The Integrated Boom Assy (IBA) aft transition will be modified by adding one EVA Worksite Interface Fixture (WIF) socket interface which will allow EVA on the end of the IBA if required to reach the under belly of the vehicle in support of potential on-orbit tile repair operations.	017222.0103.4 - End item update to V092-000002 for new IBA GFE part number	(IS) M072-544506-003 (WAS) M072-544506-002 Model MV0092A	MECSLSI update required
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 OBSS sensor package 1 PTU, 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.	017222.0103.5 - End item updates to V548-000002, V092-000002 & V082-000002 for new GFE camera, sensor package and illuminator part numbers	Bulkhead cameras: (IS) M072-750025-072, -073, -074 & -075 (WAS) M072-750025-058, -067, -060 & -061 Model MV0548A OBSS Sensor Package 1: (IS) M072-710282-008 (MECSLSI update in place) Model MV0092A RMS Elbow Camera: (IS) M072-544504-005 (WAS) M072-544504-001 Model MV0082A RMS Wrist Illuminator: (IS) M072-544504-006 (WAS) M072-544504-003 Model MV0082A	MECSLSI update required Note: New (additional) change for OBSS sensor package 1 to be defined and ERD established. May be tracked under separate MCR change.

Mod Records Authorized Since LSFR (Reference)

MCR NO.	MCR TITLE	KIT/ MOD RECORD & DESCRIPTION	TECH ORDER IMPACT	REMARKS
Mods Authorized Since LSFR (Reference Only)				
19874	BRI-18 TPS on ET Door Perimeter (Attrition)	SUB-EO-19874.0103.3 - BRI-18 ET Door Perimeter TPS Hardening (Substitution)	No Tech Order Impact	No MECSLSI Impact Attrition authorization in place per S086425FM 1/24/07.
19896	Emergency Egress Slide Lanyard Mod (CCCD Mod) This mod adds a shorter lanyard to the Emergency Egress Slide to reduce the risk of an incomplete deployment.	TCTIM0019896REF.0001.0 - Emergency Egress Slide Deployment Mechanism Lanyard Mod	(IS) M072-661651-033 (WAS) M072-661851-029 Model MV0651A	CCCD update required CCCD CR S063027W authorization in process
19001	Elevon Cove Columbium Seal Spring Mod (Attrition) This mod implements the redesigned elevon cove columbium seal spring to provide greater seal stiffness. Stiffer spring will improve sealing and reduce potential for seal cocking and cove heating structure damage.	SUB-EO-19001.0103.0 - Stiffened Columbium Seal Spring	No Tech Order Impact	No MECSLSI Impact Attrition authorization in place per S086425BE
23141	Thermal Window 7/8 Thicker Pane Mod (Attrition) This mod implements a thicker thermal pane for overhead observation windows 7 and 8, which has more capability with respect to ascent debris damage and MMOD. Includes redesigned window retainer and reversed installation of the Window 8 pyro sep bolt, which will allow R&R of window 8 without scrapping the pyrotechnic cord	SUB-EO-23141.0103.0 - Thicker windows and redesigned retainers for Windows 7 & 8	No Tech Order Impact	No MECSLSI Impact Attrition authorization in place per S086425ED
30005	Arrowhead Blanket Stitch Mod Corrective action modification to the Arrowhead RCC thermal blanket by tying off stitches at one inch intervals on the inboard attachment sleeving to mitigate blanket protrusion and potential for early boundary layer transition during re-entry (protruding sleeving noted during STS-116). This will reduce the potential for increased heating on the lower surfaces and prevent blanket sleeving from liberating and becoming a debris source.	TCTIV3930005REF.0103.0 - Arrowhead Blanket Stitch Mod	No Tech Order Impact	No MECSLSI Impact OPO authorization per OCRD S165153A PRCBD authorization per S115122R3 2/14/07

Engineering, Hardware and Certification Status

MCR NO.	MCR 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 (ESTIMATE)	CERTIFICATION CR / CAR (BOEING)	REMARKS
Modifications for Baseline										
30001 Antonios	ET Umbilical Camera Flash Scar Installation (Opportunity) Mod installs a flash unit in the RH ET Umbilical to be utilized with the ET Umbilical Digital Camera to provide supplemental light to illuminate the ET for enhanced photographic and motion picture images during external tank (ET) separation. Flash will fill in shadow areas during day light and provide illumination for night launch. Flash unit and cable are GFE provided hardware. Plan is to install the GFE cable scar in the aft fuselage during this flow and install and utilize the flash unit during flight 35.	4/20/07 (e)	7/13/07	8/13/07 (f)	TBD	Go	N/A (g)	N/A (g)	N/A (g)	(e) Release date for installation engineering - top accur / tree-up drawings ERD 5/25/07. (f) 8/13/07 is preliminary delivery date for GFE cable - delivery date improvement under assessment - need date to be finalized with ground ops (g) No Boeing Orbiter certification - cert if required will be GFE responsibility
30005 Barnum	Bond FRSI Plugs Into Emergency Egress Access Door TPS Panel (Mandatory) The four FRSI plugs installed in the TPS panel of the RH forward fuselage emergency egress access door installation are a potential debris source. This mod will apply RTV bond to the FRSI plug installation to reduce the likelihood dislodging during flight. This change does not affect ground crew rescue procedures.	3/20/07	TBD	N/A	N/A	Go	N/A	N/A	N/A	Certification not affected
Mission Kit / Tech Order Changes to be Baseline										
17222 Kadri / Munoz	WLE Sensor System Voltage Boost Regulator The WLE sensor system is being updated with a Voltage Boost Regulator (VBR) circuit to expand the on-orbit operational temperature range of the WLEIDS hardware to allow operation at lower temperatures (currently limited below ~ 0 degrees F). The VBR will be installed in series internal to the WLEIDS hardware, between the battery assembly and the WLE electronics (sensor and sensor-side relay units). Also, a new specification will be developed and referenced on the tech order to document proper installation, inspection and service procedures for the WLEIDS GFE box and an associated OMRs update (Ref MCR 23470).	3/1/07	TBD	N/A (a)	TBD	Go	N/A (a)	N/A (a)	N/A	Release date includes both tech order and spec release. (a) Hardware and certification to be provided by GFE
17222 Kadri	IBA Worksite Interface Fixture (WIF) Socket Addition The Integrated Boom Assy (IBA) aft transition will be modified by adding one EVA Worksite Interface Fixture (WIF) socket interface which will allow EVA on the end of the IBA if required to reach the under belly of the vehicle in support of potential on-orbit tile repair operations. Boeing OBSS installation tech will be updated to reflect revised GFE IBA configuration.	4/16/07	TBD	N/A (b)	TBD	Go	N/A (b)	N/A (b)	N/A	Release date for Boeing tech order assumes delivery of GFE design data / models by 3/5/07 (b) Hardware and certification to be provided by GFE
17222 Kadri	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 OBSS sensor package 1 PTU, 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. Boeing installation tech orders will be updated to reflect the modified GFE PTU / fastener configurations.	Released	N/A	N/A {c}	TBD	Go	N/A {c}	N/A {c}	N/A	Requirement for new stops dependent upon flight specific loads analysis, completed late in the flow per loads analysis template. (c) Hardware and certification to be provided by GFE Note: New (additional) change for OBSS sensor package 1 to be defined and ERD established. May be tracked under separate MCR change.

Engineering, Hardware and Certification Status

MCR NO.	MCR 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 (ESTIMATE)	CERTIFICATION CR / CAR (BOEING)	REMARKS
Mods Authorized Since LSFR (Reference Only)										
19874 Barnum	BRI-18 TPS on ET Door Perimeter (Attrition)	Released	N/A	Delivered	N/A	Go	3/14/07 P 3/14/07 P	4/25/07 P 4/25/07 P	CR 07-395001-001X CAR 28-07-395001-001X	Engineering implementation has begun with release consists of 2 working level drawings and 1 tree-up. Vehicle side drawing released 2/1/07 Door side drawing released 2/13/07
19896 Hunt	Emergency Egress Slide Lanyard Mod (CCCD Mod) This mod adds a shorter lanyard to the Emergency Egress Slide to reduce the risk of an incomplete deployment.	Released	N/A	6/29/07	TBD	Go	12/8/07 A 12/8/07 A	2/14/07 A 2/14/07 A	05-25-623-0015-0001F CAR 25-623-0015-0001F CR	Hardware delivery date for modified slide from vendor.
19001 Closed	Elevon Cove Columbium Seal Spring Mod (Attrition) This mod implements the redesigned elevon cove columbium seal spring to provide greater seal stiffness. Stiffer spring will improve sealing and reduces potential for seal cocking and cove heating structure damage.	Released	N/A	N/A	N/A	Go	N/A	N/A	N/A	
23141 Closed	Thermal Window 7/8 Thicker Pane Mod (Attrition) This mod implements a thicker thermal pane for overhead observation windows 7 and 8, which has more capability with respect to ascent debris damage and MMOD. Includes redesigned window retainer and reversed installation of the Window 8 pyro sep bolt, which will allow R&R of window 8 without scrapping the pyrotechnic cord	Released	N/A	Delivered	N/A	No Go (d)	9/27/04 A 10/5/04 A 10/8/04 A 6/17/05 A 5/12/06 A 5/1/07 P 5/1/07 P	6/28/05 A 6/28/05 A 7/8/05 A 7/8/05 A 6/26/06 A 6/15/07 P 6/15/07 P	CR 07-390001-001M CR 07-390001-001M Err CAR 22-07-390001-001M CAR 24-07-390001-001M CAR 27-07-390001-001N Dev CR 07-390001-001P CAR 30-07-390001-001P	(d) Updated windows certification with latest SE&I loads inputs and refined modeling analysis. Cert plan to be reviewed by OPO by mid February - install at risk decision to made at that time. Certification submittal estimated to be ~5/1/07
30005 Barnum	Arrowhead Blanket Stitch Mod Corrective action modification to the Arrowhead RCC thermal blanket by tying off stitches at one inch intervals on the inboard attachment sleeving to mitigate blanket protrusion and potential for early boundary layer transition during re-entry (protruding sleeving noted during STS-116). This will reduce the potential for increased heating on the lower surfaces and prevent blanket sleeving from liberating and becoming a debris source.	Released	N/A	N/A	N/A	Go	3/8/07 P 3/8/07 P	5/19/07 P 5/19/07 P	CR 07-391001-001AC CAR 36-07-391001-001AC	

