

STS-120 Integrated Launch Site Requirements Review

Presenter

Stephen Reilly

Date

01-25-07

Program Freeze Point

PRCB Presentation

S115120B

STS-120 Integrated Launch Site Requirements Review

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Baseline the STS-120 Mission Specific Requirements and Flow Plans.

This CR and the associated Data Package were reviewed at the 01-22-07 FRWG.

KSC Integration*

MK-SIO

Flight Integration*

MO3/USA-PI

Orbiter Engineering*

Requesting Approval

USA-OE

GFE FCE

Requesting Approval

MV5

Payload/Cargo Engineering*

USA-PI

Status in BackUp

Flight Software

USA-FSW

GFE EVA

XA

SSME

MP21

*Backup Material



STS-120 LAUNCH SITE REQUIREMENTS REVIEW

Presenter Randy Wade
Date JANUARY 25, 2007

LAUNCH

09/07/07 NET
 39A/ MLP2
 CREW SIZE: 6+1 UP/6+1 DN

ORBIT

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

CONFIGURATION

OV-104 (29)
 LP04;RP01
 ET-TBD
 BI-131
 RSRM-98
 (1) TBD (2) TBD (3) TBD
 OI-32
 RMS,ODS,OBSS(a)

CONSUMABLES

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

PAYLOAD

ISS-10A (NODE 2),
 PDGF, SASA(b)
 RAMBO
 MAUI

LANDING

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

NOTE: (a) = OBSS TRANSFER TO ISS

NOTE: (b) = RETURN ONLY



STS-120 LAUNCH SITE REQUIREMENTS REVIEW

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PERFORMANCE MARGIN

• SIMULATION MARGIN (SPLAF120)		+2603
• WEIGHT CHANGES SINCE SIMULATION		
• PAYLOAD	-80	
• OPERATOR	-24	
• ORBITER	+1	
• NPC	+48	
• CREW COMPARTMENT	<u>+195</u>	
TOTAL WEIGHT CHANGES	+140	-140
• OTHER PERFORMANCE PROJECTIONS		
• PROTECTION FOR DOL DISPERSIONS		-700
• 9/07/07 LAUNCH DATE (PMBT&ATMOS)		+120
• SRB – M/P UPDATES		+61
• SRB BR / 1.00 MIL HIGHER THAN 0.3705 AVG		+200
• PROJ TO 5 MIN WINDOW FROM INPLANE		-600
• PERFORMANCE CHANGES ADJUSTMENT		<u>+10</u>
• CURRENT BASELINED APM (01/23/07)		+1554
• IPT PROJECTED CHANGES		<u>-1028</u>
• IPT PROJECTED APM		+526

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



STS-120 LAUNCH SITE REQUIREMENTS REVIEW

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Randy Wade

Date
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FLIGHT MASS PROPERTIES

<u>CASE</u>	<u>TOUCHDOWN</u> <u>WEIGHT pounds (LIMIT)</u>		<u>MACH 3.5</u> <u>X C.G. inches (LIMIT)</u>	
NOMINAL	200852	(233000)	1079.6	(1075.7)
RTL5	239262	(245000)	1083.6	(1077.2)
TAL	237841	(244000)	1083.6	(1077.2)
AOA	234138	(242000)	1081.2	(1075.7)
CONT RTRN**	235354	(233000)	1082.8	(1075.7)

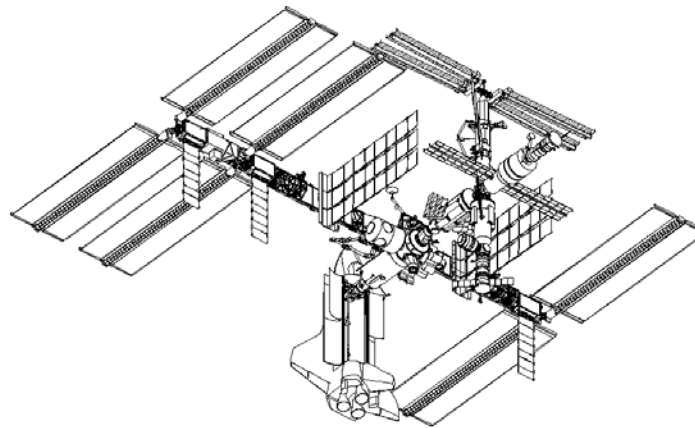
** Contingency Return case exceeds 233K NEOM limit. (See Vol. X Bk. 1 Sec. 3.3.1.1.9)

NOTE: RTL5 25 SEC FRCS DUMP
 TAL 65 SEC FRCS DUMP
 102 LBS. AFT FUS BALLAST (BOXES ONLY)

ESTIMATES BASED ON TDDP SPLAF120 AND MODIFIED FOR WEIGHT CHANGES THRU 1/23/07.



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



STS-120 (ISS-10A) LSRR
Flight Requirements Status
January 25, 2007

Frank Moreno, Mission Integration Manager
Patrick LeMoine, USA Flight Manager



STS-120 IPT Mission Requirements Status	Presenter MO3/Frank Moreno	
	Date 1/25/07	Page 3

NSTS 21477 ISS-10A MIP Status

Latest Version (available on PILS) is Rev B, Change 3, 12/1/2006

MIP CR Status

# MIP21477-0009	Add Sidewall-Mounted MBSU Critical Spare ORU	In Review
# MIP21477-0010	Delete OBSS Transfer Task and add Late Inspection	In Work

Issues Concerns:

- **Late MBSU Addition – Under Review (1/25/2007 PRCB, CR # 072120E)**
 - Pad Installation concern – Integ Assy weight exceeds GSE LRU Arm Handler capability
 - Plan is for ISS to meet ORU / GSE hardware “On Dock” need dates that support OPF installation
- **OBSS Transfer**
 - Current ops assessments indicate that OBSS transfer can be better accommodated on STS-123/ISS-1J/A. Planned for discussion at 2/5 JPRCB.
 - ISS-10A MIP CR and STS-120 FDRD CR in work to eliminate OBSS transfer and add late inspection
- **Mission Duration Change**
 - Elimination of OBSS transfer allows addition of late inspection; mission duration change from 11+1+2 to 12+0+2 Days may be required.

STS-120 LSRR OV-104 FLIGHT 29 CONFIGURATION UPDATES

**Joe Rodriguez
USA Orbiter Element**

**PRCB
January 25, 2007**



1-23-07

8 of 77



STS-120 OV-104 Flight 29 – LSRR Updates

Program Authorization Is Requested For The Following:

- Baseline two (2) modifications
- Baseline two (2) mission equipment modifications

Information Only:

- 3 potential modifications under review
- OPF processing requirements
 - Chits, RCN's, TPS/STR Priorities

Back-up:

- Modification details

STS-120 OV-104 Flight 29 – Modifications To Be Baselined

MCR 19810 – MEC SMIA Mounting Nuts

- Replaces five 4-40 MS35649-244 nuts used to mount the Serial Multiplexer Interface Adapter (SMIA) Sub-Module to the parent Circuit Card Assembly (CCA) with MS21043-04 nuts
 - Ensures that the nuts securing the SMIA to the Multiplexer Interface Adapter (MIA) CCA are tight against the SMIA heat sink and are small enough in diameter to fit in the cutout in the SMIA
 - Affects all AMEC/EMEC spares and flight units

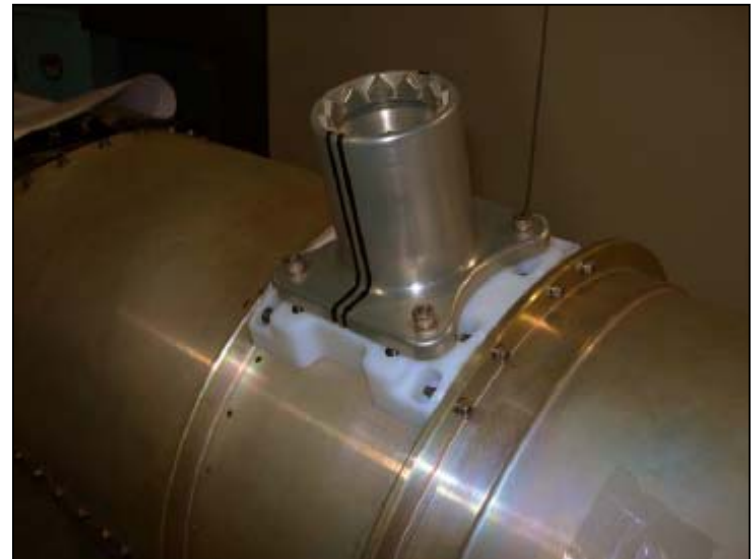
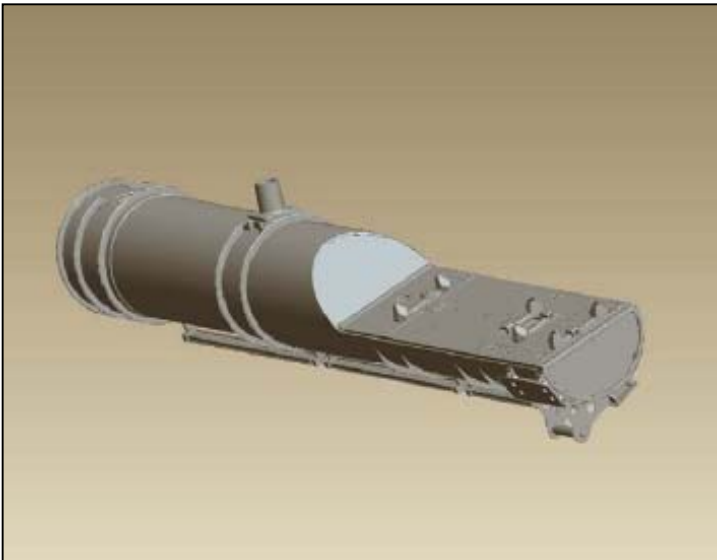
MCR 23467 – Modified Waste Collector System

- Revises Waste Collector Subsystem dash number to WCS1000-25
 - Changes vendor for dual vane compacter material, revises heat shrink to eliminate need for Material Usage Agreement (MUA) and increase processing efficiency, changes silicone rubber type for gasket and o-ring seat material (original is no longer available), changes check valve lubricant to reduce cost, adds back shells to all fan separators to provide strain relief on wiring, provides new heel cups for the WCS foot restraint

STS-120 OV-104 Flight 29 – Modifications To Be Baselined (Cont.)

Mission Equipment Requirements: OBSS IBA Worksite Interface Fixture (WIF)

- Modifies OBSS aft transition to add one socket for the EVA WIF
 - The socket can be installed while the IBA is in the vehicle



Wing Leading Edge Voltage Regulator

- Adds Voltage Boost Regulator (VBR) to the Wing Leading Edge Impact Detection System (WLEIDS) between the battery and the WLE electronics to extend battery life at lower temperatures

STS-120 OV-104 Flight 29 LSRR

Potential Modifications

STS-120 OV-104 Flight 29 – Potential Modifications

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

- Design, develop and certify new N2 & O2 flow sensor
 - N2 and O2 flow sensors have a high failure rate (zero spares)
 - MO10W Panel (S/N 005) has been upgraded and Pre-ATP'd at Carleton
 - New Flow Sensors will be installed in February
 - Final ATP will then be performed
 - Panel due on dock at KSC 3/9/07
- Plan is to readdress at the LSFR with the GO impacts

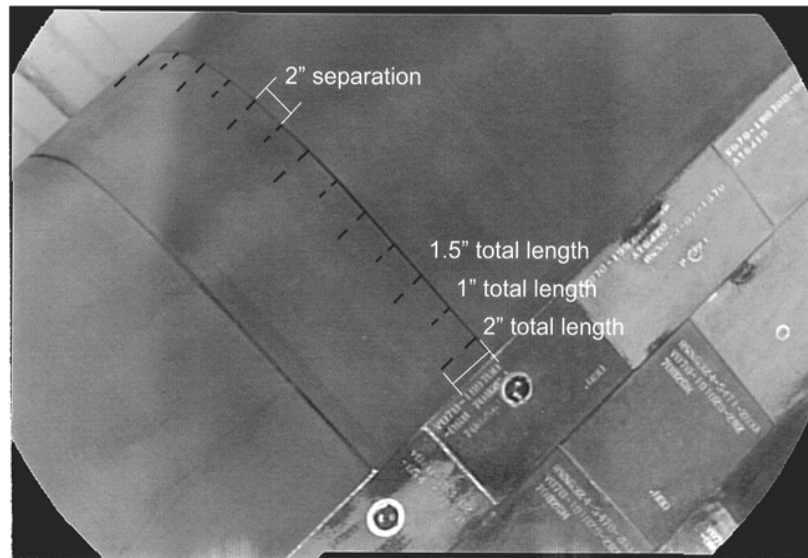
MCR 23411 – Freon Aft Cold Plate Network Filter Mod

- Provides hardware to add filters in order to protect the Aft Cold Plate (ACP) Network from contamination
 - The current ACP Network design has no protection from contamination. Flow restriction due to contamination has occurred twice (STS-109 and OV-103 OMM) resulting in significant impacts
 - Potential modification if the Freon coolant loops are de-serviced for another reason

STS-120 OV-104 Flight 29 – Potential Modifications (Cont.)