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MCR NO.	MCR 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 (ESTIMATE)	CERTIFICATION CR / CAR (BOEING)	REMARKS
Mandatory Mods										
19755 Riley / Bacon	RMS MPM Pedestal Over-Center Stops New Boeing stops to replace GFE stops on RMS MPMs (Shoulder, FWD, MID and AFT locations) due to potential that mission unique loads will exceed MPM over-center mechanism capability	Released	N/A	Delivered	N/A	Go	6/9/06 A	11/27/06 A	CAR 08-44-000002-001K	Requirement for new stops dependent upon flight specific loads analysis, completed late in the flow per loads analysis template.
19789 Lee	Shuttle-Station Power Transfer System (SSPTS) Station-Shuttle Power Transfer System (SSPTS) will provide the capability to convert 120 Vdc International Space Station (ISS) secondary power to 28 Vdc Orbiter power to supplement power from the Orbiter fuel cells for Orbiter electrical loads, thereby providing increased on-orbit docked mission duration with the ISS. The SSPTS also provides the capability for converting 28 Vdc Orbiter power to 120 Vdc to feed power to Shuttle payloads. Includes development, delivery and integration of the following: ISS Jumpers provided by Space Station: Routes 120 Vdc SSPTS input power from the ISS Remote Power Controller Modules to the existing APAS 'X' connectors; Power Transfer Units (PTUs) for Shuttle provided by Hamilton Sundstrand Rocketdyne to convert 120 Vdc power from the ISS to 28 Vdc power for use by the Orbiter and converts 28 Vdc Orbiter power to 120 Vdc for use by the Shuttle payloads; Orbiter Mod Kits (wiring, structures, switches, contacts & misc hardware) provided by Boeing used to route the 120 Vdc input power from the APAS 'X' connectors thru the Orbiter to the PTUs, route 28 Vdc output power from the PTU to the Orbiter Main Distribution Control Assembly (MDCA), route 120 Vdc output power from the PTU to the Shuttle payloads, and enables modification to Orbiter A15 Panels and MDCA's.	Released	N/A	Delivered (4a) 4/4/07 (4b) 4/27/07 (4c)	N/A	Go (4)	7/6/06 A 7/6/06 A 5/11/06 A 3/30/07 P 4/13/07 P 2/21/07A	8/18/06 A 8/18/06 A 12/12/06 A 3/22/07 P 5/25/07 P 4/4/07 P	CR 09-367000-001Y CAR 15-09-367000-001Y (TCS cert) CR 21-409-0547-0010 errata CR-21-409-0547-0010A CAR 01-21-409-0547-0010A (Power Transfer Unit) CAR 164-02-340004-002M (Structures - PTU Instl on Av Bay 5, Shelf 6)	(4a) Boeing mod kit hardware delivered (4b) PTU units 3 & 4 delivery for OV-103 (4c) GSE Output Over-voltage Tester (OOVT) delivery date (4) Go for scar / wiring installation. Go for PTU installation given at 1/24/07 OPO tagup. New data as of 1/29/07 indicates improper conformal coating in PTUs - salt fog testing to be performed to determine acceptability or not of this condition. If rework required, will likely fly PTUs as-is on MOU for STS-122 and recycle spares for rework into the fleet during OV-105's and OV-103's next flows. DCR scheduled for week of 4/16/07, at which time CAR approval is planned. Note: checkout for initial implementation flow (OV-105 / STS-118) will be by Chit. Checkout for second SSPTS flow (OV-103 / STS-122) will be by OMRSD RCN, which will incorporate 'lessons learned' from the OV-105 checkout. ERD for RCN is April 2007

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MCR NO.	MCR 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 (ESTIMATE)	CERTIFICATION CR / CAR (BOEING)	REMARKS
Mandatory Mods										
19810 Rodriguez	AMEC/EMEC SMIA Mounting Nut Mod Replaces five nuts, used to mount the serial multiplexer interface adapter (SMIA) sub-module to the multiplexer interface adapter (MIA) module or parent assembly, with smaller diameter nuts to properly fit into their respective SMIA cutout or counterbore. Corrective action for condition found during final inspection following repair of AMEC S/N 4. MC450-0016-0009 revised to MC450-0016-0029 for AMEC and MC450-0016-0007 revised to MC450-0016-0027 for EMEC (interchangeability for OV-103). OV-103 hardware modified during fit 31 flow by restricted MR due to lead time required to implement design change via vendor engineering. This will be a 'paper modification' closing the work performed by MRs (less replacement of the re-ID labels for the internal module and external LRU - ref PR EPD-3-31-1588 & PR EPD-3-31-1590) to the design engineering.	Released	N/A	N/A (27)	N/A (27)	Go	6/17/05 A 6/17/05 A	7/13/05 A 2/13/06 A	CR 21-450-0016-0007C CAR 02-21-450-0016-0007C CR 21-450-0016-0009C CAR 02-21-450-0016-0009C	(27) Modified nuts already installed - MR documentation to be replaced by mod engineering ('paper modification') only less application of SRU / LRU, ID labels provided by vendor to Logistics. Note: Plan is to combine implementation of this mod with fleet LRU recycle plan (NSLD work) for tin whisker mitigation by chit J6165. As of 1/31/07 both units recycled from OV-105 have been reworked (mod completion & tin whisker mitigation) by NSLD and delivered. SRU tin eyelets are embedded with RTV.
23420 Antonios	0-Gauge Wire Protection for Lower Midbody Wire Tray Implements corrective actions to eliminate damage to 0-gauge harnesses from milson fasteners on wire tray covers and tray clamp fasteners by primarily rotating harness bundle clamps to provide additional clearance to tray cover fasteners and adding chafe protection as required. Works with MCR 19618 Wire Tray Riser Removal to eliminate wire tray risers at some locations to prevent wire harness crowding and associated tray cover bulging.	Released	N/A	Delivered	N/A	Go	N/A	N/A	N/A	Partial implementation likely as dictated by specific wire tray condition and impacts of implementing Wire Tray Riser Removal and SSPTS.
23448 Antonios	ECO Sensor System Instrumentation Implements voltage measurements for all four MPS ECO LO2 and LH2 Sensor Transducer Circuits to provide insight into ECO sensor system performance anomalies. In the event of recurrence, the added measurements will help identify the source and type of the anomaly in the Point Sensor Transducer circuits. However, the added voltage measurements will not be able to differentiate between the ET and Orbiter wiring/transducer anomalies. The Point Sensor Checkout System combined with the added voltage measurements provides tools to assist in allowing deviation of the Launch Commit Criteria which presently requires 4 of 4 ECO sensors to not be indicating dry. In addition, these measurements allow real time discernment of failed wet ECO sensors during ascent.	Released (8a)	N/A	N/A (8)	N/A (8)	Go	1/22/07 A 1/22/07 A 1/26/07 A 1/26/07 A	2/14/07 A 2/14/07 A 2/14/07 A 2/14/07 A (8a)	CR 21-770000L CAR 10-21-770000L (Avionics cert) CR 10-432-0205-001H CAR 02-10-432-0205-001H (MPS system cert)	Avionics/electrical implementation EOs, upper level avionics and structures accum / tree-up drawings released (8) Parts (wiring / splices) available on site Ref OCRD S165037 <i>Schematics and SAIL drawings released. MAST II software DCR submitted.</i> (8a) Installation of this mod on OV-103 is on hold pending final re-design definition which are currently being evaluated to address a recently discovered design deficiency. The current design can potentially induce a failure in the MPS Point Sensor Box (resulting in erroneous sensor reading) due to inadvertent short circuit on the ECO Sensor instrumentation return circuit wiring, which is not electrically isolated. A decision to implement the re-design for STS-122 (vs. de-baselining) will be made based on engineering and hardware availability to support remaining processing schedule.

Engineering, Hardware and Certification Status

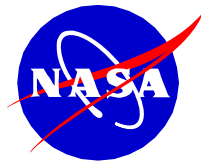
MCR NO.	MCR TITLE	Est. Engr Release (MM/DD/YY)	G.O. Engr Need (MM/DD/YY)	Est. Hdwe Delivery (MM/DD/YY)	G.O. Hdwe Need (MM/DD/YY)	MOD/CERT GO / NO-GO	CERT SUBMITTAL DATE	CERT APPROVAL DATE (ESTIMATE)	CERTIFICATION CR / CAR (BOEING)	REMARKS
Authorized Non-Flight Specific / Attrition Mods for Opportunity Implementation										
19618 Antonios	Wire Tray Riser Removal (Partial) To be worked as a partial mod with MCR 19789 SSPTS and MCR 23420 0-Gauge Wire Protection implementation. Removes the risers in the bottom of the wire trays; adds protective Teflon sheeting at inter-tray gaps; opens up EMI barrier cutouts and adds grommets on cutout edges; replaces torque set screws with hi-Loks; adds protective coating on payload wire tray cover Milson fastener receptacles.	Released	N/A	Delivered	N/A	Go	N/A	N/A	N/A	Authorized as non-flight specific by PRCBD S115114AC
19546 Barnum	Inboard Elevon Tile Enhancement (Hub Tile Mod) Replaces 2 hub tiles on the inboard elevon area with a single, more robust tile / tile design.	Released	N/A	N/A (16)	N/A	Go	7/18/01 A	9/26/01 A	CAR 25-07-190001-001U	(16) Parts to be fabricated at KSC Attrition authorized PRCBD S086425DB
Opportunity Mods										
19546 Barnum	Inboard Elevon Drain Hole Relocation Elevon structural drain hole will be relocated from the side of the elevon to the top of the elevon. The old drain hole tile will be replaced with a "normal" tile. Provides a new RTV drain plug which will allow drainage and prevent rain water intrusion into the drain hole and elevon cavity (new RTV drain plug authorized under MCR 23422 with engineering released under MCR 19546 mod codes).	Released	N/A	Delivered (1)	N/A	Go	7/18/01 A	9/26/01 A	CAR 25-07-190001-001U	(1) Design center provided kits delivered. Drain hole plug to be fabricated on-site at KSC
19735 Barnum	WLE Spar "Sneak Flow" Protection Implements partial deferral of remaining Non-RTF mandatory panels (1-4)	Released	N/A	N/A (2)	N/A	Go	10/6/04 A 10/6/04 A 10/6/04 A	6/16/05 A 6/16/05 A 6/23/05 A	CR 08-199200-003T CAR 39-08-199200-003T CAR 146-05-100004-002J	(2) Hardware provided by KSC Back-Shop.
19743 Barnum	BRI-18 TPS Hardening - MLG Door Implements TUF-I-coated BRI tile which is tougher than the current RCG-coated LI-2200 and FRCI-12 tiles. This MCR authorizes implementation on an attrition basis for the MLGD periphery tile locations.	Released	N/A	See Remarks (17)	See Remarks (17)	Go	10/13/05 A 10/24/05 A 01/25/06 A 9/1/06 A	5/03/06 A 5/03/06 A 5/03/06 A 11/20/06 A	CR 07-190001-001X CAR 28-07-190001-001X CAR 29-07-190001-001X CAR 30-07-190001-001X	(17) Current authorization provides 160 billets of BRI-18 material per vehicle & 50 containers of TUF/Slurry under MCR 19743, which also will be used to cover attrition implementation under MCR 19874. As of 11/3/06, all of the 480 total billets and all 50 total containers of slurry have been delivered. Will require billet allocation and final KSC backshop fabrication prioritization based on vehicle attrition needs. CAR 30 covers full 17 mission certification.