MCR 23452 – Fiducial Markings on WLE RCC T-Seals

- Implement fiducial markings on wing leading edge (WLE) reinforced carbon-carbon (RCC) T-seals to facilitate on-orbit imagery X-Y-Z coordinate location identification on RCC areas of interest



- Task placed into 2 month hibernation pending firm arc jet test date
 - Waiting for multi-mission arc jet testing of Sharpie marked RCC to be performed under MCR 23056 – Field Repair of Exposed RCC Substrate

Chits

CHIT	TITLE
J5765	WSB POST FLIGHT TANK OFFLOAD QUANTITY
J5881A	LOWER LESS ACCESS CARRIER PANELPOST FLIGHT TORQUE CHECK VERIFICATION
J5919B	O-GAUGE PROTECTION FOR OV-103, FLIGHT 32-35 AND OV-104 FLIGHT 27-30
J5926	OV-104 BODY FLAP (BF) POWER DRIVE UNIT (PDU) GEARBOX FLUID LEVEL
J5930CR1	ORBITER STRUCTURE IML SURFACE CORROSION SAMPLING INSPECTION
J6116	AMES GAP FILLER REMOVAL AND REPLACEMENT
J6154	POSTFLIGHT DAMAGE 3-D ACQUISITION
J6162	PERFORM MEASUREMENTS ON THE OBSS MPM SHOULDER AND X-GUIDE ON THE IBA
J6166	E/AMEC TIN WHISKER MITIGATION & SMIA NUT MOD COMPLETION FOR OV-104
J6168	RADAR ALTIMETER R/R FOR TIN WHISKERS
J6187	ADTA #3 AND #4 RETROFIT FOR OV-104, FLT. 29
J6196	CERAMIC INSERT INSPECTION
J6198	OV-104 MID FUSELAGE LOCK BOLT OPPORTUNITY SAMPLING AND FASTENER REPLACEMENT
J6202	REMOVAL AND REPLACEMENT OF OV-104 WINDOWS THERMAL PANE 1 THROUGH 6 FOR OV-104 FLIGHT 29
J6201	RJDF AND RJDA R/R FOR TIN WHISKERS
JXXXX	WLEIDS Voltage Regulator Checkout
JXXXX JXXXX	Post Flight Ames Gap Filler Verification and Pull Test Payload Close Clearance Measurements

Potential Chit: OMDP OMRS Requirements Exercise

- **The Following Requirements May Be Authorized Via Chit**
 - V61AQ0.020 Cabin Positive Pressure Relief Valve Checkout
 - V61AT0.063 O2 Regulator Relief Valve Test
 - V61AT0.089 Emergency Breathing Check Valve Leakage Test
 - Assures proper valve activation (stiction)
 - V61AT0.091 Emergency Breathing System Regulator Checkout
 - Regulator flow, lockup and leak check verification
 - V61AW0.035 GN2 Regulator/Relief Valve (Crack & Reset) Test
 - Assures proper valve activation (stiction)
 - V64AC0.012 Hatch Verification
 - Assures proper valve activation (stiction) and pressure gauge functionality
 - V64AC0.026 Crew Cabin Purge Valve Assy Checkout

RCN'S Under Review – Potentials for STS-120

RCN	SUBJECT
OV17214	NH3 BOILER FLUSH OMDP REQ BECOMING 3 YR REQ
OV17215	V61 OMDP REQ BECOMING 3 YR REQ
OV17146R1	RADIATOR RETRACT FLEXHOSE LEAK CHECK
OV17232R1	LANDING GEAR EXTEND ISO VLV AND BRAKE ISO VLV LEAK CHECK OMDP REQ BECOMING 3 YR REQ
OV17218R1	STAR TRACKER DOOR SEAL INSP OMDP REQ BECOMING A 3 YR REQ
OV17216R1	HATCH VERIFICATION AND CABIN PURGE VLV CHECKOUT OMDP REQ BECOMING A 3 YER REQ
OV17255	750 HELIUM REG DUCER CAL OMDP REQ BECOMING A 3 YR REQ
OV17032	BOOM TESTING AND INSPECTION
OV17103	BOOM STATIC CLEARANCES
OV17212R1	PURGE DUCT CHECK VLV INSPECTION OMDP REQ BECOMING A 3 YR REQ.

Issues Under Review

Issues That Could Drive Significant Work Growth

- **OV-104 MPS E3 LO2 Prevalve Cracked Detent Roller**
 - Cracked detent rollers have been found on 3 occasions at this location
 - Forward plan may drive Prevalve R&R
- **COPV Review of MPS Mibody Helium Tanks**
 - Data review of volume growth has raised concerns for Tanks 6 & 7
 - Forward plan may drive removal of Tanks 6 & 7
- **Removal / Replacement of Water Spray Boiler (WSB) Aging Components**
 - PRT is assessing the requirement based on hardware availability and need
 - Parts include GN2 Isolation valves, Regulator Relief Valve, GN2 Low Pressure Transducer , Vent Nozzle Assembly , Spray Valves
 - Forward plan may drive lowering WSB #1

TPS/STR Priorities

Mandatory (Flight damage, OMRS Rqmts/Chits, & deferred work)

- Deferred work may be redeferred with acceptable inspection
- Gap Filler R&R
 - Continue zones 2A, 2B and 2B' working Fwd to Aft
 - Approximately 800

Prioritized Opportunity

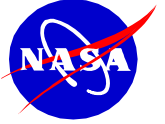
- **BRI-18 Tile - MLGD (24 tile)**
 - 1st subset – fwd & o/b corner – 12/door, 14 complete to date
- **BRI-18 Tile - MLGD (38 tile)**
 - 2nd subset – fwd & o/b sides – 19/door - 9 fwd edge/10 outboard side
- **BRI-18 Tile - STR side of ET Doors (20 tile)**
 - 10/door
- **BRI-18 Tile - LESS Carrier Panels 8-10 (24 tile)**
 - 12/side
 - Note: panel 8 stbd side (4 tile) completed on STS-117

TPS/STR Priorities

- **BRI-18 Tile - Windows 2, 3, 4, & 5 Upper Carrier Panels (40 tile)**
 - W3 & W4 1st - (9/window) (18 tile)
 - W2 & W5 2nd - (11/window) (22 tile)
- **BRI-18 Tile – Remaining ET Door/LESS carrier panels/window tiles/NLGD/MLGD**
 - ET Door Fwd Str side & Door side perimeter
 - NLGD (attrition – do leading edge first)
 - MLGD – Outboard (1/3 left) – Inboard - Aft (in that order)
 - Windows – 1 & 6 upper – 3 & 4 lower – 2 & 5 lower (in that order)
 - LESS - panels 7, 6, 5, 11, 12, 13, 4, 3, 2, 1 (in that order)
- **Corrosion sampling (CHIT J5930CR1)**
- **Mod work**
 - Hub Tile, WLE sneak flow, Horsecollar Gap Fillers, MLGD sneak flow
- **Gap Fillers – Zone 3**



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



STS-120 LSRR
Flight Crew Equipment/GFE

Presenter
MV5/Kenneth Brown

Date
January 25, 2007

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STS-120 LSRR

FCE/GFE Status

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



STS-120 LSRR
Flight Crew Equipment/GFE

Presenter
MV5/Kenneth Brown

Date
January 25, 2007

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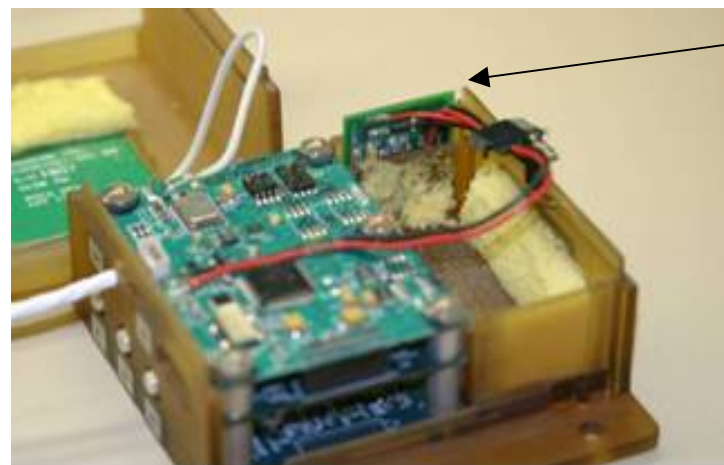
- **Majority of need dates and delivery dates have been partnered through CIR, IPT and weekly GFE telecons; team working to partner remaining dates**
- **Tech orders and hardware list noted in backup charts**
- **Changes since STS-117:**
 - **New Pan Tilt Units (-510) to be delivered for cameras A, B, C, D, and elbow. (OBSS PTU will remain -508 config.) Delivery schedule has little contingency to meet KSC need dates.**
 - **SRMS wrist camera config change to stronger fasteners, new torque values and two additional fasteners in bracket**
 - **Aft compartment micro-SGU removed. Four flight certification expires after STS-117. Current MECSLSI reflects this config.**
 - **Doc Only - OBSS SP-2 tech order dash number roll to reflect lockwire of inserts. This represents no hardware change**



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Flight Crew Equipment/GFE

Presenter MV5/Kenneth Brown	
Date January 25, 2007	Page 3

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



Voltage Regulator



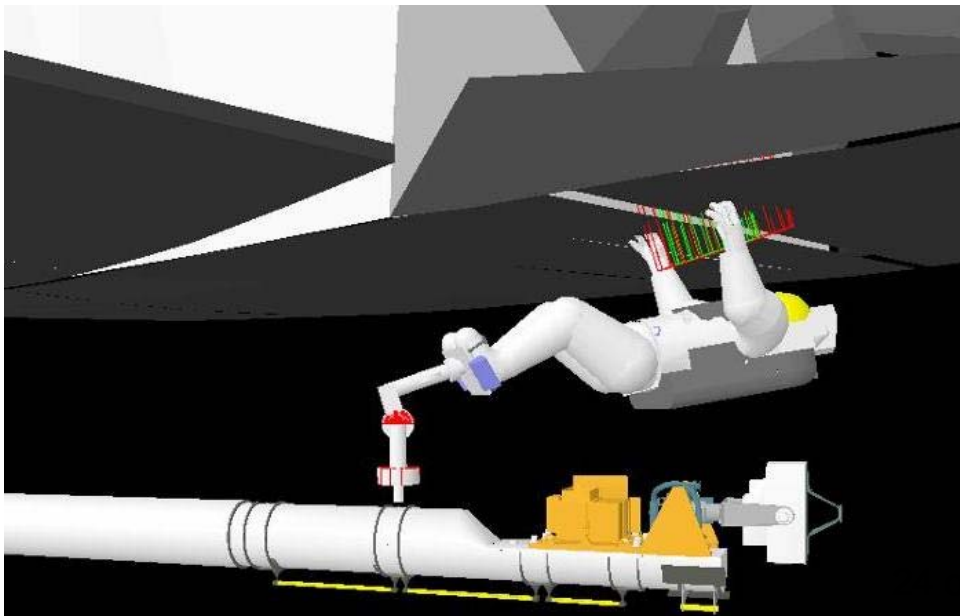
STS-120 LSRR
Flight Crew Equipment/GFE

Presenter
MV5/Kenneth Brown

Date
January 25, 2007

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



**STS-120
ISS – 10A NODE 2
LAUNCH SITE REQUIREMENTS REVIEW
PAYLOAD CARGO ENGINEERING STATUS**

**Kellee Ash
281-280-6517
1/25/07**

STS-120 LSRR

ENGINEERING FLIGHT PRODUCT STATUS

<u>DRAWING NO</u>	<u>TITLE</u>	<u>REV</u>	<u>EO</u>	<u>RELEASED</u>
V072-200199	MECSLSI	A	A01	01/16/07
VA72-200199	CARGO ARRANGEMENT	A	A01	01/19/07
VD72-200199	AVIONICS DIAGRAM	Basic	A01	01/17/07
VS72-200199	INTEGRATED SCHEMATIC	Basic	A01	01/17/07
VS70-540315	RETENTION SCHEMATIC	Basic	A01	01/17/07

ENGINEERING OPEN WORK

- FRED 01/23/07
- SASA UPDATES (T.O. AND MECSLSI) 02/06/07
- UPDATE VS TO MODIFY ODS TCS PIN CALL OUT 02/07/07
- ADDITION OF MBSU TBD
 - Potential fitcheck of FSE to GAS beam

STANDARDIZATION

- MISSION CONFIGURATION DOES COMPLY WITH ORBITER/PAYLOAD INTEGRATION STANDARDIZATION DOCUMENT NSTS 60523

RESCUE FLIGHT STATUS

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

STS-120 LSRR

OMRSD

BASELINED FILES

- P321 Assembly Power Converter Unit (APCU)

OPEN WORK

<u>RCN #</u>	<u>TITLE</u>	<u>RCN RELEASE</u>	<u>ECD</u>
<u>F2V2 (POST MATE)</u>			
PP17192	P477 – ISS-10A Baseline	10/06/06A	02/06/07
<u>F2V4 (PREMATE)</u>			
DPS12194	S07 STS – 120 FII/V4 MUL	02/09/07	02/27/07
DPS12192	S07 STS – 120 FIII MUL	02/09/07	02/27/07
PSXXXXX	S07 STS – 120 Adj. Pin Test	02/09/07	02/27/07
<u>F2V6 (SHUTTLE EXPERIMENTS)</u>			
NONE			

ISSUES/CONCERNS

- RCN to add SASA IVT requirements
- RCN to add MBSU IVT requirements (ICD/PIP not baselined)
- EOM OPF Purge to be documented in MIP
- Add temperature ranges for pre-launch and post-landing purges
- 120 VDC power IVT will have redundant copper paths. Need resolution to test plan.