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MCR NO.	MCR 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 (ESTIMATE)	CERTIFICATION CR / CAR (BOEING)	REMARKS
Opportunity Mods										
19763 Barnum	Lower WLE Carrier Panel Horse Collar Gap Filler Redesign Implements partial deferral of remaining Non-RTF mandatory panels (1-4)	Released	N/A	N/A (3)	N/A	Go	10/6/04 A 10/6/04 A	6/16/05 A 6/16/05 A	CR 08-199200-003T CAR 39-08-199200-003T	(3) Hardware provided by KSC Back-Shop.
19874 Barnum	BRI-18 TPS Hardening - Other Vehicle Areas Implements TUF1-coated BRI tile which is tougher than the current RCG-coated LI-2200 and FRCL-12 tiles. This MCR authorizes implementation on an attrition basis for the NLGD periphery, ET Door periphery, Window (1-6) carrier panels and lower LESS Carrier Panel locations.	Released	N/A	See Remarks (17)	See Remarks (17)	Go	3/06/06 A 3/06/06 A 9/1/06 A	5/21/06 A 5/21/06 A 11/20/06 A	CR 07-391001-001AB CAR 33-07-391001-001AB CAR 34-07-391001-001AB	NLG Door Portion of Mod (17) - Applies to all MCR 19874 material deliverables. Current authorization provides 160 billets of BRI-18 material per vehicle & 50 containers of TUF1/Slurry under MCR 19743, which also will be used to cover attrition implementation under MCR 19874. As of 11/3/06, all of the 480 total billets and all 50 total containers of slurry have been delivered. Will require billet allocation and final KSC backshop fabrication prioritization based on vehicle attrition needs. CAR 34 covers full 17 mission certification.
		Released (18)	N/A	See Remarks (17)	See Remarks (17)	Go	8/25/06 A 8/25/06 A 11/8/06 A	11/20/06 A 11/20/06 A 11/30/06 A	CR 08-199200-003U CAR 40-08-199200-003U CAR 42-08-199200-003U	Lower WLE Carrier Panel Portion of Mod (18) All 14 drawings including tree-up released. Cert covers full 17 flight certification - 'Go' implementation based on completed sequence of environment cycle testing (report released 8/18/06) and additional vehicle area specific analysis. CAR revision 42 superceded CAR 41 document updated environments in the aero thermal analysis.
		Released (19)	N/A	See Remarks (17)	See Remarks (17)	Go	1/5/07 A	2/14/07 A	CAR 35-07-391001-001AB	Window Carrier Panel Portion of Mod (19) All engineering released 7/28/06 due to ground ops request for re-prioritization. Cert submittal will cover full 17 flight certification - 'Go' implementation based on completed sequence of environment cycle testing (report released 8/18/06) and additional vehicle area specific thermal analysis.
		Released (20)	N/A	See Remarks (17)	See Remarks (17)	Go (20)	3/14/07 P 3/14/07 P	4/25/07 P 4/25/07 P	CR 07-395001-001X CAR 28-07-395001-001X	ET Door Perimeter Portion of Mod (20) SWRI ice impact testing completed and evaluation of results reviewed with OPO 1/10/07 resulting in OK for implementation. Engineering release complete (2 working level drawings and 1 tree-up). Vehicle side drawing released 2/1/07 Door side engineering released 2/2/07

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MCR NO.	MCR 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 (ESTIMATE)	CERTIFICATION CR / CAR (BOEING)	REMARKS
Opportunity Mods										
23227 Antonios	Connector Saver Redesign Redesigned connector savers (ME414-0630) provide proper interfacial seal and wavy washer engagement retention force to reduce risk of inadvertent demate during use. Implementation at remaining unworked locations (OMS Pods and Ku-Band) as Opportunity.	Released	N/A	N/A	N/A	Go	10/11/05 A 10/11/05 A	3/17/06 A 3/17/06 A	CR 21-770000K CAR 08-21-770000K	Non-implementation will require inspection of existing connector savers and tape
23411 Antonios	Aft Freon Coldplate Loop Filters Adds filters to the Freon Aft Cold-plate (ACP) Network to minimize the risk of flow blockage due to contamination to this network of coldplates. The filters will be installed in both freon loops between the FES tee and the flow meters and will be supported by new structural brackets. The filter has a greater capacity than other 25 micron filters and hence will not add additional periodic maintenance. The filters are off-the-shelf filters from Wintec LLC. Flow restriction due to contamination has occurred twice, both times resulting in significant impacts: STS-109 with near early mission termination & OV-103 post J3 OMM with 9 months of extensive, invasive vehicle inspection and hardware replacement. An off-the-shelf 25 micron filter will be used, built by the current supplier for many Shuttle filters.	Released	N/A	Delivered (23)	N/A	Go (24)	1/22/07 A 1/22/07 A 2/6/07 A 2/6/07 A	3/12/07 P 3/12/07 P 3/21/07 P 3/21/07 P	24-634480L 07-24-634480L (Hardware cert) CR 24-610005-OFT CAR 06-24-610005-OFT (System cert)	(23) Structures and ECLSS kit delivered (24) Hardware certification to be by analysis & test - delta qualification for Shuttle vibration environment required was completed by vendor 10/25/06 - system level cert documentation complete. Waiver for OVEI requirement of 30 mission cycles will be required as qual test / cert will be for 10 mission cycles (end of program cost & schedule considerations) Mod has no effect on Software, LCC, OMRSD, Flight Rules
23467 Bacon	WCS Configuration Change (CFE) Revises WCS dash number to WCS1000-25 with the following changes: a. Change vendor on dual vane compactor material webbing (new vendor qualification). b. Change WCS commode stove heat shrink material. c. Revise Check Valve gasket and o-ring seat material, check valve lubricant, revise poppet material specification. d. Add back shells to all Fan separators. e. Provides heel cups and inner & outer straps for the WCS foot restraint. Requires update to Boeing installation drawing, V070-623002 to reflect WCS part number change.	Released (14)	N/A	8/1/07 (15)	6/18/07	Go (15)	2/5/07 (15) 11/27/06 A 11/27/06 A (14)	5/22/07 (15) 1/15/07 A 1/15/07 A (14)	25-WCS1000 (15) USA Cert CR 23-623000-001G CAR 06-23-623000-001G (14) Boeing Cert	(14) Installation drawing & certification is Boeing responsibility - Instl EO and tree-up released (15) WCS hardware delivery and certification is USA CFE responsibility

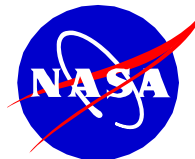


STS-122 (1E) Delta LSFR

Flight Requirements Status

8 March 2007

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



STS-122 Documentation Status

Presenter **MO3/Ann M. Patterson**

Date **March 2007**

Page **2**

DOCUMENTATION

- MIP

- MIP - NSTS 21396 Revision A 27 Sept 2006
 - CR # MIP21396-0003 STS-122/1E MIP Update Approved 22 February 2007

- eFRD

- Latest Revision: eFRD rev 001 , 27 February 2007
- Open CRs
 - No Open CRs

STS-122/322

Delta Launch Site Flow Review

Flight Software Overview

Tom Stansel
Flight Software
3/8/07 PRCB

STS-122 Delta LSFR (FSW)

- **Products**

- **STS-122/OV-103 Base software production schedule (available to field)**
 - **Shuttle Data Tape** April 3, 2007
 - **Mass Memory Unit Contents** April 17, 2007
- **STS-322/OV-103 deliveries will consist of the STS-122 Base SDT/Mass Memory, STS-322 Flight Specific I-Loads (to be released pre-callup) and post call-up changes if required**

- **Open Items**

- **STS-122/OV-103 Flight Specific I-Load DCRs are scheduled for SASCB approval on June 28, 2007**
- **Living SCR 98099, defining the flight software configuration for STS-322 targeted for approval in March 2007**

- **Concerns/Issues**

- **There are no known issues or concerns with Flight Software in supporting STS-122 or STS-322**

STS-122 Delta LSFR (FSW) - Backup

- **STS-122/OV-103 is the Second Scheduled Flight of Operational Increment (OI) 32 Flight Software (FSW)**
 - SASCBC SCR 98085D documents PASS and BFS OI 32 content
- **STS-122/OV-103 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)
- **Major New Flight Software Support Items:**
 - First OV-103 implementation of MCR 23448 (ECO Sensor System Instrumentation Installation)

STS-122 Delta LSFR (FSW) - Backup

- **STS-122 Source Changes/Edits for Primary Flight Software (Base)**
 - SCR 93160B – Year End Roll Over (YERO) Reset
- **STS-122 Patch Implementation for Primary Flight Software (Base)**
 - None
- **STS-122 Patch Implementation for Backup Flight Software (Base)**
 - None



STS-122 DLSFR Flight Crew Equipment/GFE	Presenter MV5 / Kenneth Brown	
	Date March 8 th , 2007	Page 3