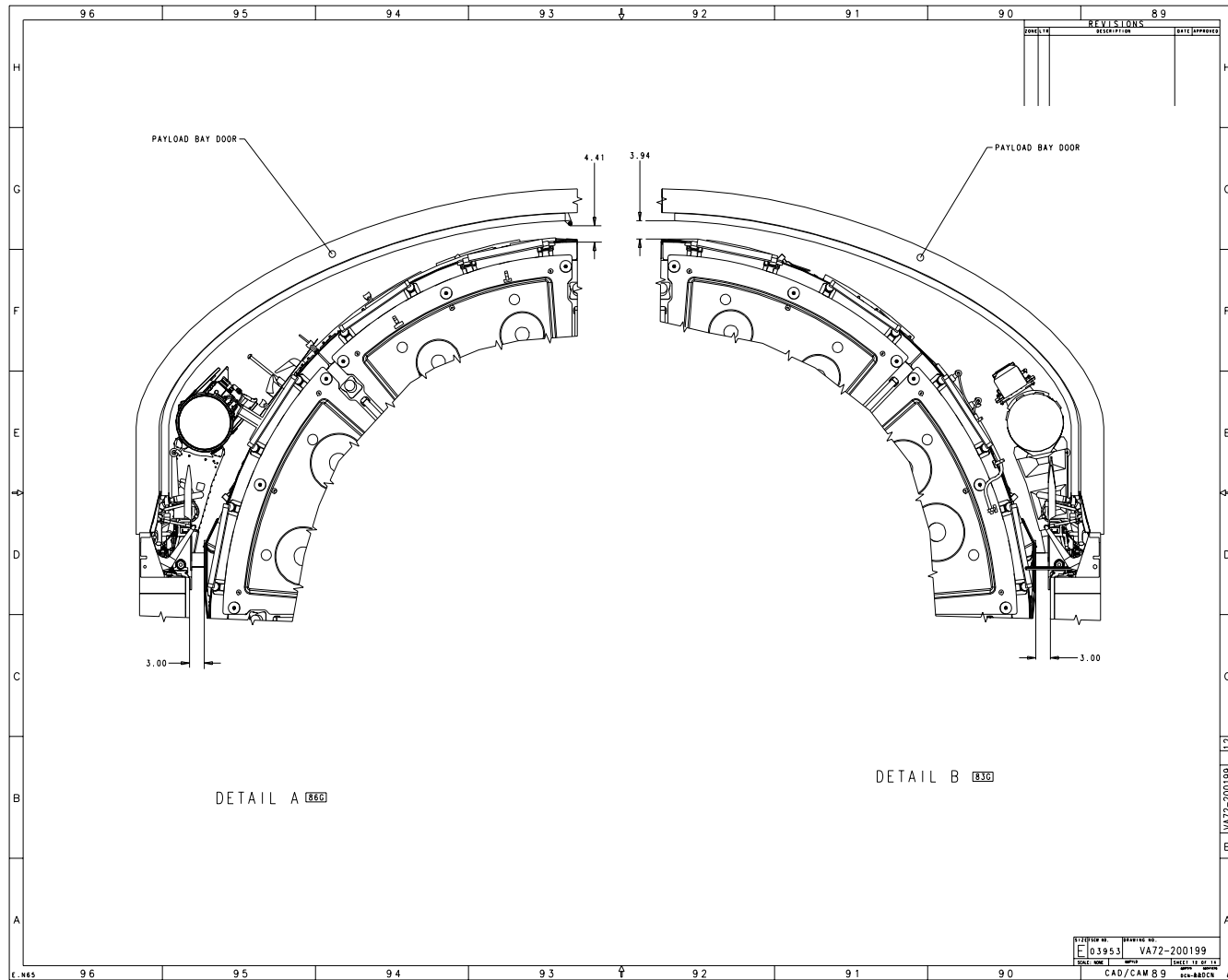
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CARGO CLOSE CLEARANCE PROCESS

- THE FOLLOWING CLOSE CLEARANCE AREAS HAVE BEEN IDENTIFIED (see figures):
 - WIRE TRAYS, EGRESS, RING FRAME
 - RADIATORS
- A DRAFT CHIT IS IN WORK TO TAKE MEASUREMENTS OF CLOSE CLEARANCE POINTS
- CHIT MEASUREMENTS WILL BE PERFORMED AT THE OPF. NO PAD MEASUREMENTS REQUIRED.

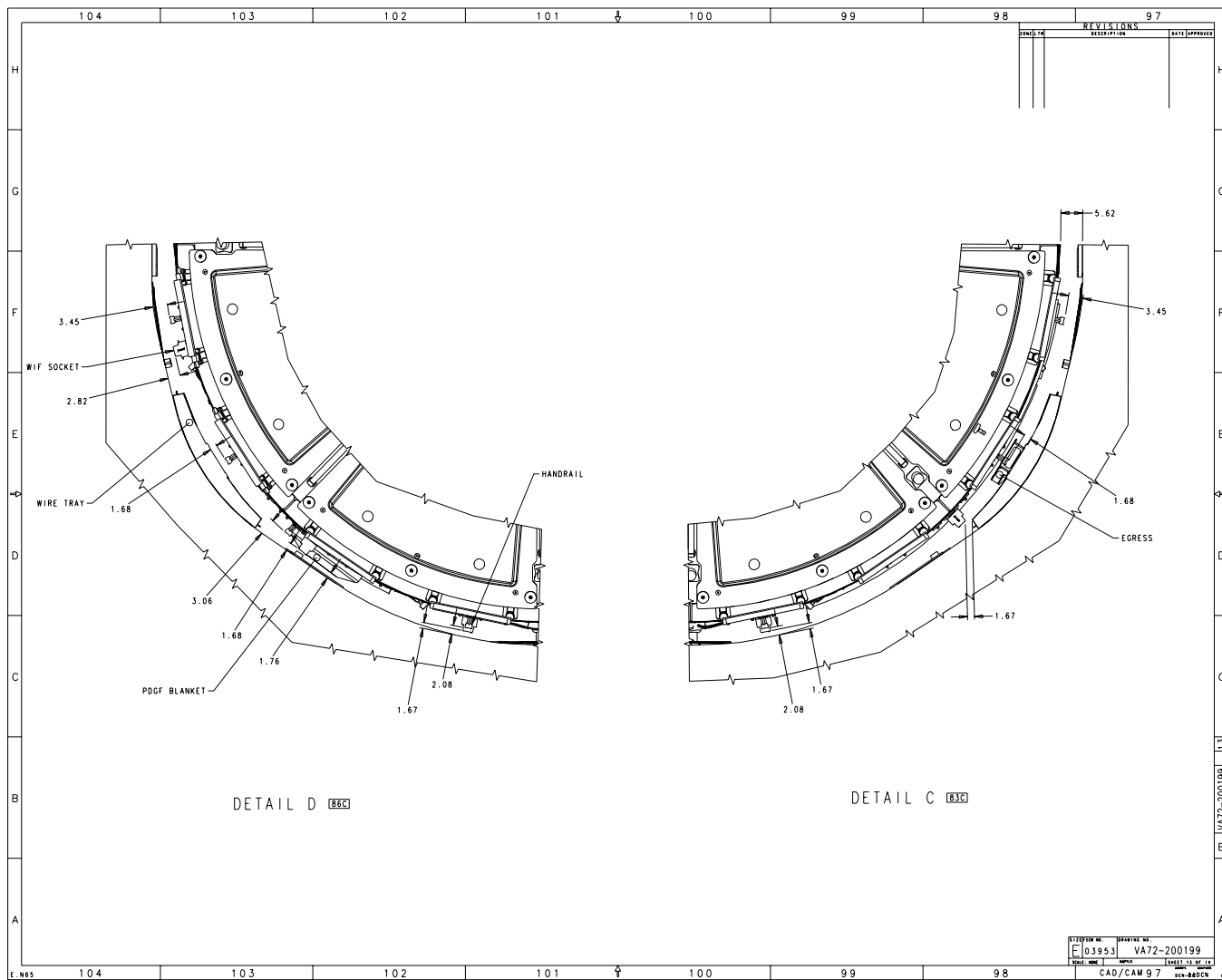
STS-120 LSRR

Close Clearance Points



STS-120 LSRR

Close Clearance Points



STS-120 Integrated Launch Site Requirements Review

Presenter

Stephen Reilly

Date

01-25-07

Backup Material

FRWG Presentation (With Minor Changes)



Requirements Documents Status

Presenter
USA/Patrick LeMoine

Date 1/25/07

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Flight Requirements Documents

NSTS 17462-120, Revision 007: Published November 17, 2006

Approved CRs

#0022 – Update Photo TV Configuration

#0024 – Update Flight Design Requirements

Open CRs

#0023 – Add MBSU to the 10A Launch Package

NSTS 17462-320, Revision Basic: Published November 30, 2006

Approved CRs

#0002 – Modify Ferry Ballast Requirements

Open CRs

#0003 – Update ISS Stage Rendezvous Altitude

#0004 – Add Port TSA

STS-120 OV-104 Flight 29 LSRR

Back-up

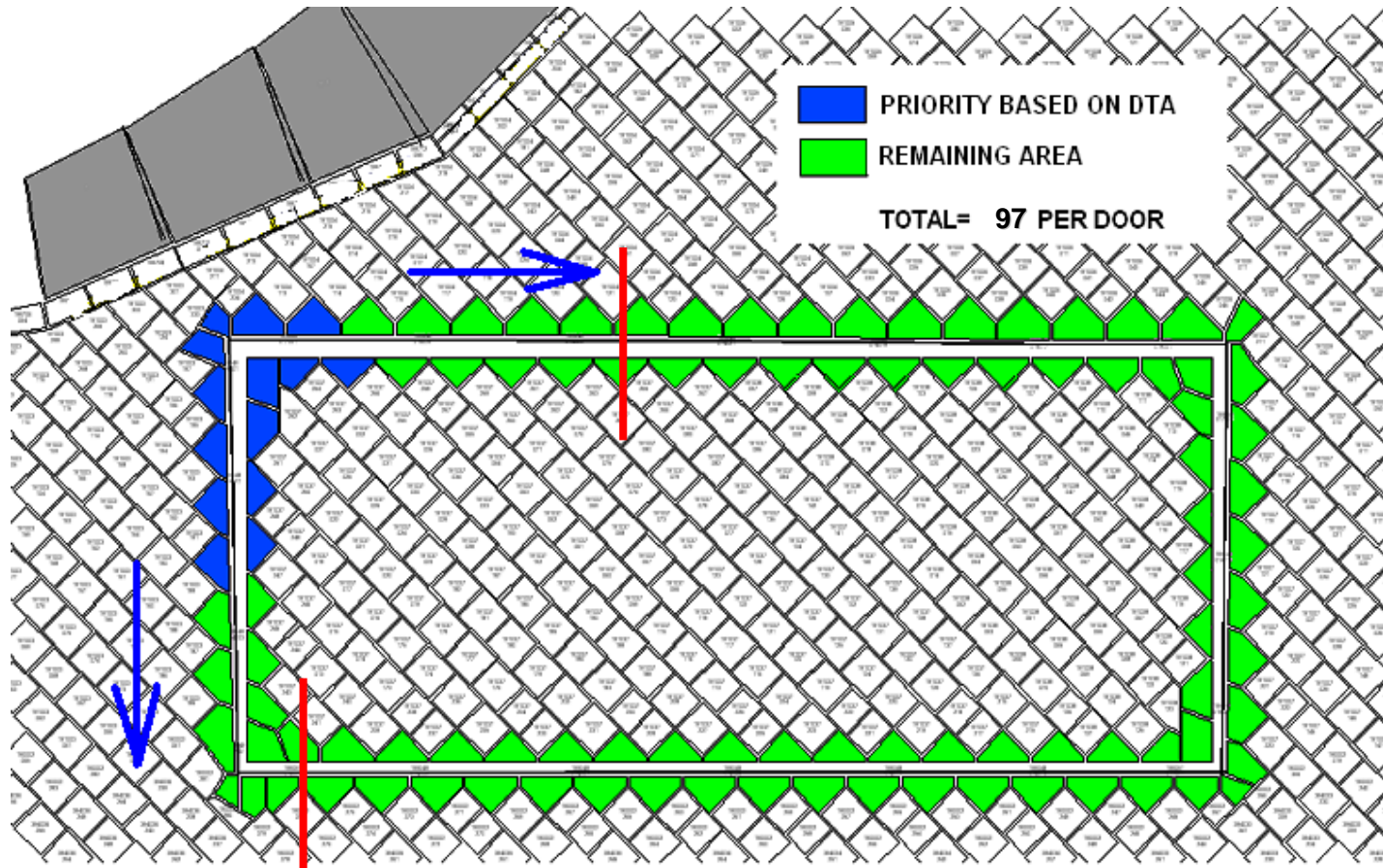
Modification Records and MECSLSI Update Summary

MCR NO.	MCR TITLE	KIT / MOD RECORD & DESCRIPTION	TECH ORDER IMPACT	REMARKS
Mods To Be Baselined				
19810	MEC SMIA Mounting Nuts Replaces five 4-40 MS35649-244 nuts used to mount the SMIA to the parent CCA with MS21043-04 nuts.	TCTIV7019810REF.0104.0 - Replaces new mounting nuts with the smaller diameter nuts	No Tech Order Impact	No MECSLSI Impact
23467	Modified Waste Collector System Changes dual vane compactor material vendor, revises heat shrink to eliminate need for MUA and increase processing efficiency, changes silicone rubber type for gasket and o-ring seat material (original is no longer available), changes check valve lubricant to reduce cost, adds back shells to all fan separators to provide strain relief on wiring, provides new heel cups for the WCS foot restraint.	TCTIV6223467REF.0104.0 - Updates the WCS installation drawing	No Tech Order Impact	No MECSLSI Impact
Mission Requirements				
17222	OBSS IBA Mod Modifies OBSS aft transition to add one socket for the EVA Worksite Interface Fixture (WIF).	TCTIMGFE0000REF.0002.0 - IBA mod tracking record	Tech order impact M072-544506-003 (IS) -002 (WAS) MODEL MV0092A	MECSLSI Impact
17222	Wing Leading Edge Voltage Regulator Mod Adds Voltage Boost Regulator (VBR) to WLEIDS to extend battery life at lower temperature.	TCTIMGFE0000REF.0003.0 - VBR mod tracking record	Tech order impact M072-756111-TBD (IS) -003/LH (WAS); -004/RH (WAS) MODEL MV0886A	MECSLSI Impact
Potential Mods				
18985	N2 & O2 Mass Flow Sensor Development/Qualification Design, develop and certify new N2 and O2 sensor.	TBD	No Tech Order Impact	No MECSLSI Impact
23411	Freon Aft Cold Plate Network Filter Mod Provides hardware to add filters in order to protect the Aft Cold Plate (ACP) Network from contamination.	VK70-635309-001.0104.0 - Installs protective ACP Filters VK70-854104-001.0104.0 - Structural support provisions for ACP Filters	No Tech Order Impact	No MECSLSI Impact
23452	Fiducial Markings on WLE RCC T-Seals Implement fiducial markings on WLE RCC T-Seals to facilitate on-orbit imagery X-Y-Z coordinate location identification on RCC areas of interest.	023452.0104.0 - Applies Sharpie™ permanent ink as fiducial marker	No Tech Order Impact	No MECSLSI Impact

Engineering, Hardware and Certification Status

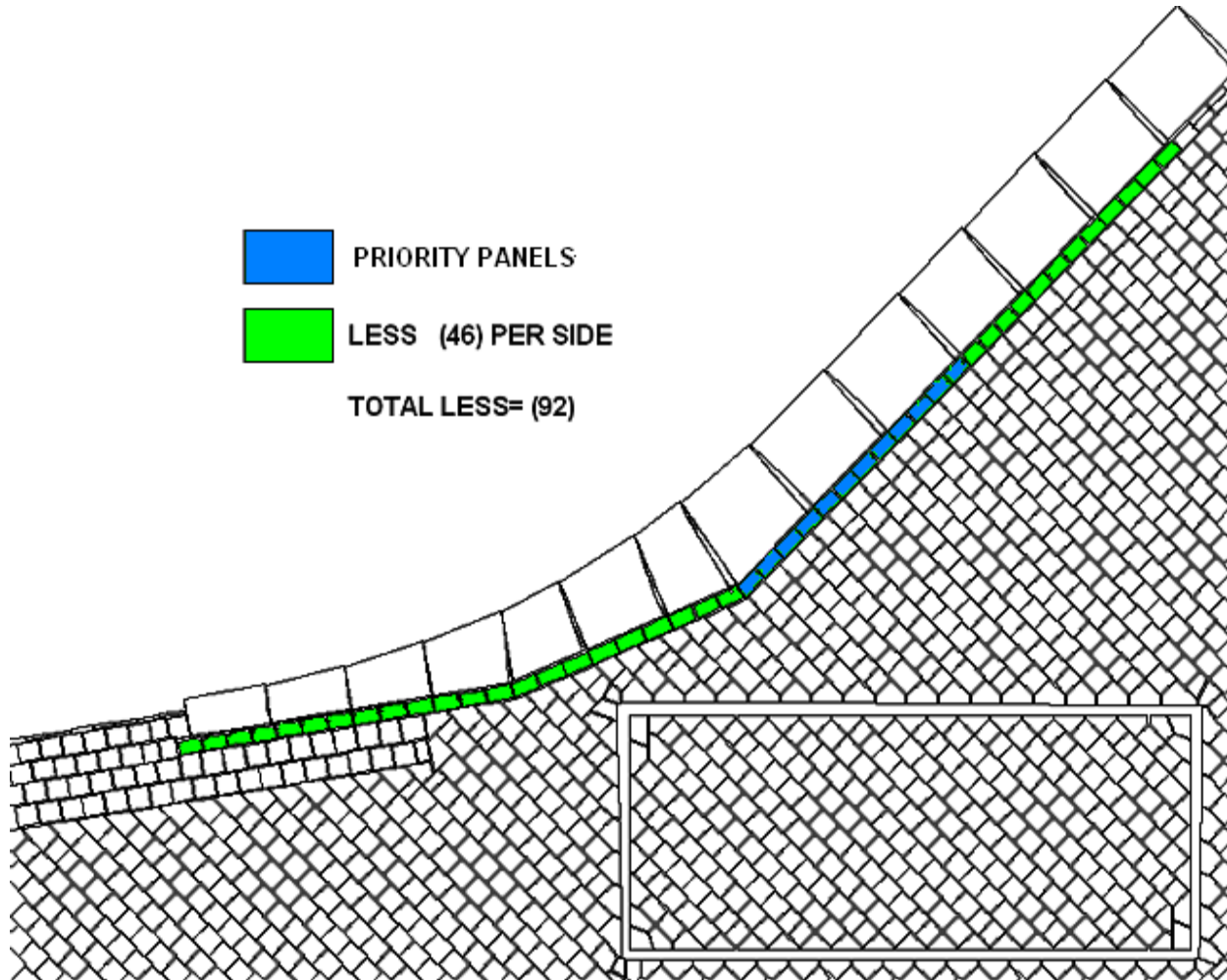
MCR NO.	MCR TITLE	Est. Engr Release (MM/DD/YY)	G.O. Engr Need (MM/DD/YY)	Est. Hdwe Delivery (MM/DD/YY)	G.O. Hdwe Need (MM/DD/YY)	MOD/CERT GO / NO-GO	CERT SUBMITTAL DATE	CERT APPROVAL DATE	CERTIFICATION CR / CAR (BOEING)	REMARKS
Mods To Be Baselined										
19810	MEC SMIA Mounting Nuts Replaces five 4-40 MS35649-244 nuts used to mount the SMIA to the parent CCA with MS21043-04 nuts.	Released*	N/A	4/2/07**	4/2/07	Go	Submitted	Approved	CAR 02-21-450-0016-0007C CAR 02-21-450-0016-0009C	* Effectivity change required from fit 32 to fit 29 ** Boxes are scheduled to be removed from OV-103 on 1/31/07
23467	Modified Waste Collector System Changes dual vane compactor material vendor, revises heat shrink to eliminate need for MUA and increase processing efficiency, changes silicone rubber type for gasket and o-ring seat material (original is no longer available), changes check valve lubricant to reduce cost, adds back shells to all fan separators to provide strain relief on wiring, provides new heel cups for the WCS foot restraint.	Released	N/A	5/24/07	5/24/07	Go	Submitted	2/6/2007*	CAR 06-23-623000-001G	*Still with SCE (since 12/11/06)
Mission Requirements										
17222	OBSS IBA Mod Modifies OBSS aft transition to add one socket for the EVA Worksite Interface Fixture (WIF).	4/16/07*	4/16/07	4/18/07	5/1/07	Go	5/15/07	TBD	GCAR G5389A	*Assumes vendor engineering released by 3/5/07
17222	Wing Leading Edge Voltage Regulator Mod Adds Voltage Boost Regulator (VBR) to WLEIDS to extend battery life at lower temperature.	TBD*	6/1/07	TBD*	6/15/07	TBD*	TBD*	TBD*	TBD*	*MV5 to provide the necessary definition to meet the KSC need dates
Potential Mods										
18985	N2 & O2 Mass Flow Sensor Development/Qualification Design, develop and certify new N2 and O2 sensor.	Released	N/A	3/9/07	3/9/07	Go	3/15/07	4/26/07	CAR 05-22-250-0002-0001N	
23411	Freon Aft Cold Plate Network Filter Mod Provides hardware to add filters in order to protect the Aft Cold Plate (ACP) Network from contamination.	Released	N/A	Delivered	N/A	Go	Submitted	2/26/07	CAR 07-24-634480L	
23452	Fiducial Markings on WLE RCC T-Seals Implement fiducial markings on WLE RCC T-Seals to facilitate on-orbit imagery X-Y-Z coordinate location identification on RCC areas of interest.	3/21/07	3/21/07	N/A	N/A	Go	3/23/07	5/14/07	CAR 43-08-199200-003U CAR 37-08-399200-001R	

MLGD BRI-18 Priority Plan



- MLGD area to be worked from the FWD Outboard corner working Inboard and AFT (area most susceptible to debris impact)
 - 1st subset is in blue
 - 2nd subset is marked by red lines – approximate locations

BRI Hardening Priority Plan (LESS)



- **Lower Wing LESS Carrier Panels (1 – 13)**
 - Panels 8-10 as priority (hottest panels)

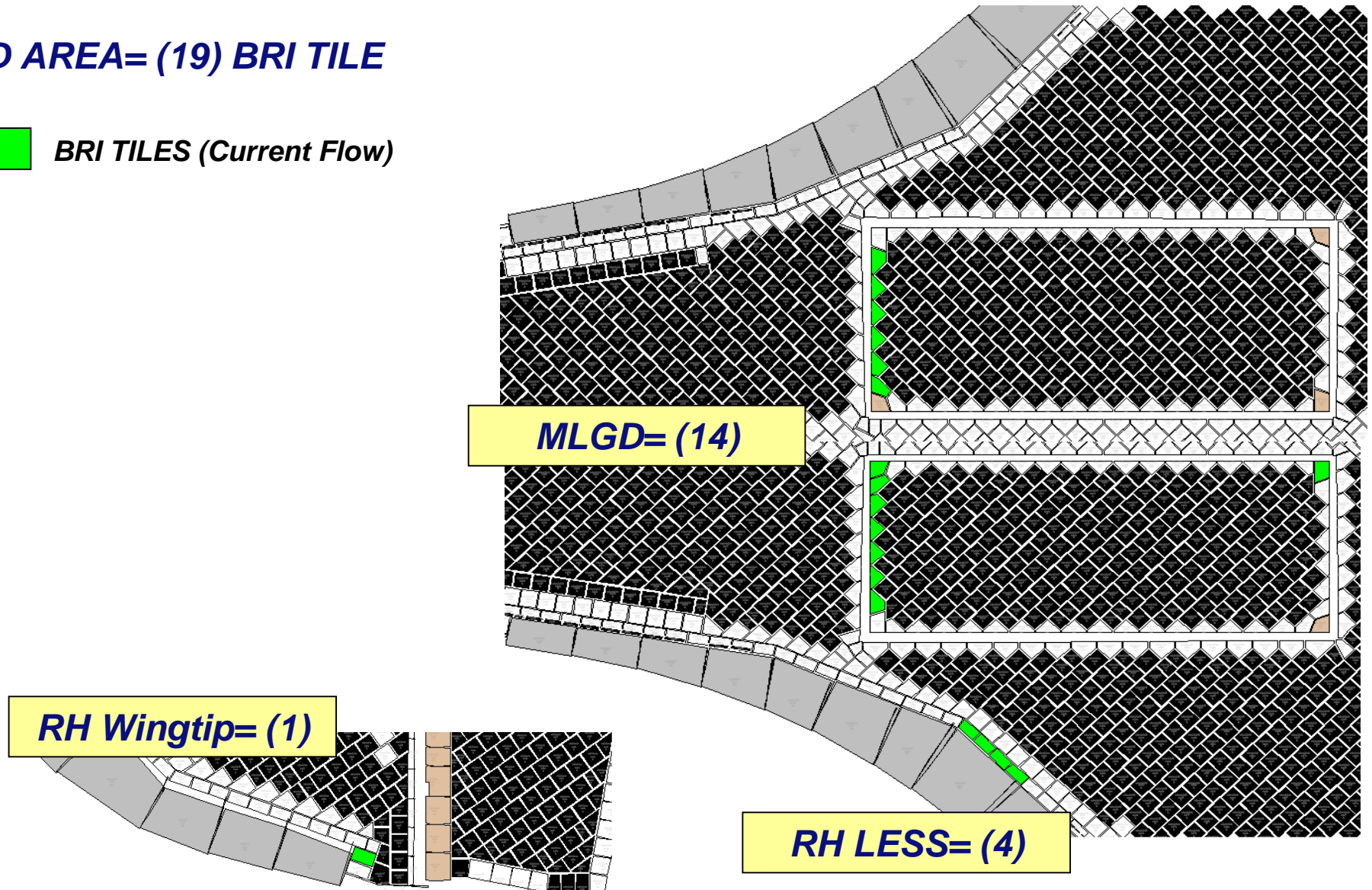
Current Status

- OV-103 has replaced 8 – 10 both sides (STS-116 flow)
- OV-104 begin next flow
- OV-105 has 11 tile in-work

BRI Tile OV-104 (MLGD/LESS)

- MID AREA= (19) BRI TILE

 BRI TILES (Current Flow)