Back up



SPACE SHUTTLE PROGRAM

Space Shuttle Vehicle Engineering Office

NASA Johnson Space Center, Houston, Texas



STS-122 MV5 GFE		Presenter MV5 / Kenneth Brown
Date March 8th, 2007	Page 4	

Hardware	Tech Order	KSC Eng Need	Eng(TO) Release	Cert O/C	KSC HDW Need O/D	JSC HDW Planned O/D	JSC Remarks	JSC Contact
A (port forward)	M 072-750025-058	6/19/2007	3/24/2005	C	7/19/2007	7/19/2007	Same Camera as STS-118. A minimum of 3 weeks after the orbiter lands is required to turn around this camera. Note: The PTU is partnered for a 7/06/07 delivery date. Open FIARs applicable to STS-122 (BFCE029A127, BFCE029A128, BFCE029A129, BFCE029A131, BFCE029A168, BFCE029A113, BFCE029A115).	Randall Moore
B (port aft)	M 072-750025-067	6/21/2007	3/24/2005	C	7/21/2007	07/21/20007	Same Camera as STS-118. A minimum of 3 weeks after the orbiter lands is required to turn around this camera. Note: The PTU is partnered for a 7/20/07 delivery date. Open FIARs applicable to STS-122 (BFCE029A127, BFCE029A128, BFCE029A129, BFCE029A131, BFCE029A168, BFCE029A113, BFCE029A115).	Randall Moore
C (starboard aft)	M 072-750025-060	6/25/2007	3/24/2005	C	7/25/2007	7/25/2007	Same Camera as STS-118. A minimum of 3 weeks after the orbiter lands is required to turn around this camera. Note: The PTU is partnered for a 7/24/07 delivery date. Open FIARs applicable to STS-122 (BFCE029A127, BFCE029A128, BFCE029A129, BFCE029A131, BFCE029A168, BFCE029A113, BFCE029A115).	Randall Moore
D (starboard forward)	M 072-750025-061	6/19/2007	11/24/2004	C	7/19/2007	7/19/2007	Same Camera as STS-118. A minimum of 3 weeks after the orbiter lands is required to turn around this camera. Note: The PTU is partnered for a 7/13/07 delivery date. Open FIARs applicable to STS-122 (BFCE029A127, BFCE029A128, BFCE029A129, BFCE029A131, BFCE029A168, BFCE029A113, BFCE029A115).	Randall Moore
SRMS elbow camera	M 072-544504-001	6/19/2007	1/24/2005	C	7/19/2007	7/19/2007	Same Camera as STS-118. A minimum of 3 weeks after the orbiter lands is required to turn around this camera. Note: The PTU is partnered for a 6/29/07 delivery date. Open FIARs applicable to STS-122 (BFCE029A127, BFCE029A128, BFCE029A129, BFCE029A131, BFCE029A168).	Randall Moore



SPACE SHUTTLE PROGRAM
Space Shuttle Vehicle Engineering Office
 NASA Johnson Space Center, Houston, Texas



STS-122 MV5 GFE	Presenter MV5 / Kenneth Brown	
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Hardware	Tech Order	KSC Need	Eng(TO) Release	Cert O/C	KSC HDW	JSC HDW	JSC Remarks	JSC Contact
Centerline Airlock Camera (stowed)	M072-660828-002, plus CCCD	6/27/2007	3/17/1999	C	7/27/2007	7/27/2007	Same Camera as STS-118. Hardware resides at KSC. First part number not in GFE cert database. Open FIARS applicable to STS-122 (BFCE029A127, BFCE029A128, BFCE029A129, BFCE029A131, BFCE029A168).	Randall Moore
Lefthand Umbilical Camera (forward)	M072-705001-017	7/28/2007	10/28/2004	C	8/31/2007	8/31/2007		Randall Moore
Lefthand Umbilical Camera (aft)	M072-705001-016	7/28/2007	10/28/2004	C	8/31/2007	8/31/2007		Randall Moore
Righthand Umbilical Camera	M072-705001-024	7/31/2007	10/28/2004	C	8/31/2007	8/31/2007	Current paperwork shows cert expiration after STS-117, but this is incorrect. GCAR correction is being submitted. No impact.	Randall Moore
Digital Television (DTV)	M072-710570-007			C			Installed hardware.	Larry Schmidt
MCIU/RMS Situational Awareness Display (RSAD)	M072-710543-001		3/7/2000	C			Installed hardware. Part number not in GFE cert database.	Larry Schmidt
Portable Foot Restraint (PFR)	M072-661568-029	5/25/2007	3/11/2005	C	6/25/2007	6/25/2007	Same hardware as STS-116.	Mickey McElroy



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STS-121 MV5 GFE	Presenter MV5 / Kenneth Brown	
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Hardware	Tech Order	KSC Eng Need	Eng(TO) Release	Cert O/C	KSC HDW	JSC HDW	JSC Remarks	JSC Contact
Tool Stowage Assembly (TSA)	M072-660853-002 M072-660850-005	6/22/2007		C	7/23/2007	7/23/2007		
Video Processing Unit (VPU)	M072-710338-006		7/5/2001	C			Installed hardware.	Larry Schmidt
Winches	V070-650007-085	5/15/2007	11/19/2004	C	6/15/2007	6/15/2007	Same hardware as STS-116. Hardware is installed on vehicle. Open FIARs applicable to STS-122 (BFCE026A061).	Mickey McElroy
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.	Randall 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	8/24/2007	11/24/2004	C	9/25/2007	9/25/2007	Must be returned to JSC for pressurization. Pad Instl.	Randall Moore



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STS-121 MV5 GFE		Presenter MV5 / Kenneth Brown
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Hardware	Tech Order	KSC Eng Need	Eng(TO) Release	Cert O/C	KSC HDW	JSC HDW	JSC Remarks	JSC Contact
Wing Leading Edge (WLE) Instrumentation - Right Wing	M072-756111-004			O			Adding Voltage Regulator and decals. Part number and Tech Order changes required. Action 3 - MV5 Gary Cox must provide the necessary definition to meet the TBD KSC need date. 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	7/19/2007			Randall Moore
Wing Leading Edge Batteries	M072-756111-003	6/15/2007		C	7/16/2007	7/16/2007	Open Cert after STS-117 as part of Voltage Boost Regulator certification for STS-118.	Gary Cox
Airlock Adapter Plate				O			Installed. Only record in GFE cert database is Retired.	Mickey McElroy
Service and Cooling Umbilical		2/1/2007		O	3/1/2007	3/1/2007	Swap out of the SCU is required; the filter will remain. A ground CHIT J6194 is in review. New units to be shipped 3/01/2007. S/N 1005 expires 07/2011, S/N 1012 expires 01/2013.	Mickey McElroy



SPACE SHUTTLE PROGRAM

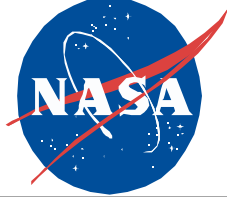
Space Shuttle Vehicle Engineering Office

NASA Johnson Space Center, Houston, Texas



STS-121 MV5 GFE		Presenter MV5 / Kenneth Brown
Date March 8th, 2007	Page 8	

Hardware	Tech Order	KSC Eng Need	Eng(TO) Release	Cert O/C	KSC HDW Need O/D	JSC HDW Planned O/D	JSC Remarks	JSC Contact
Airlock Adapter Plate				O			Installed. Only record in GFE cert database is Retired.	Mickey McElroy
Service and Cooling Umbilical		2/1/2007		O	3/1/2007	3/1/2007	Swap out of the SCU is required; the filter will remain. A ground CHIT J6194 is in review. New units to be shipped 3/01/2007. S/N 1005 expires 07/2011, S/N 1012 expires 01/2013.	Mickey McElroy
RMS		2/26/2007		O	3/26/2007	3/16/2007	There are problems with the repair of the composite boom. The repair patch that was installed on the flight boom has been found to have voids where air is trapped. The patch must be pulled and re-applied with a different method in hopes of keeping the air from being trapped and causing more voids. Discussions with flow management to assess the possibility of removing the S/N 303 from OV-103 earlier than planned post STS-116 so that MDA can use the boom off the S/N 303 arm for use in S/N 202. KSC is now going to remove the S/N 303 arm from OV-103 on Jan. 16th (before the IBA) which will allow it to be delivered to MDA on Jan. 24th. Use. There is more work for MDA to remove the boom from the S/N 303 arm and use it on the S/N 202 arm. Open FIARs applicable to STS-122 (MDR0038).	Kenneth Ruta
WLE Batteries - Voltage Regulator	M072-756111-003	2/28/2007		O	3/30/2007	3/30/2007	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
OBSS Sensor Package 1	M072-710282-008			O	7/19/2007		SP1 will have the 2294822-510 PTU. Note: The PTU is partenered to be delivered on 6/22/07. 1 FIAR with ISOD on the Laser Dynamic Range Imager (LDR I) of SP1 ecd 3/5/2007.	
OBSS	M072-544506-002 M072-544505-013		3/9/2005	O	6/1/2007	6/6/2007		Kenneth Ruta



- **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**

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

PAYLOAD CARGO ENGINEERING STATUS

MICHAEL BARIDO

281.212.6072

MARCH 08, 2007

STS-122 DELTA LSFR

ENGINEERING FLIGHT PRODUCT STATUS

<u>DRAWING NO</u>	<u>TITLE</u>	<u>REV</u>	<u>EO</u>	<u>RELEASED</u>
V072-200202	MECSLSI	A	A01	01-23-2007
VA72-200202	CARGO ARRANGEMENT	NC	-	01-25-2007
VD72-200202	AVIONICS DIAGRAM	NC	-	01-26-2007
VS72-200202	INTEGRATED SCHEMATIC	NC	-	01-26-2007
VS70-540393	RETENTION SCHEMATIC	NC	-	01-12-2007

RESCUE FLIGHT STATUS

- STS-322 RECONFIGURATION ENGINEERING PRODUCTS WILL BE DEVELOPED BY THE ENGINEERING ORDER TO FOLLOW (EOTF) PROCESS.

ENGINEERING OPEN WORK

- FRED 04-16-2007

DEVIATION FROM STANDARDIZATION NSTS 60523

- **BACKGROUND:**
 - ON 11/02/06, PRCB APPROVED THE STUDY OF THE ADVANCED GAS DETECTION SYSTEM (AGDS)
 - AGDS APPROVAL SCHEDULED FOR 03/01/07 PRCB
 - THE MONITORING SYSTEM WILL UTILIZE PAYLOAD CARGO ENGINEERING MODIFIED HARNESS 38P77W461 (V845-773461-001) THAT IS NOT INSTALLED AND REQUIRES MODIFICATION BEFORE REINSTALLATION TO SUPPORT AGDS
- **NSTS 60523 MISSION UNIQUE DEVIATION FOR STS-122**
 - SEC 1.2 ORBITER/PAYLOAD INTEGRATION STANDARDIZATION DEFINES A SET OF AVIONICS SERVICES AND COMMON INTERFACES ON ALL ORBITER VEHICLES TO CONTROL MISSION UNIQUE DIFFERENCES BETWEEN FLIGHT
 - AUTHORIZE MISSION UNIQUE DEVIATION:
 - PCE IS ASKING THE PRCB TO ALLOW FOR ONE MISSION UNIQUE DEVIATION BY REMOVAL OF HARNESS 38P77W461 FROM OV-103 FLIGHT #34 THAT IS NOT REQUIRED FOR THIS FLIGHT
 - AFFECTED DOCUMENTATION
 - UPDATE CARGO ENGINEERING DRAWING (VS, VD AND AFD WIRING T.O.)