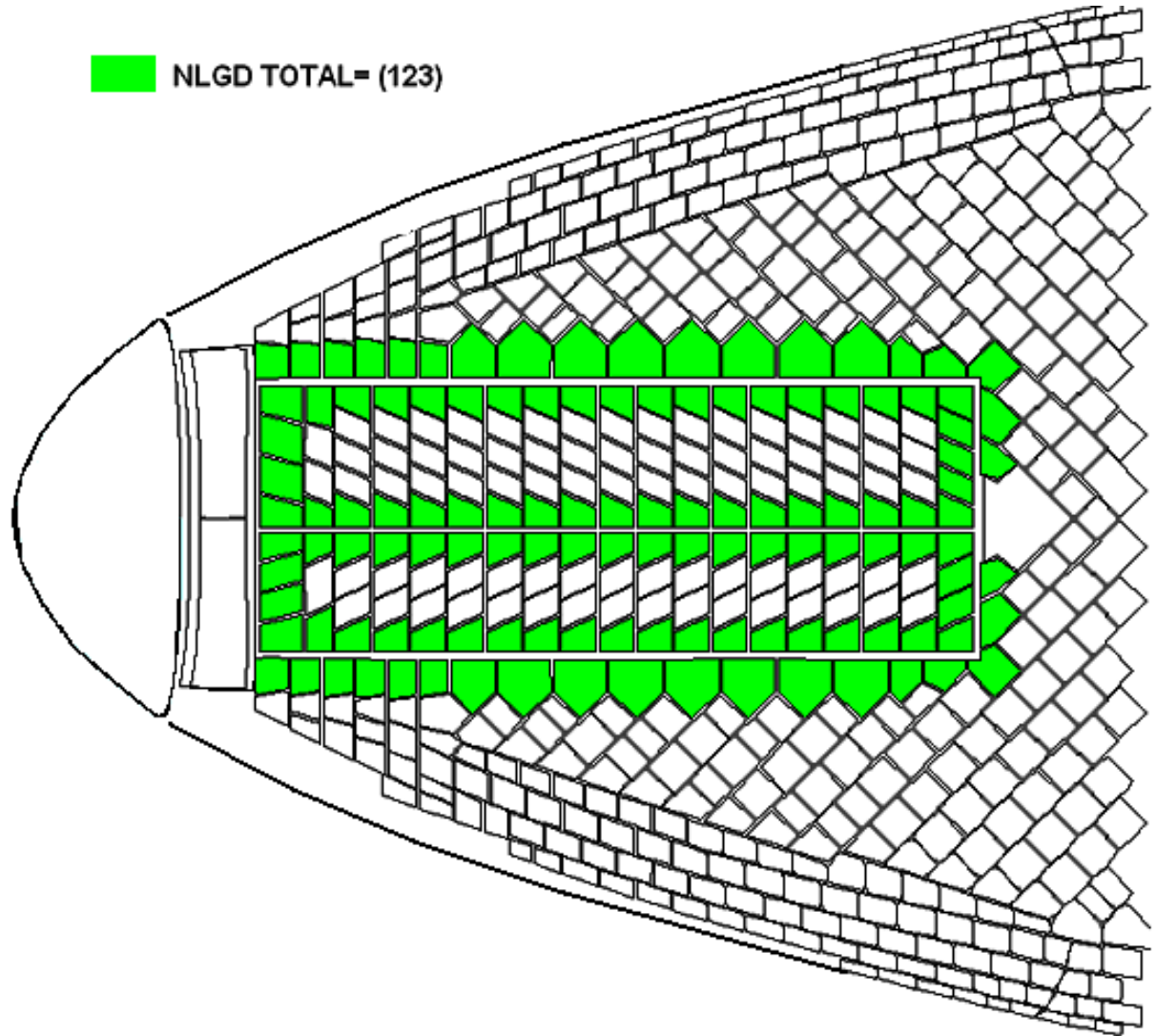
BRI Hardening Priority Plan (NLGD)

 NLGD TOTAL= (123)

- NLGD Area to be worked as flight / processing damage dictates removal

Current Status

- OV-103 currently has 11 installed
- OV-104 currently has 14 installed
- OV-105 has 16 in-work



Window BRI-18 Priority Plan

- **Forward Window area (1 – 6)**
 - Windows 2-5 upper portion as priority (debris potential)



PRIORITY BASED ON POTENTIAL DEBRIS

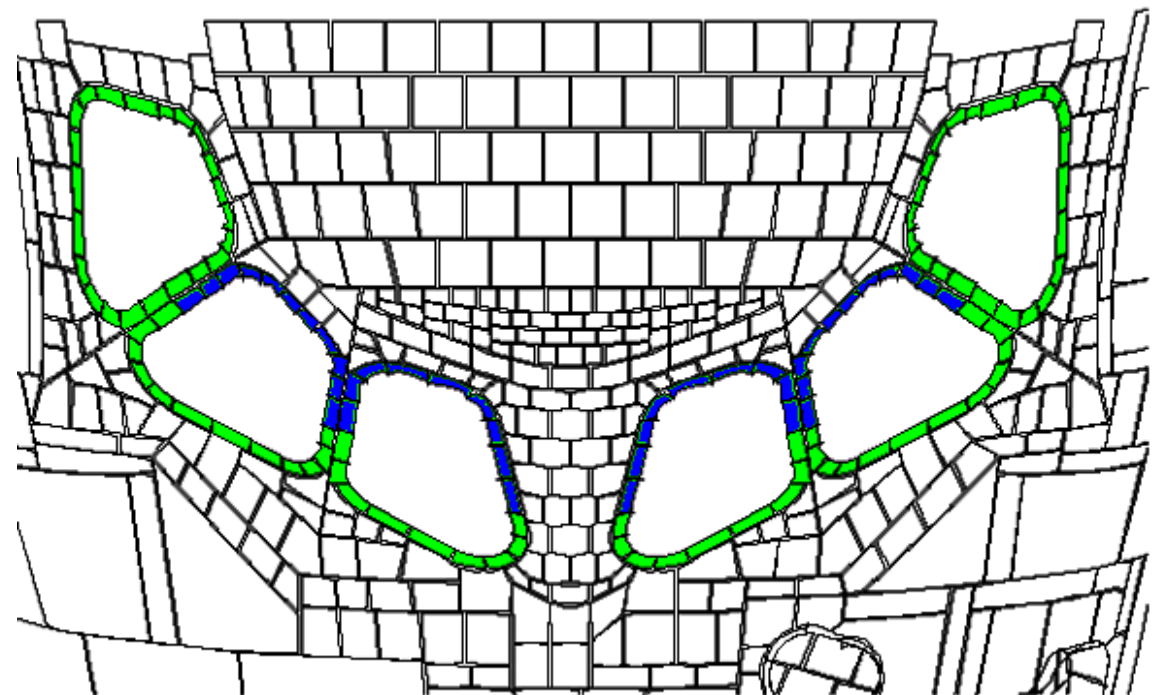


W1/W6= (22) W2/W5= (23) W3/W4= (18)

TOTAL WINDOWS= (126)

Current Status

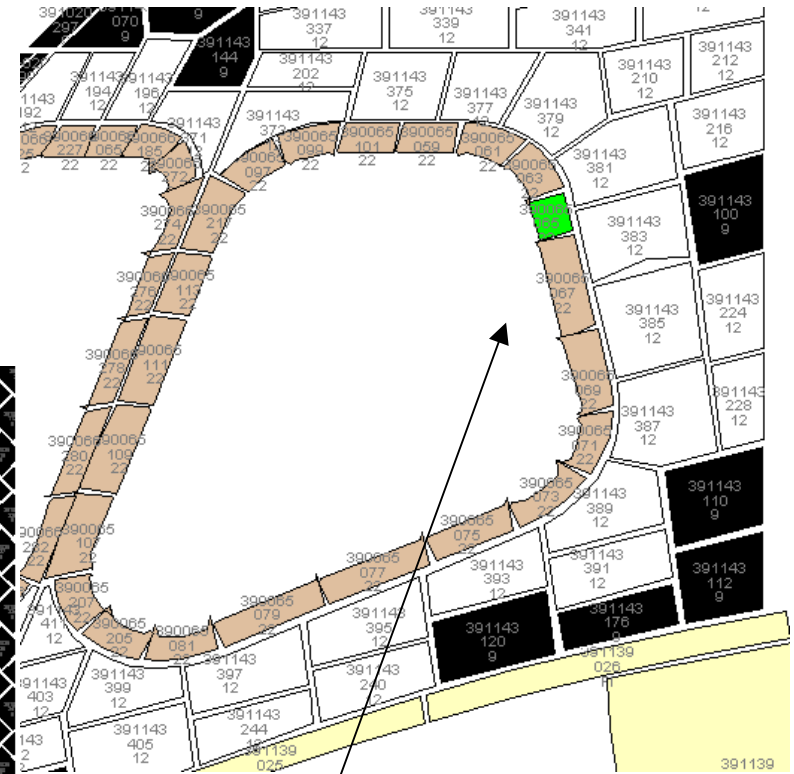
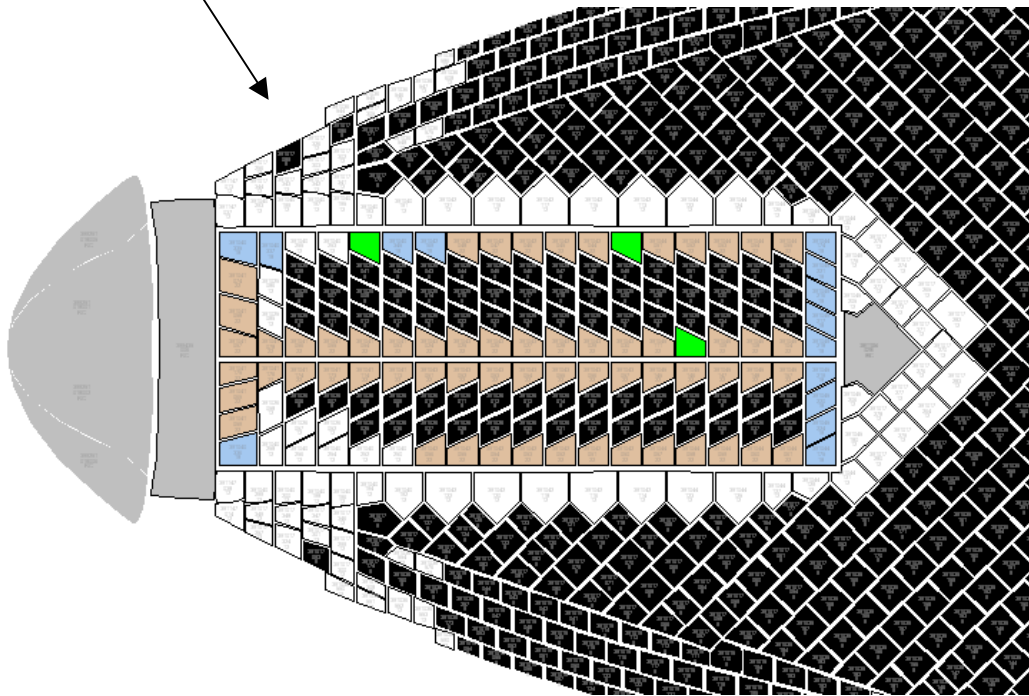
- OV-103 none accomplished for STS-116
- OV-104 begin next flow
- OV-105 has 11 tile in-work



BRI Tile OV-104 (NLGD/Windows)