STS-122 DELTA 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 HAS BEEN DEVELOPED TO TAKE CLOSE CLEARANCE MEASUREMENTS OF ALL CLOSE CLEARANCE POINTS (IN BOEING REVIEW)
- THE CHIT WILL BE APPROVED SHORTLY AFTER DELTA LSFR (ECD: 3-12-07)
- CHIT MEASUREMENTS WILL BE PERFORMED AT THE PAD AFTER PAYLOAD INSTALLATION AND RMS AND OBSS INSTALLATION (ROLLED IN FOR LAUNCH)

STS-122 DELTA LSFR

BACK-UP CHARTS

STS-122 DELTA LSFR

OMRS STATUS

BASELINED FILES

- NONE

OPEN WORK

- BASELINE OMRS
 - FII, V2 POST MATE
 - PP17315
 - FII, V4 PRE-MATE
 - PSTBD
 - PSTBD
 - PSTBD
 - FII, V6 SHUTTLE EXPERIMENTS - NONE

PAYLOAD (P509)

MISSION UNIQUE LIST

FIII MUL

ADJACENT PIN

ECD

BASELINE

04/17/07

BASELINE

06/01/07

06/01/07

06/01/07

ISSUES/CONCERNS

- NONE

STS-122 DELTA LSFR

ANNEX 1

BASELINED FILES

- COLUMBUS & ICC-L BASELINE

OPEN WORK

- POST CIR UPDATE

- PENDING MECHANICAL & ELECTRICAL DRAWINGS, PAYLOAD CONFIGURATION, SCHEMATIC DRAWINGS, PDGF DATA, MASS PROPERTIES UPDATE FROM P/L CUSTOMER

ISSUES/CONCERNS

- LATE DELIVERY OF INITIAL ANNEX 1 DATA DRIVING A POST CIR UPDATE

ECD

02/23/07A

ECD

04/12/07

03/22/07

TGHR STATUS

CUSTOMER SUBMITTAL
RELEASE FOR REVIEW
BASELINE

06/17/07

07/17/07

08/17/07

ISSUES/CONCERNS

- None

STS-122 DELTA 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	04/16/07

ISSUES/CONCERNS

- NONE

STS-122 DELTA LSFR

CARGO INTEGRATION HARDWARE STATUS

OPEN WORK

- DELIVER 2 HARDWARE ITEMS (SUPPORTS KSC NEED DATES)
 - 1 WIRE TRAY CONNECTOR PANEL V785-714001-001 ECD: 5/15/07
 - 1 BRIDGE ADAPTIVE PAYLOAD CARRIER (BAPC) V725-714065-001 ECD: 6/14/07
- COMPLETE CIH FLIGHT CERTIFICATION ECD: 7/17/07

ISSUES/CONCERNS

- NONE



STS-122 Delta Launch Site Flow Review

SSME Planned Modifications

- Work approved by shuttle project action request (SPAR) or Level II change request (CR)

ECP	Kit No	Description	Weight Impact	SPAR No./ CR No.	Engine	Status
1480	2R091575-10	AHMS Controller	-3 LB	ME-0191 R16	2056	In-Work
1511	2R091613-10	AHMS Weight Updates	+0 LB	ME-0216 R4	2056	In-Work

ISS AND SPACECRAFT PROCESSING STS-122 DELTA LAUNCH SITE FLOW REVIEW

- ISS Mission 1E Payload Complement
 - COLUMBUS



ISS and Spacecraft Processing
Deborah Hahn/ UB-N
March 8, 2007

Flight 1E/ STS-122 DLSFR

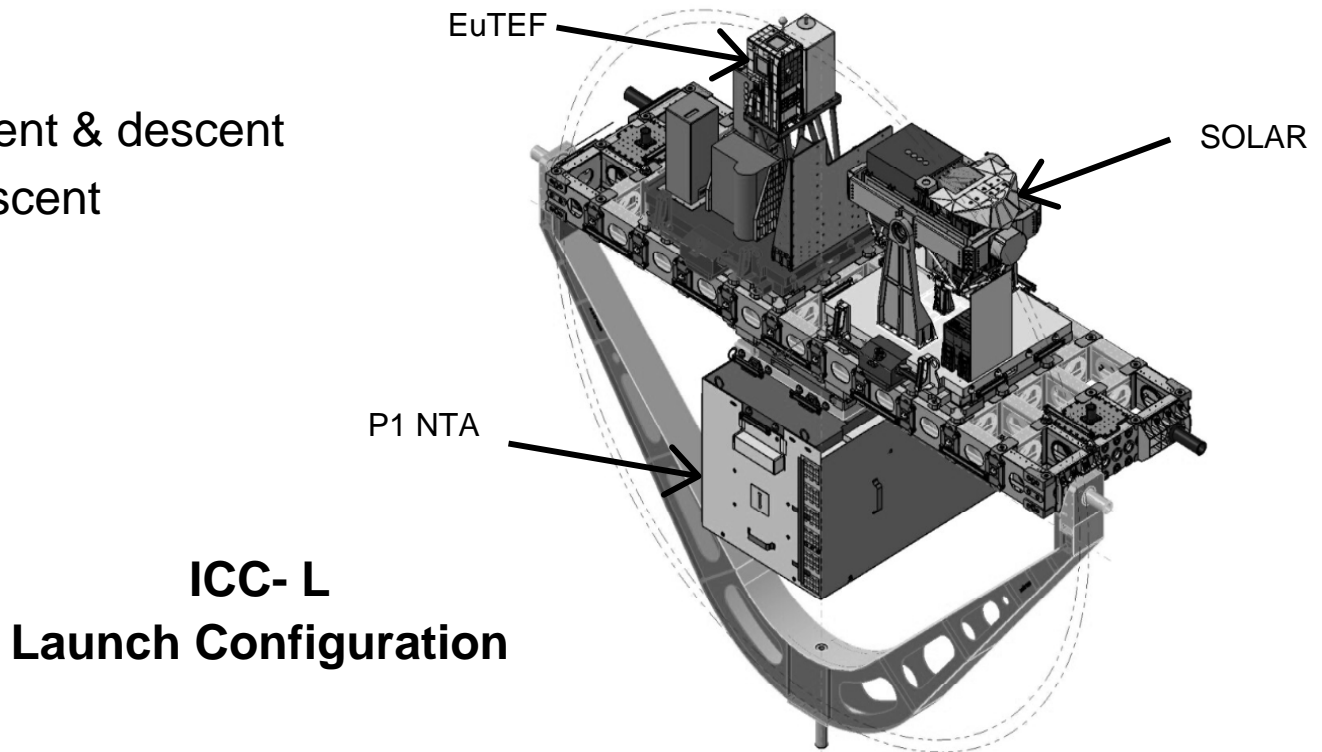


ISS AND SPACECRAFT PROCESSING STS-122 DELTA LAUNCH SITE FLOW REVIEW

- **ISS Mission 1E Payload Complement**

- Integrated Cargo Carrier – LITE (ICC-L)

- SOLAR
- EUTEF
- NTA ascent & descent
- CMG descent



**ICC- L
Launch Configuration**

ISS and Spacecraft Processing

Deborah Hahn/ UB-N

March 8, 2007

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ISS AND SPACECRAFT PROCESSING – SHUTTLE INTEGRATED OPERATIONS

SSPF

- Columbus Ext Closeouts Complete 23 July 2007(U/R)
- Columbus Hatch Closure 06 Aug 2007(U/R)
- Columbus ICD Walkdown 20 Aug 2007(U/R)
- ICC-LITE On Dock 27 Aug 2007 (U/R)
- Columbus and ICC LITE Transfer to Canister 17 Sep 2006 (U/R)

PAD

- Payload Transfer To Pad 20 Sep 2007 (U/R)
- Columbus and ICC-LITE IVT 03 Oct 2007 (U/R)
- Launch (N.E.T.) 16 Nov 2007 (U/R)



ISS AND SPACECRAFT PROCESSING SUMMARY








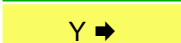






- **NO ISSUES OR CONCERNS**
- **The KSC STS-122 ISS and Spacecraft Processing Team is ready to process the 1E Mission payload complement**






BACK UP

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STS-122/OV-103 Ground Ops Processing

	Program Milestone	Activity/Remarks
STS-122 LAUNCH		Launch NET October 17, 2007 (Program baseline)
<u>Issues/Critical Path</u>	OPF Roll Over 9/4/07	
OV-103 OPF Overall		OPF Processing 244 CD + 12H, SSPTS Mod & OMRS reset planned
TPS Processing		Post flight inspection in work
Vehicle Processing		
SSPTS		Potential stumble on/systems impact/PTU delivery
OMRSD/Interval Resets		
FRCS Removal		HMF structure inspections/refurb
R/H Pod Removal		HMF performing rework
Elevon Cove Columbium Seal		Disassembly of Elevon Cove for Columbium seal spring change out
	ET/SRB Mate 8/15/07	
SRB Stacking		SRB Stacking starts July 24, 2007 (dual VAB HB assessment under review)
ET Standalone C/O		ET-125 On Dock 7/27/07, 82 days On Dock to launch
	OPF Roll Over 9/4/07	
ET/SRB Mate, Closeout		ET/SRB Mate on 8/15/07 (18 Days)
	Launch 10/17/07	
Integrated VAB/Pad Ops		VAB/Pad Integrated Flow processing to Launch
STS-323, LON for STS-122		ET-126 supports assessed LON Launch of Dec 21, 2007 (ET on dock date of 9/25/07)

Potential Significant Growth

-  Issue remains on schedule, 67% or better available Contingency Days remain in schedule
-  Issue encountering concerns/problems which may cause an impact, 34-66% available Contingency Days remain in schedule
-  Issue may impact a specific Program milestone, 33% or less available Contingency Days remain in schedule



STS-122 Delta Launch Site Flow Review

Presenter **Ken Nowak**

Date **03/08/07**

SSP System Drawings

The Drawings Baseline Was Released By PRCB S115122B on 11-09-06

- **V072-000001-268** (Rev. UU) Space Shuttle System (Rel. 11-10-06)
 - **V072-200202-001** (Rev. A) Mission Equipment Cargo Support (Rel. 01-23-07)
 - **SGD32104445-301** (Rev. A) Crew Compartment Configuration (Rel. 02-20-07)
 - **-001** Descent
 - **V070-000001-003** Orbiter General Assembly
 - **V070-410100-017** SSME Installation
 - **10100-0061-168** Integrated SRB General Assembly (BI-132)
 - **80901000000-510** External Tank Assembly (ET-125)
- **STS-122 LSRR + 18 days Mission Configuration Product Plan (MCP) was last published on 11-20-06 and will be republished at ORR -14 days on 08-16-07.**



STS-122 Delta Launch Site Flow Review

Presenter **Ken Nowak**

Date **03/08/07**

SSP System Drawings (Cont'd)

Ferry Configuration

- V072-000001-269 (Rev. UU) Space Shuttle System Drawing (Rel. 11-10-06)
 - V072-200202-002 (Rev. A) Mission Equipment Cargo Support (Rel. 01-23-07)
 - SGD321004445-302 (Rev. A) Crew Compartment Configuration (Rel. 02-20-07)
 - V072-300055-027 (Rev. BL1) Ferry Flight Configuration (Rel. 06-21-06)

SCA 905



STS-122 Delta Launch Site Flow Review

Presenter **Ken Nowak**

Date **03/08/07**

Modification Impact Report

Mission Equipment Modifications and Orbiter Modifications analyzed for impacts to OMRSD, LCC, ICD, EMI, Software, and GSE.

A total of 25 MCR/TADs have been approved and/or pending mods

Current MCR/TAD impact status:

No impacts for all six disciplines 12

One or more disciplines with impacts, documentation approved and/or pending approval 5

MCR/TADs 19112, 19533, 19563, 19755 and 23448 impacts are closed

Possible impacts still under review 8

MCR/TADs 18888, 19114, 19343, 19789, 23411, 23440, and 23467 are being reviewed for OMRSD impacts

MCR/TADs 23467 and 30001 are being reviewed for ICD impacts

underlined MCR/TADs have closed impacts in other disciplines

MCR/ECP	STAT	ITEM/KIT NUMBER	EISN	SEQ NO.	DESCRIPTION / GENERAL REMARKS	PRCB AUTHDATE	PRIO FLT
011621	AUTH KSC	TCTIM5411621REF	0001	000	MOD SHOULDER MPM TCS SUBASSYS DUE TO INTERFERNCE W/OBSS-EOTF ADDED PER V092-544010 C02. REF: PR TCS-3-34-3580.	S115122R1 2006-12-14	MAND 034
019755	AUTH KSC	VK82-544010-003	0005	002	RMS MPM PEDESTAL OVER-CENTER STOPS ADDED PER V092-544254 NEW. REPLS VK82-544010-001,0 005,0). E/I 7 -1 ON STS-114. WAIVER FOR TO IN WORK	S115122 2006-11-20	MAND 034
019789R1	AUTH KSC	K828-341013-001	0002	000	SUPPORT - HARNESS ROUTING, ISSA/ODS KIT ADDED PER R1 OF MCR	S115122 2006-11-20	MAND 034
019789R2	PLND KSC	K828-774353-001	0002	000	SSPTS IMPLEMENTATION MOD KIT, ODS/AIRLOCK ADDED PER R1 OF MCR/R2 CHGD MCR FLT TO 35	S115122 2006-11-20	MAND 034
019789	AUTH KSC	K845-346631-001	0001	001	SSPTS UPGRADE FOR ADDITIONAL SUPPORT ASSYS TO WIRE HARNESS ADDED PER EO V845-346610 B01, E/I SPLIT, REF SEQ 0 & 2)	S115122 2006-11-20	MAND 034
	AUTH KSC	TCTIM3419789REF	0001	000	SSPTS - FLUID LINE SUPPORT MOD ADDED PER V766-340103 B01. HDWE TRANSFERRED TO ORB HDWE (REF: MCD GGM)	S115122 2006-11-20	MAND 034

TOTAL MODS =

6

MCR/ECP	STAT	ITEM/KIT NUMBER	SEQ	DESCRIPTION / GENERAL REMARKS	PRCB	PRIO
-----	SITE	TCTI NUMBER	EISN NO.	-----	AUTHDATE	FLT
023227	AUTH	K598-430013-001	0011 002	KIT-CONNECTOR SAVER REDESIGN, LP01 OMS POD, (W/W -002)	S115122	OPTY
	KSC	NOT REQUIRED		ADDED BY EDS I/F & V070-430007 B07. DEFERRED FROM STS-121, STS-116	2006-11-20	034
	AUTH	K598-430013-002	0011 002	MODIFICATION KIT - CONNECTOR PROTECTOR REDESIGN, (W/W -001)	S115122	OPTY
	KSC	NOT REQUIRED		ADDED BY EDS I/F & K598-430013 A01. OBTAIN PARTS F ROM VK70-795153. DEF'D FROM STS-121, STS-116	2006-11-20	034
	AUTH	K598-430014-001	0023 002	KIT-CONNECTOR SAVER REDESIGN, RP03 OMS POD, (W/W -002)	S115122	OPTY
	KSC	NOT REQUIRED		ADDED BY EDS I/F & V070-430010 A93. DEFERRED FROM STS-121, STS-116	2006-11-20	034
	AUTH	K598-430014-002	0023 002	MOD KIT CONNECTOR PROTECTOR REDESIGN, (W/W -001)	S115122	OPTY
	KSC	NOT REQUIRED		ADDED BY EDS I/F & K598-430014 A01. OBTAIN PARTS F ROM VK70-795153. DEF FROM STS-121, STS-116	2006-11-20	034

TOTAL MODS = 4

MCR/ECP	STAT SITE	ITEM/KIT NUMBER TCTI NUMBER	SEQ EISN NO.	DESCRIPTION / GENERAL REMARKS	PRCB AUTHDATE	PRIO FLT
-----	PLND KSC	J5881A	0103 001	LOWER LESS ACCESS CARRIER PANEL POST FLT TORQUE CK VERIF	ORB-0079R01 2006-06-05	SCHD 034
	AUTH KSC	J5883A	0103 000	HUB AND DRAIN HOLE TILE MANUAL DEFLECTION TEST J5885A SUPPLEMENTS J5885 IN ITS ENTIRETY.	ORB-0079 R25 2007-01-29	MAND 034
	AUTH KSC	J5884A	0103 000	THERMAL BARRIER FLOW PATH INSPECTIONS J5884A SUPPLEMENTS J5884 IN ITS ENTIRETY.	ORB-0079R26 2007-01-29	MAND 034
	AUTH KSC	J5885A	0103 000	ARROWHEAD TILE INSPECTIONS J5885A SUPPLEMENTS J5885 IN ITS ENTIRETY.	ORB-0079R27 2007-01-29	MAND 034
	PLND KSC	J6106A	0103 000	ASA #1 & #2, ATVC #1 & #2, & RJDF #2 R&R FOR OV-103, FLT 34 CHIT J6106A SUPERSEDES J6106 IN ITS ENTIRETY.	ORB-0079R10 2006-09-25	MAND 034
	PLND KSC	J6109	0103 000	OV-103 PANEL 9L RADIOMETER REMOVAL	ORB-0079R16 2006-12-13	MAND 034
	PLND KSC	J6117B	0103 000	INSPECTION OF PUTTY REPAIRS FOR POTENTIAL LOSS	ORB-0079R14 2006-11-22	MAND 034
	AUTH KSC	J6139	0103 000	POST STS-116 VERNIER THRUSTER PC TUBE FLUSH	ORB-0079R11 2006-10-04	MAND 034
	PLND KSC	J6141	0103 001	PERFORM MEASUREMNTS ON OBSS SHOULDER AFTER OV-103 FLTS 33&34	ORB-0079 R12 2006-10-24	MAND 034
	PLND KSC	J6165	0103 000	E/AMEC TIN WHISKER MITIGATION & SMIA NUT MOD COMPLETION FOR OV-103	ORB-0079R18 2007-01-04	MAND 034
	COMP KSC	J6170	0103 001	STS-116 CLOSE CLEARANCE PAD MEASUREMENTS POST STS-116 MEASUREMENTS	ORB-0079 R13 2006-10-25	MAND 034
	PLND KSC	J6176A	0103 000	OV-103 MID-FUSELAGE LOCK BOLT SAMPLING AND FASTENER REPLACE- MENT REV. A SUPERSEDES BASIC CHIT IN ENTIRETY.	ORB-0079R17 2007-01-04	MAND 034
	PLND KSC	J6178	0103 000	REMOVAL AND REPLACEMENT OF OV-103 WINDOWS THERMAL PANE 1 THROUGH 6 IN SUPPORT OF FLIGHT 34 (STS-122)	ORB-0079R15 2006-12-13	MAND 034
	PLND KSC	J6179	0103 000	ADTA #1, #2, #3, AND #4 RETROFIT FOR OV-103, FLT 34	ORB-0079R19 2007-01-04	MAND 034
	PLND KSC	J6186	0103 000	INSPECTION BOOM ASSEMBLY (IBA) POST FLIGHT INSPECTION	ORB-0079R20 2007-01-05	MAND 034
	PLND	J6192	0103 000	INSPECTION OF OV-103 RADIATOR RETRACT CONTAINER ASSEMBLIES	ORB-0079R28	MAND

KSC		SPAR			2007-02-02	034
PLND	J6194	0103 000	R&R EMU SERVICE COOLING UMBILICAL (SCU) ON OV-103 IN SUPPORT	ORB-0079R23		MAND
KSC		SPAR	OF STS-122	2007-01-22		034
PLND	J6195	0103 000	INSPECTION OF OV-103 LEFT WLE RCC PANELS 19-22	ORB-0079R22		MAND
KSC		SPAR		2007-01-19		034