- FWD AREA= (18) BRI TILE

NLGD= (17) TILE



Window-1= (1) TILE

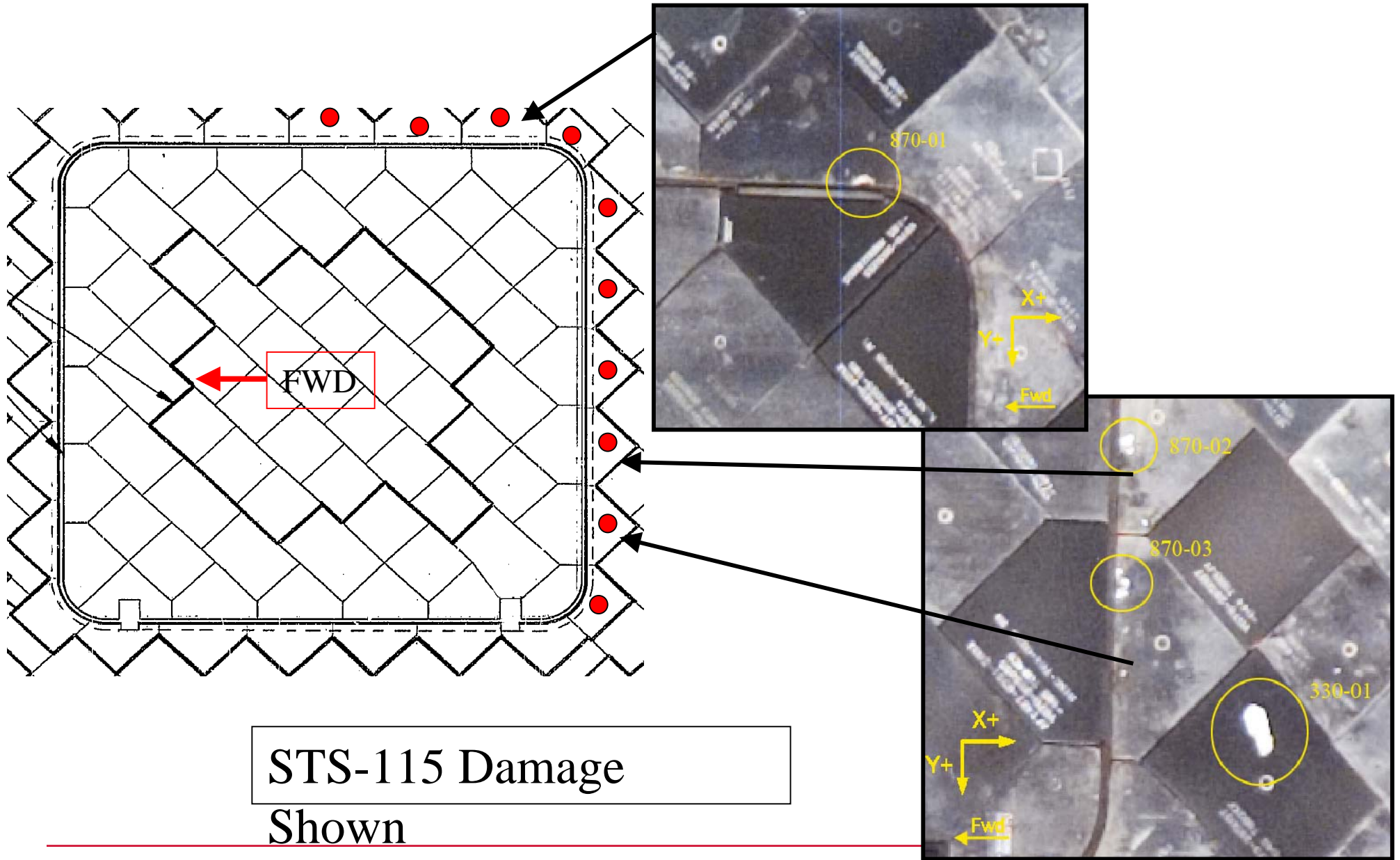


BRI TILES



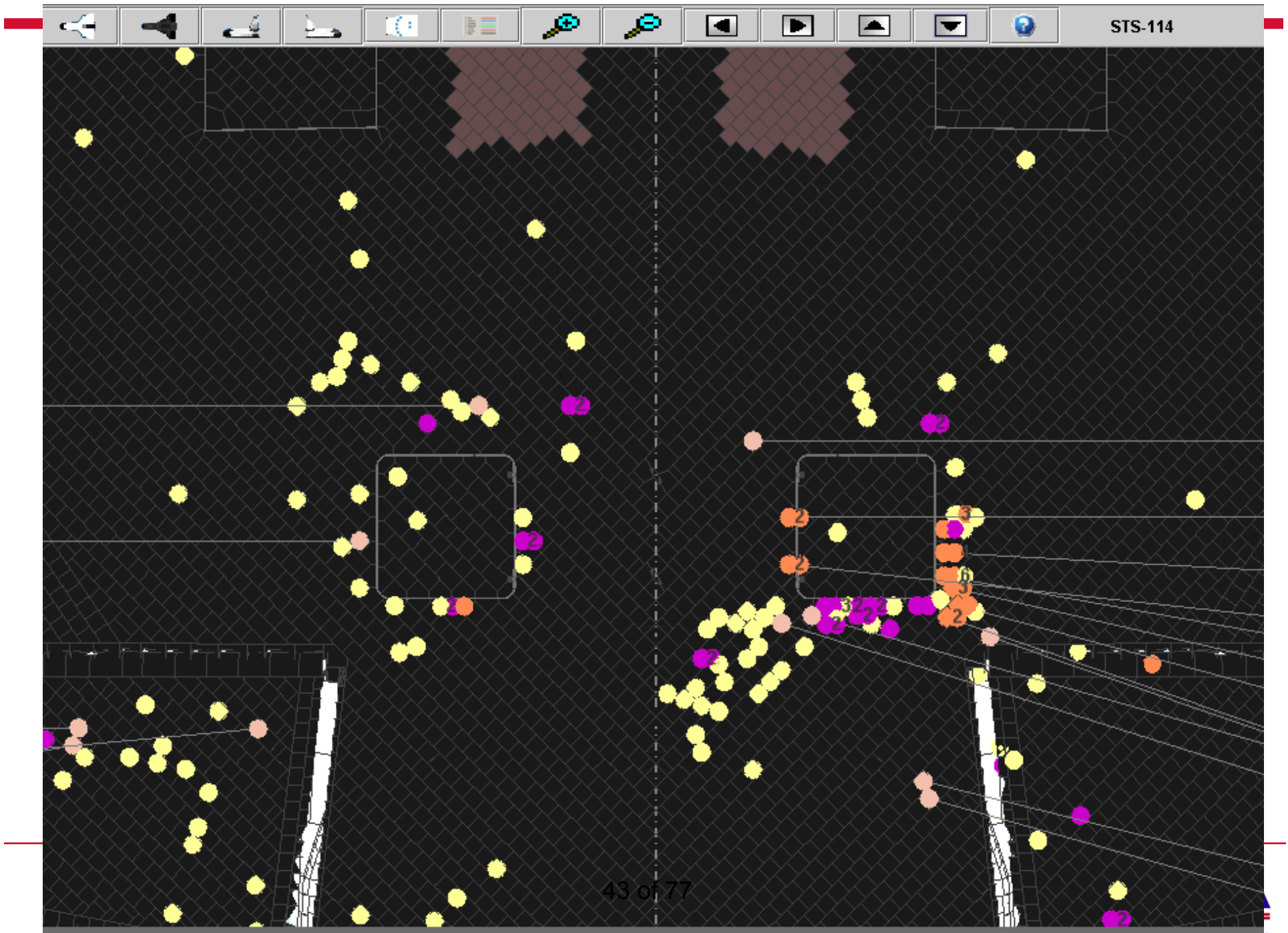
BRI TILES (Current Flow)

External Tank Door Tiles – STR Side



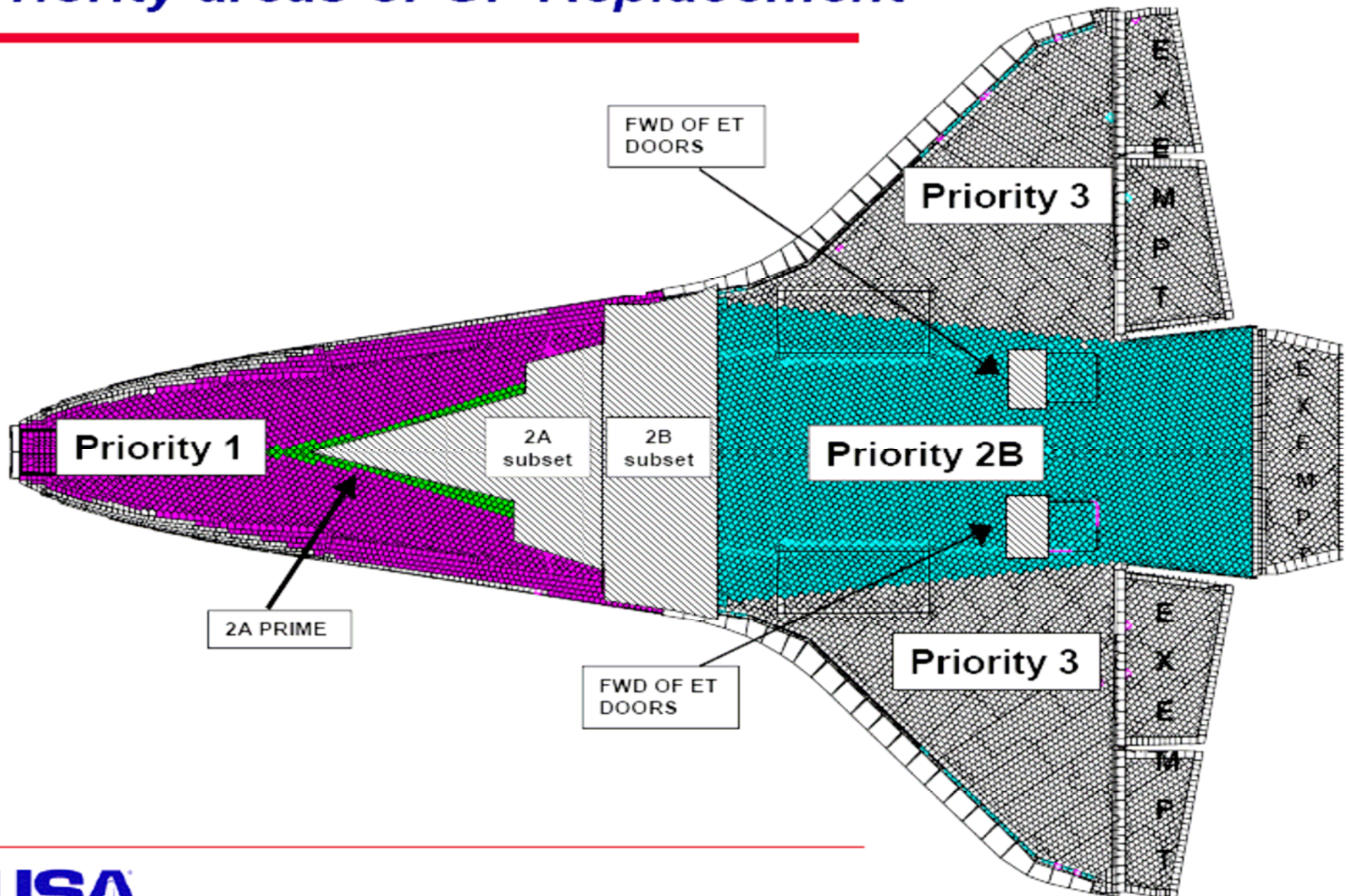
STS-115 Damage
Shown

ETD Damages – Last 4 missions



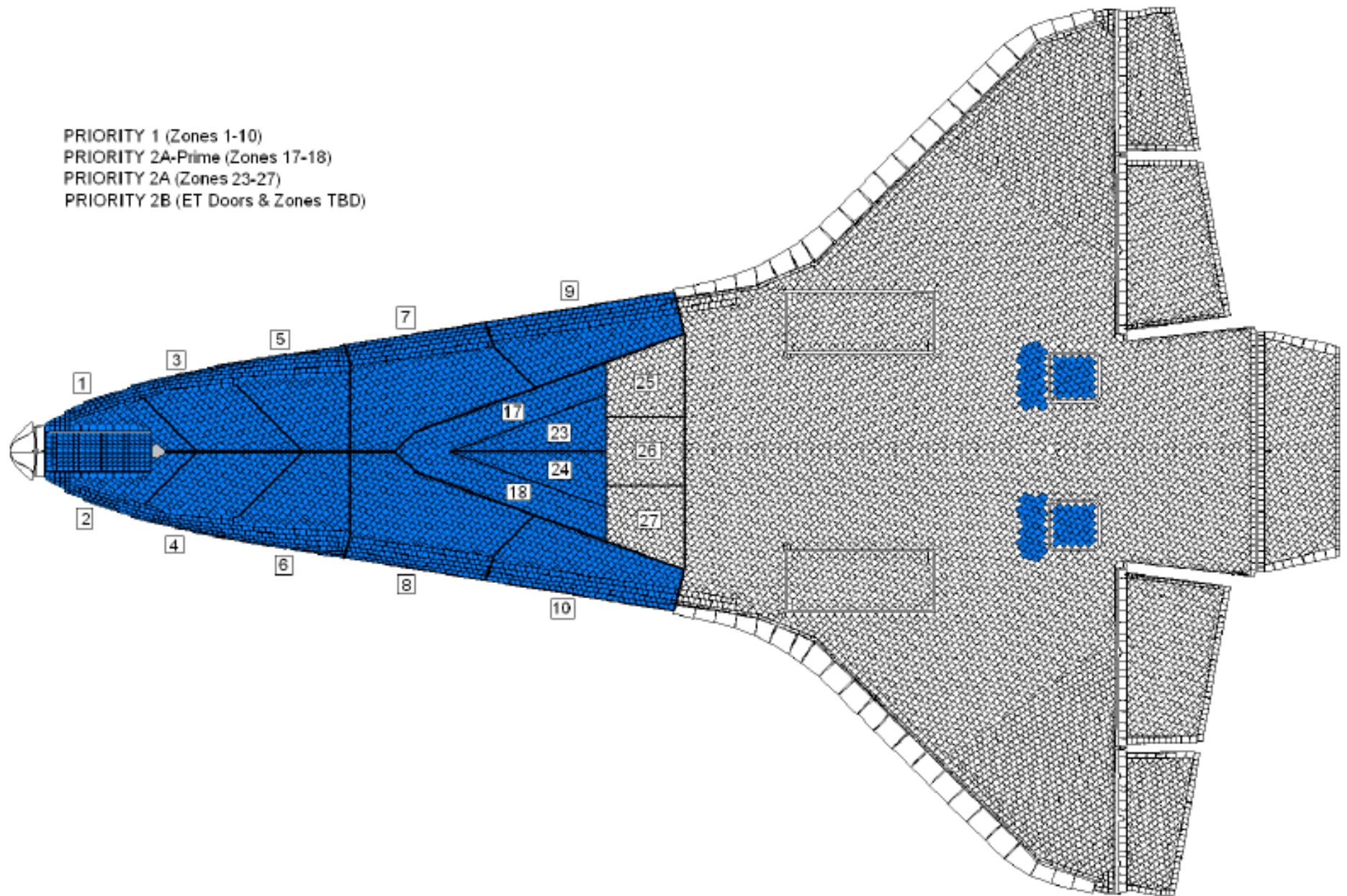
OV-104 Current Configuration (Lower Surface)

Priority areas of GF Replacement



OV-104 Current Configuration (Lower Surface)

PRIORITY 1 (Zones 1-10)
PRIORITY 2A-Prime (Zones 17-18)
PRIORITY 2A (Zones 23-27)
PRIORITY 2B (ET Doors & Zones TBD)