MCR/ECP	STAT	ITEM/KIT NUMBER	SEQ	EISN	NO.	DESCRIPTION / GENERAL REMARKS	PRCB	PRIO
-----	SITE	TCTI NUMBER	-----	-----	-----	-----	AUTHDATE	FLT
	PLND	J6196	0103	000	000	CERAMIC INSERT INSPECTION	ORB-0079R29	MAND
	KSC		SPAR				2007-02-05	034
	PLND	J6200	0103	000	000	REMOVAL/REPLACEMENT OF OV-103 SYSTEMS 1,2,& 3 WATER SPRAY	ORB-0079R24	MAND
	KSC		SPAR			BOILERS AGING COMPONENTS	2007-01-23	034
	PLND	J6208	0103	000	000	HYDRAULIC LANDING GEAR & BRAKE ISOLATION VLAVE OVERHAUL	ORB-0079R30	MAND
	KSC		SPAR				2007-02-09	034
	AUTH	K6182	0103	000	000	WINDOW CAVITY CONDITIONING SYSTEM MANIFOLD FLOW TEST	ORB-0079R21	MAND
	KSC		SPAR				2007-02-22	034
011621	AUTH	TCTIV3111621REF	0103	000	000	BLNKT INSTRUCTION TO PREVENT 378 BULKHEAD VENT BLOCKAGE-EOTF	S115122R1	MAND
	KSC	NOT REQUIRED				ADDED BY EDS I/F & V070-316002 K20, -361900 E11, R EF: FRC3-34-1125, -1130)	2006-12-14	034
	AUTH	TCTIV7711621REF	0103	004	004	PYRO CONNECTORS SAFER STOWAGE - EOTF	S115122R1	MAND
	KSC					ADDED PER EO'S V070-775702 C05 & V070-775703 C05, (REF PR: OEL-3-34-5169)	2006-12-14	034
019546	AUTH	TCTIV1919546REF	0103	000	000	INBOARD ELEVON TILE ENHANCEMENT	S115122	OPTY
	KSC	NOT REQUIRED				ADDED BY EDS I/F. PAR'D FROM J3 TO J4 BY K1871, MO VED TO FLT 34 PER V070-190001 F91. REF MCR 23422	2006-11-20	034
019546R1	AUTH	VK70-100048-001	0103	000	000	INBOARD ELEVON TILE ENHANCEMENT - STRUCTURES MOD KIT	S115122	OPTY
	KSC	NOT REQUIRED				ADDED PER MCR R1. PAR'D FROM J3 TO J4 BY K1871. MOVED TO ENG FLT 34 PER V070-100008 B49	2006-11-20	034
019735	AUTH	TCTIV1019735REF	0103	003	003	WLE FRONT SPAR PROTECTION FOR SNEAK FLOW - STR (PNLS 1-4)	S115122	OPTY
	KSC					SEE SEQ 0 FOR PANELS 5-13, SEQ 1 FOR PNLS 14-22 OV -103/32; PNLS 1-4 DEFERRED	2006-11-20	034
	AUTH	TCTIV1919735REF	0103	003	003	FRONT SPAR PROTECT FOR SNEAK FLOW (TPS/RCC), PNLS 1-4	S115122	OPTY
	KSC					SEE SEQ 0 FOR PANELS 5-13, STS-114. PNLS 14-22 OV-103/32. PNLS 1-4 DEFERRED - OPPORTUNITY MOD	2006-11-20	034
019763	AUTH	TCTIV1919763REF	0103	003	003	WING LEADING EDGE HORSE COLLAR REDESIGN, (PNLS 1-4)	S115122	OPTY
	KSC					SEE SEQ 0 FOR PNLS 5-13, SEQ 1 FOR PNLS 14-22 OV-1 03/32. PNLS 1-4 REMAINING- OPPORTUNITY MOD	2006-11-20	034
019789R3	AUTH	VK70-347413-001	0103	000	000	OV-103 MID FUSELAGE SSPTS MOD	S115122	MAND
	KSC					ADDED PER R1 OF MCR/R2 CHGD TO 35, MCR/R3 CHGD TO 34. OBTAIN PARTS FROM MISSION KIT MV0766A E/I 1	2006-11-20	034
	PLND	VK70-360312-001	0103	000	000	TCS KIT-STATION TO SHUTTLE POWER TRANSFER SYSTEM, W/W -2 KIT	S115122	MAND
	KSC					ADDED PER R1 OF MCR/R2 CHGD EFF TO 35. MUST BE WO RKED W/-	2006-11-20	034

2 KIT, MCR/R3 CHGD EFF TO 34

019789	AUTH	VK70-360312-002	0103	000	KIT, TCS SSPTS UPGRADE, OV-103, (W/W -1 KIT)	S115122	MAND
	KSC	NOT REQUIRED			ADDED BY EDS I/F & VK70-360312 A01	2006-11-20	034
019789R3	AUTH	VK70-704022-001	0103	000	SSPTS MAIN DISTRIBUTION CNTRL ASSY (MDCA) MOD KIT	S115122	MAND
	KSC	NOT REQUIRED			ADDED BY EDS I/F & V070-329331 D01. KIT EO A04 MOV ED TO 34, R1 OF MCR OV-103/34 R2MCR CHGD TO FLT 35	2006-11-20	034

MCR/ECP	STAT	ITEM/KIT NUMBER	SEQ	DESCRIPTION / GENERAL REMARKS	PRCB	PRIO
-----	SITE	TCTI NUMBER	EISN NO.	-----	AUTHDATE	FLT
019789R3	AUTH KSC	VK70-730481-001 NOT REQUIRED	0103 000	(VAX)BUS-MAIN D.C. POWER DISTRIBUTION - SSPTS ADDED BY EDS I/F & V070-730001 AE13 & -730033 F11 (REPLS VK70-730841-001, MCR R3 TO FLT 34 FROM 35	S115122 2006-11-20	MAND 034
019789	PLND KSC	VK70-773363-001 NOT REQUIRED	0103 000	CREW MODULE SSPTS IMPLEMENTATION ADDED BY EDS I/F & VK70-773363 NEW	S115122 2006-11-20	MAND 034
019789R3	AUTH KSC	VK70-774353-001 NOT REQUIRED	0103 000	SSPTS MID FUSELAGE WIRING KIT ADDED PER R1 OF MCR/R2 CHGD EFF TO 35, CHGD EFF TO FLT 34 PER KIT EO A03, MCR/43 CHGD EFF TO 34	S115122 2006-11-20	MAND 034
019789	AUTH KSC	VK70-775373-001 NOT REQUIRED	0103 000	AFT FUS STATION/SHUTTLE POWER TRANSFER SYSTEM IMPLEMENTATION ADDED BY EDS I/F & VK70-775373 NEW	S115122 2006-11-20	MAND 034
019810	PLND KSC	TCTIV7019810REF NOT REQUIRED	0103 000	MEC SMIA MOUNTING NUTS ADDED BY EDS I/F & V070-705004 C01 & V070-705134 C 08. OV- 103/34 (STS-122) - APPVD @ STS-122 LSRR	S115122 2006-11-20	MAND 034
023227R1	AUTH KSC	VK70-795153-001 NOT REQUIRED	0103 002	CONNECTOR SAVER REDESIGN, (KU-BAND) ADDED PER R1 OF MCR. OBTAIN PARTS FROM K598-430013 , - 430014, VK70-795153 KITS. REPL 023227,0103,0	S115122 2006-11-20	OPTY 034
023411	AUTH KSC	VK70-635308-001 NOT REQUIRED	0103 000	FREON AFT COLDPLATE NETWORK FILTER-MOD KIT ADDED BY EDS I/F & KIT EO NEW MOVE TO OV-103, FLT 34 WHEN MANIFESTED	S115122 2006-11-20	OPTY 034
	AUTH KSC	VK70-854103-001 NOT REQUIRED	0103 000	MOD KIT PROVISIONS FOR FREON AFT COLDPLATE NETWORK FILTERS ADDED BY EDS I/F & V070-852424 NEW	S115122 2006-11-20	OPTY 034
023420	AUTH KSC	TCTIV3423420REF NOT REQUIRED	0103 000	ELIMINATE "0" GAGE WIRE DAMAGE IN LOWER MIDBODY WIRE TRAYS ADDED BY EDS I/F & V070-340446 A06	S115122 2006-11-20	MAND 034
	AUTH KSC	VK70-794137-001 NOT REQUIRED	0103 000	ELIM OF "0" GAGE WIRE DAMAGE IN UPPER MIDBODY KIT, W/W -002 ADDED BY EDS I/F & VK70-794137 NEW, W/W -002 KIT	S115122 2006-11-20	MAND 034
	AUTH KSC	VK70-794137-002 NOT REQUIRED	0103 000	ELIM OF "0" GAGE WIRE DAMAGE IN LOWER MDBY MOD KIT, W/W -001 ADDED BY EDS I/F & KIT EO A01	S115122 2006-11-20	MAND 034
023448	AUTH KSC	TCTIV3523448REF NOT REQUIRED	0103 000	ECO SENSOR SYSTEM INSTRUMENTATION, BAYS 5&6 RE-WIRING ADDED BY EDS I/F PER EO V070-775361#E14 & 351#E19 MOVE TO STS-122 WHEN MANIFESTED	S115122 2006-11-20	MAND 034
	AUTH KSC	TCTIV7023448REF NOT REQUIRED	0103 000	ECO SENSOR SYSTEM INSTRUMENTATION, DSC OA-C CARD ADDED BY EDS I/F & V070-755262 D04	S115122 2006-11-20	MAND 034
	AUTH	TCTIV7723448REF	0103 000	ECO SENSOR SYSTEM INSTRUMENTATION, INTER-BAY WIRING, BAY 5&6	S115122	MAND

	KSC		ADDED PER EO V070-775007#B26 MOVE TO STS-112 WHEN MANIFESTED	2006-11-20	034
023467	AUTH	TCTIV6223467REF 0103 000	WASTE COLLECTOR SUBSYSTEM	S115122	OPTY
	KSC	NOT REQUIRED	ADDED BY EDS I/F & V070-623002 G07. REPLACES PLHLD ER 023467,0103,0	2006-11-20	034

MCR/ECP	STAT	ITEM/KIT NUMBER	SEQ	DESCRIPTION / GENERAL REMARKS	PRCB	PRIOR
-----	SITE	TCTI NUMBER	EISN NO.	-----	AUTHDATE	FLT
030005	AUTH	TCTIV3930005REF	0103 000	ARROWHEAD BLANKET STITCH MOD	S115122R3	MAND
	KSC	NOT REQUIRED		ADDED BY EDS I/F & V070-391104 C04 & 391105 B04. REPLACES 030005,0103,0	2007-02-14	034

TOTAL MODS = 49

Date: 02/27/07 13:22

PCASS
FLIGHT-SPECIFIC

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Approved STS-122 OMRS Waivers and Exceptions

WVR EXC	ELEMENT PROJECT	PRCBD NUMBER WAIVER# (STAT) (INITIAL STS)	ABSTRACT RAS REQUIREMENTS	EISN PAYLOAD	STS BEG END	
+	E	OMS	S053296YK EK10327 (A)	OMRSD EXCEPTION REQUEST - RIGHT RC SOXIDIZER B-LEG PAD REGULATOR L OCKUPPRESSURE (EK10327)	0023	032 040
			S053297WA EK10452 (A)	OMRSD EXCEPTION REQUEST - RRCS FUEL GHE TANK P1 TRANSDUCER ACCURA CY (EK10452)	0023	032 039
			S053298NW EK10532 (A)	OMRSD EXCEPTION REQUEST - LEFT AND RIGHT POD BI- PROPELLANT VALVE DRAIN(EK10532)	0023 0011	035 035 037 037
			S053298NY EK10533 (A)	OMRSD EXCEPTION REQUEST - OMS HELIUM OFFLOAD TIME EXTENSION (EK1 0533)	0011 0023	037 037 035 035
	ORB		S053298MF EK10524 (A)	OMRSD EXCEPTION REQUEST - FCP2 (S/N120) SUBSTACK 3 DELTA VOLTAGE(EK10524)	103	033 034
			S053298MFR1 EK10524 (A)	OMRSD EXCEPTION REQUEST - FCP2 (S/N120) SUBSTACK 3 DELTA VOLTAGE(EK10524R1)	103	033 034
	RCS		S053298NZ EK10534 (A)	OMRSD EXCEPTION REQUEST - RCS HELIUM OFFLOAD TIME EXTENSION (EK1 0534)	0011 103 0023	037 037 034 034 035 035
	W	OMS	S053296UM WK10299 (A)	OMRSD WAIVER REQUEST - RP03 TK302 DYNATUBE LEAK RATE (WK10299)	0023	032 040
	ORB		S053297NZ	OMRSD WAIVER REQUEST -	103	031 038