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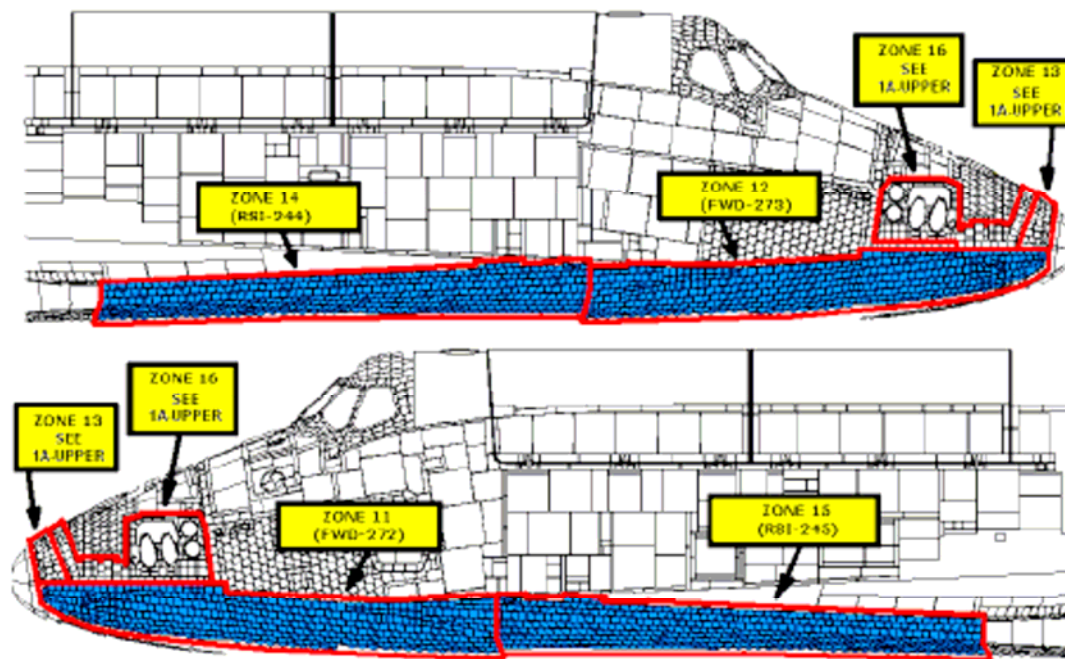


GAP FILLERS BONDED

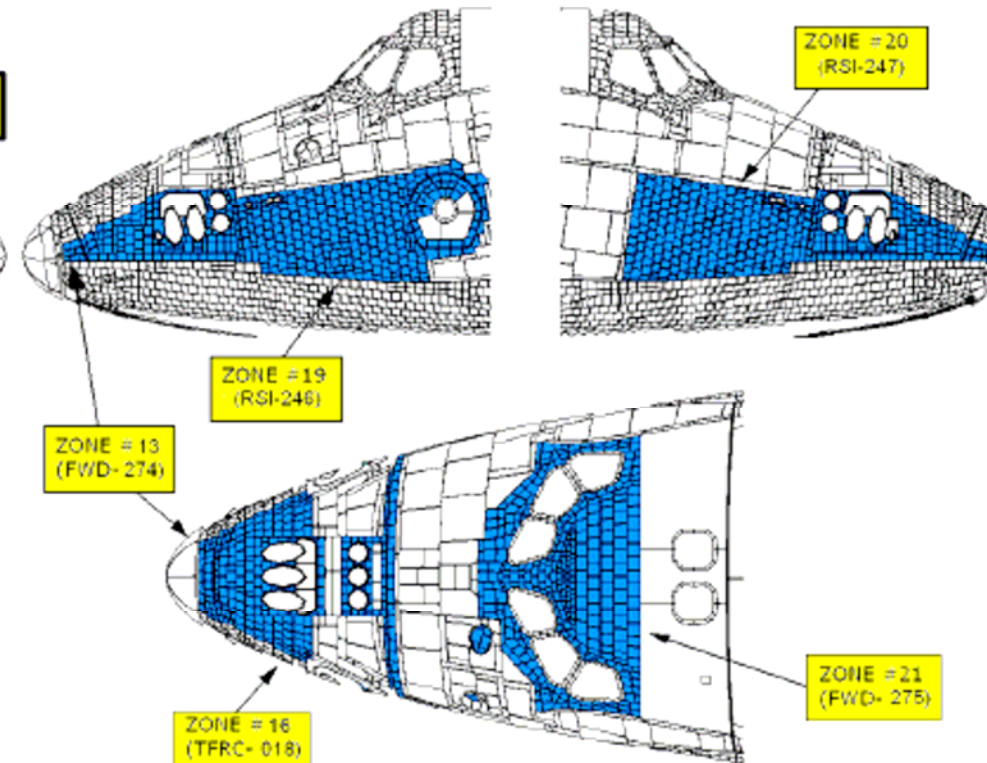
OV-104 Current Configuration (Upper Surface)

“WORK COMPLETE”

1A LOWER



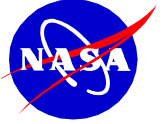
1A UPPER



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GAP FILLERS BONDED



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Space Shuttle Orbiter Project Office
NASA Johnson Space Center, Houston, Texas



STS-120 LSRR
Flight Crew Equipment/GFE

Presenter
MV5/Kenneth Brown

Date
January 25, 2007

Page 5

BACKUP



STS-120 Pan Tilt Unit Status

Presenter	A. Lozano	
Date	1/18/07	Page 6

STS-120 need dates for Pan Tilt Units were finalized at the 1/18/07 IPT:

OBSS PTU: 4/15/07

Payload Bay PTUs: 5/15/07

Presently tracking to delivery dates of 5/1-5/15/07 for 6 flight units, 1 will be a spare unit

PTU PRT has decided to use our spare PTU(-508) on the OBSS sensor package to support need date

The -508 PTU is being shipped to JSC on 1/19/07 for assembly prior to being shipped to KSC

Note: These delivery dates will support installation for Crew Equipment Interface Test (CEIT) on 6/23/07

Major Milestones:

January-February: Project approval of all drawings

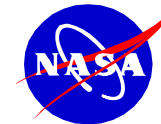
- **Torque Tension testing to help define “final” fastener torques**
- **Isolator plate test to verify plate strength**
- **Procurement of new bearing retainers**

March- April: Re-assembly of all units including Qualification unit

- **Qualification testing**
- **Thermal and Vibration testing of all units**
- **Certification packages**



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STS-120 LSRR
Flight Crew Equipment/GFE

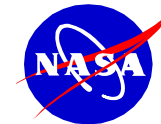
Presenter MV5/Kenneth Brown	
Date January 25, 2007	Page 7

Tech Order numbers are identified for reference only. Report generated 01/23/07.

Hardware	Tech Order	KSC Eng Need	Eng(TO) Release	Cert O/C	HDW Need O/D	HDW Planned O/D	Remarks	JSC Contact
A (port forward)	M072-750025-076	01/09/07	01/17/07	O	05/01/07	05/01/07	New PTU 2294822-510 required. Anselmo Lozano is the POC for PTU's. Note: JSC must modify PTU's with higher strength fastner's .	Randy Moore
B (port aft)	M072-750025-077	01/09/07	01/17/07	O	05/01/07	05/01/07	New PTU 2294822-510 required. Note: JSC must modify PTU's with higher strength fastner's . Anselmo Lozano is the POC for PTU's.	Randy Moore
C (starboard aft)	M072-750025-078	01/09/07	01/17/07	O	05/01/07	05/01/07	New PTU 2294822-510 required. Note: JSC must modify PTU's with higher strength fastner's . Anselmo Lozano is the POC for PTU's.	Randy Moore
D (starboard forward)	M072-750025-079	01/09/07	01/17/07	O	05/15/07	05/15/07	New PTU 2294822-510 required. Note: JSC must modify PTU's with higher strength fastner's . Anselmo Lozano is the POC for PTU's.	Randy Moore
SRMS elbow camera	M072-544504-007	01/09/07	01/17/07	O	05/15/07	05/15/07	New PTU 2294822-510 required. Note: JSC must modify PTU's with higher strength fastner's . Anselmo Lozano is the POC for PTU's.	Randy Moore
SRMS wrist camera	M072-544504-008	01/09/07	01/17/07	O	04/15/07	04/15/07	New bracket rerquired. Action 2: MV5/Randy Moore must provide the necessary definition to meet the 4/15/07 KSC need date.	Randy Moore
Centerline Airlock Camera (stowed)	M072-660828-002, plus CCCD stow		03/17/99	C			Same Camera as STS-117.	Randy Moore
Lefthand Umbilical Camera (forward)	M072-705001-017	01/09/07	10/28/04	C	06/29/07	06/29/07	Hardware must be returned to JSC for pressurization and will be returned to KSC 3 days prior to OPF roll to VAB.	Randy Moore
Lefthand Umbilical Camera (aft)	M072-705001-016	01/09/07	10/28/04	C	06/29/07	06/29/07	Hardware must be returned to JSC for pressurization and will be returned to KSC 3 days prior to OPF roll to VAB.	Randy Moore
Righthand Umbilical Camera	M072-705001-024	01/09/07	10/28/04	C	06/29/07	06/29/07	Hardware must be returned to JSC for pressurization and will be returned to KSC 3 days prior to OPF roll to VAB.	Randy Moore
Digital Television (DTV)	M072-710570-007			C			Installed hardware.	Larry Schmidt
MCIU/RMS Situational Awareness Display (RSAD)	M072-710543-001		03/07/00	C			Installed hardware.	Larry Schmidt



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STS-120 LSRR
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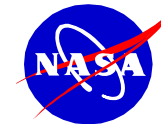
Presenter MV5/Kenneth Brown	
Date January 25, 2007	Page 8

Tech Order numbers are identified for reference only. Report generated 01/23/07.

Hardware	Tech Order	KSC Eng Need	Eng(TO) Release	Cert O/C	HDW Need O/D	HDW Planned O/D	Remarks	JSC Contact
Portable Foot Restraint (PFR)	M072-661568-029	01/09/07	03/11/05	C	05/09/07	05/24/07	New PFR. ESEL shows 5/27/delivery.	Sandy Peterson
Tools for Rendezvous and Docking (TRAD)	M072-730021-017		03/09/05	C			Installed hardware.	Larry Schmidt
Tool Stowage Assembly (TSA)	M072-660853-002 M072-660850-005	01/09/07		C	05/25/07	05/25/07	Tools will be delivered on 5/25/07.	Sandy Peterson
Video Processing Unit (VPU)	M072-710338-006		07/05/01	C			Installed hardware.	Larry Schmidt
Winches	V070-650007-085		11/19/04	C			Same hardware as STS-117?	Sandy Peterson
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.	Gary Cox
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	01/09/07	11/24/04	C	07/06/07	07/06/07	OBSS Critical. 12mm/30 deg HFOV@420 in. (35ft). Hardware is configuration 2. Must be returned to JSC for pressurization. 07/06/2007 is for the pad installation.	Randy Moore
Wing Leading Edge Instrumentation - Left Wing	M072-756111-TBD			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 5/01/2007 KSC need date	Gary Cox



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STS-120 LSRR
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Presenter MV5/Kenneth Brown	
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Tech Order numbers are identified for reference only. Report generated 01/23/07.

Hardware	Tech Order	KSC Eng Need	Eng(TO) Release	Cert O/C	HDW Need O/D	HDW Planned O/D	Remarks	JSC Contact
Wing Leading Edge Instrumentation - Right Wing	M072-756111-TBD		10/17/05	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 5/01/2007 KSC need date	Gary Cox
Wing Leading Edge Batteries	M072-756111-TBD M072-756111-TBD	01/09/07		C	05/09/07	05/09/07		Gary Cox
Wing Leading Edge Batteries - Voltage Regulator	M072-756111-TBD	05/15/07		O	06/15/07		The voltage regulators will be installed as part of the battery changeout. Invocon Drawing need date = 5/15/07. Tech Order need date = 6/1/07 (scheduled to be engineered/released for STS-118 in early march so just need to add to MECSLSI for -104 STS-120.	Gary Cox
OBSS Sensor Package 1 (OPF)	M072-710282-007	01/09/07		O	04/15/07	04/15/07	-508 PTU will be used. Hardware resides at KSC. Anselmo Lozano is the POC for PTU's.	Randy Moore
OBSS Sensor Package 2 * (OPF)	M072-710282-006			O			Hardware remains at KSC.	Larry Schmidt
OMS Pod Micro-SGU	M072-755111-001		03/19/02	C			Installed.	Gary Cox
OMS Pod Micro-SGU Batteries		01/09/07		C	01/05/07	12/26/06		Gary Cox
WCS	V070-623-002			O			Revise the installation and tree-up drawing, and provide certification documentation for the new WCS configuration WCS1000-25 to allow Orbiter installation in support of OV-103 Flt 34, OV-104 Flt 29	
Airlock Adapter Plate				O			Installed	Sandy Peterson
Service and Cooling Umbilical				O			Installed. S/N 1014 expires 06/2009, S/N 1017 expires 05/2009.	Sandy Peterson
OBSS Worksite Interface Fixture (WIF)	M072-544506-TBD	03/16/07		O	04/16/07	04/16/07	The OBSS Tech Order is M072-544506-002 and will change to M072-544506-TBD. MDA Drawing need date = 4/02/07. Tech Order update need date = 4/16/07. MECSLSI update need date = 5/1/07.	Ken Ruta

Back Up

STS-120 LSRR

ANNEX 1

BASELINED FILES

- NSTS 21477 ISS 10A

Open Work

ISS-10A A01 – NSTS 21477

NODE 2 UPDATE

INTERIM SUBMITTAL

FINAL WEIGHT UPDATE (L-1M)

SUBMITAL

04/16/07

07/24/07

RELEASE

01/31/07

04/23/07

07/31/07

ECD

02/14/07

05/07/07

08/07/07

ISSUES/CONCERNS

- SASA Moldline drawings
- MBSU addition

TGHR STATUS

TGHR SKELETON (L-6M)