WK10415 (A) MADS FDM CALIBRATION
 MANUAL MODE (WK10415)

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| °                ° Waivers ° Except ° Deviat ° Cannib ° Total ° |
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Date: 02/27/07 13:22

PCASS

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FLIGHT-SPECIFIC

Approved STS-122 OMRS Waivers and Exceptions

STS-122 FLIGHT AND PAYLOAD INFORMATION

End Item	EISN	Flt	ET	SRB	LSRB	RSRB	OI	Date	Payloads
ORBITER	103	034	T125	BI132	L132	R132	OI032	07-10-17	
SSME1	2TBD	000							
SSME2	2TBD	000							
SSME3	2TBD	000							
OMS1	0011	037							
OMS2	0023	035							
FRCS	FRC3	034							
RMS									
TUNN ADP									
EXT AIRL									
INT AIRL									

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ACTIVE WAIVERS FOR
OV-103 (STS-116)

Item #	Authority	Date	Waiver Description	Effectivity	Wad
47	S052310A	02/14/91	Fly with FRSI instead of tile	OV-103, Flight 12 & Subs (flight by flight evaluation)	OK TO RETIRE S061954B MV 4-2 RTF-130 Briefing
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
327	S115114VR5	03/17/05	Partial installation of M072-784633-014 (harness installation - interface panel - MADS #3). The M072-784663-014 Technical Order was established to incorporate the crossover bracket modification at locations X0863 and X0750. The dash number configuration for the Technical Order was not baselined until January 25, 2005 (PRCBD S115114VR2). This area was closed out before this time and would cause significant impact to verify configuration of this Technical Order dash number -014.	OV-103, Flight 31 OV-103, Flight 32 WAIVER for STS-121	INS-3-28-279 (installed Tech Order)
***** SEE NSTS 07700 VOLUME IV BOOK 2 FOR COMPLETE DETAILS *****					
328	S115114WR1	04/07/05	Partial installation of M072-794500-004, for Integrated Vehicle Health Monitoring (IVHM) harness installation, calls for the removal of the unused IVHM harness and routing hardware. This requirement was manifested after the Bay 13 Longerons Bridge installation was complete. With the installation of the bridge, the removal of the IVHM harness is no longer possible without the removal of the bridge.	OV-103, Flight 31 OV-103, Flight 32 WAIVER for STS-121	OEL-3-31-304 PTL OEL-3-31-4432 PTL
***** SEE NSTS 07700 VOLUME IV BOOK 2 FOR COMPLETE DETAILS *****					

ACTIVE WAIVERS FOR
OV-103 (STS-116)

Item #	Authority	Date	Waiver Description	Effectivity	Wad
329	S115114AM	08/15/05	<p>The following requirements are waived to allow OV-103, Flight 31 to fly (ferry) with the following out-of-configuration conditions:</p> <ol style="list-style-type: none">1) V070-391139-025 (blanket under window #1 removed for ferry flight)2) M072-421502-002 (did not perform acetone wipe prior to universal thruster plug assemblies - procedural omission)3) V070-753110-003 (camera mount will not be installed for ferry flight) <p>***** SEE NSTS 07700 VOLUME IV BOOK 2 FOR COMPLETE DETAILS *****</p>	OV-103, Flight 31	Ferry Flight from Dryden
330	S115114VR15	09/16/05	<p>The following requirement is waived to allow OV-103 to ferry from DFRC to KSC with the following out-of-configuration condition:</p> <p>TCS blanket V070-362917-001 located at Door #44 NOT installed.</p> <p>***** SEE NSTS 07700 VOLUME IV BOOK 2 FOR COMPLETE DETAILS *****</p>	OV-103, Flight 31 Ferry Flight	Ferry Flight from Dryden

ACTIVE WAIVERS FOR
OV-103 (STS-116)

Item #	Authority	Date	Waiver Description	Effectivity	Wad
331	S115114VR15	09/16/05	<p>The following requirement is waived to allow OV-103 to ferry from DFRC to KSC with the following out-of-configuration condition:</p> <ol style="list-style-type: none">1) Two switches on Panel A15 will ferry without switch guards (P/N G070-700904-001). In lieu of switch guards at two locations, tape was installed.2) Eight GSE switch guards were left installed and not removed as required by Technical Order M072-710700-002 as called out in the ferry flight drawing.3) Three switch guards are not installed on Panel L4 for TACAN circuit breakers. The procedure does not include the switch guard installation. <p>***** SEE NSTS 07700 VOLUME IV BOOK 2 FOR COMPLETE DETAILS *****</p>	OV-103, Flight 31 Ferry Flight	Ferry Flight from Dryden
332	S115121TR8	05/04/06	<p>The following requirement is waived to allow OV-103 to fly with the following out-of-configuration condition:</p> <p>M072-794500-004 IVHM harness installation Bay 13 called out by MECSLSI V072-200201 NOT removed from OV-103.</p> <p>During STS-114 processing this Tech Order configuration called for the removal of an un-used IVHM harness along with the routing hardware. At the time the Tech Order was made a requirement for Flight 31, the Bay 13 longeron had already been installed for flight. The harness was demated and stowed in place per MR and was deferred to a future flight at which time Bay 13 longeron will be removed since the Bay 13 longeron was not removed this flight, a configuration waiver is needed for STS-121.</p>	OV-103, Flight 32	

ACTIVE WAIVERS FOR
OV-103 (STS-116)

Item #	Authority	Date	Waiver Description	Effectivity	Wad
333	S115121TR8	05/04/06	<p>The following requirement is waived to allow OV-103 to fly with the following out-of-configuration condition:</p> <p>Partial installation of M072-784633-014 (harness installation - interface panel - MADS#3). The M072-784633-014 Tech Order was established to incorporate the crossover bracket modification at locations X0863 and X0750. The dash number configuration for the Tech Order was not baselined until January 25, 2005 (PRCBD S115114VR2). This area was closed out before this time and would cause significant impact to verify configuration of this Tech Order dash number -014.</p> <p>***** SEE NSTS 07700 VOLUME IV BOOK 2 FOR COMPLETE DETAILS *****</p>	OV-103, Flight 32	
335	S115116NR2	08/18/06	<p>The following requirement is waived to allow OV-103 to fly with the following out-of-configuration condition:</p> <p>M072-794500-004 IVHM harness installation Bay 13 called out by MECSLSI V072-200195 not removed from OV-103.</p> <p>During STS-114 processing, this Tech Order configuration called for the removal of an unused IVHM harness along with the routing hardware. At the time the Tech Order was made a requirement for Flight 31, the Bay 13 longeron had already been installed for flight. The harness was demated and stowed in place per MR and was deferred to a future flight at which time Bay 13 longeron will be removed since the Bay 13 longeron was not removed this flight, a configuration waiver is needed for STS-116.</p>	OV-103, Flight 33	

ACTIVE WAIVERS FOR
OV-103 (STS-116)

Item #	Authority	Date	Waiver Description	Effectivity	Wad
336	S115116NR2	08/18/06	<p>The following requirement is waived to allow OV-103 to fly with the following out-of-configuration condition:</p> <p>M072-794500-004 IVHM harness installation Bay 13 called out by MECSLSI V072-200201.</p> <p>During OMDP, the crossover bracket modification was successfully implemented at all four locations with no technical issues by engineering defined by Orbiter drawings as well as three Tech Orders (M072-794011, M072-794021 and M072-794051). The M072-784633-014 Tech Order was established to incorporate the crossover bracket modification at two locations (X0863 and X0750).</p> <p>At the X0863 location, M072-784633-014 called for the removal of a clamp and six screws to reflect the change harness mounting due to the new wire tray shape. TPS OEL-3-31-245 incorporated the electrical portion of this modification per the vehicle drawings as well as the three tank set harness Tech Orders. During STS-114 processing, the WAD was reviewed and it was determined that an error exists in the M072-784633 engineering. This Tech Order reflects harness routing at the X0863 that does not reflect the as-built configuration on the Orbiter. A one flight configuration waiver was processed and approved for STS-114 and STS-121. All hardware on this Tech Order supports MADS wire routing, there were no observed wire routing violations noted during Flight 31 midbody closeout and all MADS testing will be completed and verified. No technical issue with hardware, installation, or function of MADS. There was no access to this area this flow to perform wire routing as-designed condition. A configuration waiver is needed for STS-116 for this Tech Order.</p>	OV-103, Flight 33	

ACTIVE WAIVERS FOR
OV-103 (STS-116)

Item #	Authority	Date	Waiver Description	Effectivity	Wad
337	S115116NR4	10/27/06	<p>Tech Order M072-544501-087 - install, M072-544501-027 - remove, -087 configuration is for the new over-center stops being installed. Mission-unique loads will not require these new stops. Program decision was made to not remove the RMS.</p> <p>This configuration will incorporate the over-center stops mod, the change is to all four MPM locations. The new stops, replace existing GFE stops, incorporate a stronger design to address mission-unique loads that have a potential to exceed the current mechanism capability. The decision was made not to incorporate this mod during STS-116 flow due to the low potential for load exceedence. Since -087 established the over-center stops mod along with other mods that were completed for this flow,a configuration waiver is needed for STS-116. In addition the removal of the -027 from the previous mission was not completed.</p>	OV-103, Flight 33	
338	S115116NR4	10/27/06	<p>Tech Order M072-794021-026 install, M072-794021-019 remove, -026 configuration is for the new over-center stops being installed. The change is rerouting and retaping of the wire harnesses near the over-center stops to alleviate any interference. Program decision was made to not remove the RMS.</p> <p>This configuration would reroute and retape harnesses on the MPMs to support the over-center stops mod. Since -026 established a new configuration in support of the over-center stop mod and this was not worked this flight, a configuration waiver is needed for STS-116. In addition, the removal of the -019 from the previous mission was not completed.</p>	OV-103, Flight 33	