03/07/07

CUSTOMER SUBMITTAL (L-4M)

05/07/07

RELEASE FOR REVIEW (L-3M)

06/07/07

BASELINE (L-60 Days)

07/06/07

ISSUES/CONCERNS - NONE

STS-120 LSRR

PAYLOAD ICDs/PIRNs

PIRNs THAT IMPACT FLIGHT PRODUCTS

<u>ICD/PAYLOAD</u>	<u>TITLE</u>	<u>ECD</u>	<u>STATUS</u>
ICD-A-21477	Node 2		
• A05318	Close Clearance Drawing Updates	02/16/07	Technical Review
• A05339	Node 2 Wire Tray Intrusions	02/19/07	On hold for A05318
ICD-A-21477-SASA	SASA		
• TBD	Thermal Blanket Decision	02/23/07	Pending customer
ICD-A-21538	CRITICAL SPARES		
• TBD	Baseline	05/13/07	In development

ISSUES/CONCERNS

- NONE

STS-120 LSRR

CARGO INTEGRATION HARDWARE STATUS

DELIVERY STATUS

- New SPDU

ECD

05/30/07

ISSUES/CONCERNS

- NONE

STS-120/320 Launch Site Requirements Review Flight Software Overview

Judi Powell

FRWG 01/22/2007

STS-120 LSRR (FSW)

- **STS-120/OV-104 is the First Scheduled Flight of Operational Increment (OI) 32 Flight Software (FSW)**
 - SASCBC SCR 98085D documents PASS and BFS OI 32 content
- **STS-120/OV-104 Flight Software Payload Support:**
 - ISS-10A
 - 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:**
 - None

STS-120 LSRR (FSW)

- **STS-120 Source Changes/Edits for Primary Flight Software (Base)**
 - None
- **STS-120 Patch Implementation for Primary Flight Software (Base)**
 - None
- **STS-120 Patch Implementation for Backup Flight Software (Base)**
 - None

STS-120 LSRR (FSW)

- **Products**

- **STS-120/OV-104 Base software production schedule (available to field)**

- **Shuttle Data Tape**

January 23, 2007

- **Mass Memory Unit Contents**

February 6, 2007

- **STS-320/OV-104 deliveries will consist of the STS-120 Base SDT/Mass Memory, STS-320 Flight Specific I-Loads and post call-up changes if required**

- **Other mandatory changes**

- **Concerns/Issues**

- **There are no known issues or concerns with Flight Software in supporting STS-120 or STS-320**



EVA Status

STS-120/10A Launch Site Readiness Review

**XA/John Raines
Johnson Space Center
January 25, 2007**



- **Bulkhead PFR**
 - PFR, SED33105308-307, required for contingency TPS inspection
 - Bulkhead PFR installation – Tech Order: M072-661568-029

- **Port TSA (Lightweight)**
 - Port LWTSA installation – Tech Order: M072-660850-005
 - Port LWTSA Tools installation – Tech Order: M072-660853-002

- **Winches**
 - Forward Winch, SED33101570-327
 - Aft Winch, SED33101570-325

- **No Port Slidewire**
 - Safety Tether Routing
 - Due to Slidewire removal, no Safety Tether routing required
 - Two 85' Safety Tethers will be manifested for middeck stow



Atlantis STS-120

Launch Site Requirements Review

Space Shuttle Main Engine

22 January 2007

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

62 of 77



STS-120 Launch Site Requirements Review

Engine Allocation/Location





STS-120 Integrated Launch Site Requirements Review

Presenter **Randy Wade**

Date **01-25-07**

Backup Material

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



STS-120 Integrated Launch Site Requirements Review

Presenter **Randy Wade**

Date **01-25-07**

SSP System Drawings

The Drawings Baseline Was Released By PRCB S0115120A on 11-01-06

- **V072-000001-263** (Rev. UU01) Space Shuttle System (Rel. 11-10-06)
 - **V072-200199-003** (Rev. NC) Mission Equipment Cargo Support (Rel. 9-14-06)
 - **SGD32104443-401** (Rev. NC) Crew Compartment Configuration (Rel. 11-16-06)
 - 402** Descent
 - **V070-000001-004** Orbiter General Assembly
 - **V070-410100-018** SSME Installation
 - **10100-0061-167** Integrated SRB General Assembly (BI-131)
 - **80901000000-510** External Tank Assembly (ET-TBD)

- **STS-120 CIR + 70 days Mission Configuration Product Plan (MCP) was last published on 12-12-06 and will be republished at LSRR + 18 days on 2-12-07.**



STS-120 Integrated Launch Site Requirements Review

Presenter **Randy Wade**

Date **01-25-07**

SSP System Drawings - Cont'd

Ferry Configuration

- **V072-000001-264** (Rev. UU01) Space Shuttle System Drawing (Rel. 11-10-06)
 - **V072-200199-004** (Rev. NC) Mission Equipment Cargo Support (Rel. 9-14-06)
 - **SGD32104443-001** (Rev. NC) Crew Compartment Configuration (Rel. 11-16-06)
 - **V072-300055-023** (Rev. BL01) Ferry Flight Configuration (Rel. 6-21-06)

SCA 905



STS-120 Integrated Launch Site Requirements Review

Presenter **Randy Wade**

Date **01-25-07**

Modification Impact Report

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

A total of 3 MCRs have been approved and/or pending mods

Current MCR impact status:

- o impacts for all six disciplines 0**
- one or more disciplines with impacts, documentation approved and/or pending approval 0**
- Possible impacts still under review 3**

CR 23411, 23440, and 23467 are being reviewed for OMRSD impacts

LW MAR
SJD32108929-TBD

ML60B 6013
-307
PRIME C/L CAM
GFE TV CONTROL

ML60E TBD
PGSC'S(4)

ML60J 6066
-324
COLOR
PRINTER
& PAPER
CTB
6015
-325
DC VACUUM
CLEANER

ML60M 6014
-310
B/U C/L CAM
ULTRA SONIC
LEAK DETECTOR

VOL B (MA73J) 7436
-TBD
HYGIENE

VOL 3B (MA73J) 7425
-308
QUICK DON
MASKS(2)/CABIN AIR
CLEANER/AUD.DOS.
BTA/LCD MONITOR/
DCS 760 CAM/SPOT-
LIGHT/400MM LENS/
PD100 CAMCDR/FLASH
28-70MM LENS

CDR PAM MELROY
PLT GEORGE ZAMKA
M/S #1 SCOTT PARAZYNSKI
M/S #2 MIKE FOREMAN
M/S #3 DOUG WHEELLOCK
M/S #4 PAOLO NESPOLI
M/S #5 (UP) DAN TANNI
M/S #5 (DN) CLAY ANDERSON

MODULAR LOCKER LAYOUT ASCENT

PANTRY FOOD 1622 -308	MF57A 1622 -308 PANTRY FOOD	PANTRY FOOD 1622 -302
-----------------------	--------------------------------	-----------------------

MIDDECK FORWARD

MF14E 2760 -306 FRESH FOOD FRESH FOOD	MF28E 5452 -324 IFM BREAKOUT BOX TURNBUCKLES AIR BOTTLES WWD FLT RMS KIT	MF43E 1900 -308 CDR CLOTHING	MF57E 1901 -305 PLT CLOTHING	MF71E 1902 -308 M/S #1 CLOTHING
MF14G 2762 -307 MENU FOOD MENU FOOD	6300 -338 MF28G 6250 -343 IFM TOOLS 2163-302 2161-305 2162-306	MF43G IPT RESERVE	MF57G 6240 -312 ORBITER FDF SODF (ZIPLOCK)	MF71G TBD ISS RESERVE
MF14H 2763 -304 MENU FOOD MENU FOOD	MF28H 6684 -330 MED KITS ALTIMETER	MF43H TBD SALIVA COLL KITS BLOOD COLL KITS LOGBOOKS/WATCHES MINERAL SYR KIT SAMP/PURGE KIT	MF57H 5473 -305 ORBITER FDF	MF71H 7521 -321 CONDENSATE COLL SUPA (12) INGRESS HDWR STS CSA-CP/FMK
MF14K 2764 -306 MENU FOOD MENU FOOD	MF28K 6231 -341 POST INSERTION	MF43K IPT RESERVE	MF57K TBD SODF (HCTB) 6836-301	MF71K 8987 -301 CREW CARE PACKAGE ENTRY CLOTHING (HCTB)
MF14M 2765 -304 MENU FOOD MENU FOOD	MF28M 7252 -301 M/S #5 CLOTH	MF43M 1903 -303 M/S #2 CLOTHING	MF57M 1904 -307 M/S #3 CLOTHING	MF71M 3005 -304 M/S #4 CLOTHING
MF14O 2766 -305 MENU FOOD MENU FOOD	MF28O 2767 -304 MENU FOOD MENU FOOD	MF71O 6289 -307 CREW SUPPORT		

LEADER: KURTIS GOTHREAU
DATE: 11-14-06
LAUNCH: 9-07-07
FLIGHT: STS-120/10A NODE 2
VEHICLE: OV-104
CREW: 7 MAN 11 + 1 + 2 DAYS
RQMTS: SRMS, ERGOMETER,
SORG, NO RCRS,
SLEEPING BAGS

MIDDECK AFT

MA9D/F 9882 -301 * TRAD SPARE DTV MUX SPARE DTV DSR SPARE DTV VIP	MA16D 8737 -TBD RCC COLD BAG ASSY
MA9G 6697 -321 HH LIDAR W/NIGHTSCOPE SSV/BPSMU 2ND HHL	MA16G TBD PGSC
MA9J IPT RESERVE	MA16J TBD PCS LAPTOP PCS ACCESSORIES PGSC ACCESSORIES CD STOWAGE CASE
MA9L TBD FRED	MA16L 6269 -307 PRINTER TRAYS
MA9N 7432-314 SOFT STWG BAGS PHKS (6) 4980-309 BRKTS/CCV/ LIGHT STICKS 8071-310 RSTRNTRS/RE-ENT FIBERSCOPE 8070-302	MA16N 8723 -302 PHOTO/TV STOW & GO

MD CEIL (PORT 1) TBD HAND RAIL CARR(2) OIH ASSY -311 OIH ASSY -313 OIH HR, 12" OIH HR, 24" EVA XFER BAG INSR PHASE VI GLOVE (6PR)
MD CEIL (PORT 2) TBD G-SUIT EMPTY 10 MLE BAG CWC (4) TOWELS SPD (8) DRINK BAGS (12)
MD CEIL (STBD 1) TBD ISS PHOTO/VIDEO KIT ORU TOOL KIT TILE OVERLAY KIT
MD CEIL (STBD 2) 6665 -TBD IELK RUNNING SHOES
MD FLOOR (PORT 2) 9895 -TBD RSK ACES
MD FLOOR (PORT 1) TBD EMU HUT NODE 2 HARDWARE
MD FLOOR (STBD 2) TBD ISS RESERVE
MD FLOOR (STBD 1) TBD LCVG (4) LCVG (3) ECOK ECOK (3) COMM CARRIER (2) COMM CARRIER (3)

A16 8706 -306
CC BAG #1
35MM CAM BAG
PILOT
LEG BAR ASSY

A17 7424 -303
CC BAG #2
DTV CAMERA BAG
QUICK DON MASK (4)
HATCH TOOL

VOLUME D (MD52C) TBD
EVA TOOLS & ACCS

VOLUME F (MD76M) 1403 -306
WET TRASH

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

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

WMC 0914 -331
TOWELS AND
RESUPPLY ITEMS
WMC DISPENSER
1st DAY CLOTH
1641-325

EXT AIRLOCK TBD
2-EMUs
EXT A/L FLOOR TBD
SAFER HAND CONTR
BRT (2)/CCC (2)
RETS/LL-ON BATT
MINI WORKSTATION

31 LIOH- 29 + 1 ATCO IN LIOH BOX, 2 INSTLD (7435-306)

WINDOW SHADE BAG - WINDOW SHADES (5548-338)
IFM CABLES & HOSES (4259-340)
MONITOR SHIELDS

L10A1: AVIU (6686-324)
L10A2: DTV MUX
L10A3: DTV VTR/VIP
L1: PDIP 2 OIU 1/2
L12A1: SSP 1
L12A2: SSP 2
L12A3: PDIP 1
R12A1: VPU
R12A2: OBSS/OPP

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

C/D JSC TBD
P/D JSC TBD
C/D KSC TBD
P/D KSC TBD
CEIT KIT TBD
MDK LBL TBD
DWG NO. SGD32104443
/USR/DWGS/LOCKER/STS120
CCMM: M. MCDONALD 483-1384

NOTE: LOCKER LAYOUTS ARE FOR REFERENCE ONLY AND ARE NOT RELEASED DRAWINGS.
FOR RELEASED DRAWINGS, REFER TO CCCD DRAWING # SGD32104443

MCR/ECP	STAT SITE	ITEM/KIT NUMBER TCTI NUMBER	SEQ EISN NO.	DESCRIPTION / GENERAL REMARKS	PRCB AUTHDATE	PRIO FLT
	AUTH KSC	J5881A	0104 001 SPAR	LOWER LESS ACCESS CARRIER PANEL POST FLT TORQUE CK VERIF	ORB-0076R09 2006-06-05	SCHD 029
	AUTH KSC	J5897	0104 001 NSW	MID FUSELAGE SAMPLING AND FASTENER REPLACEMENT	S052923UZ 2005-06-09	MAND 029
	AUTH KSC	J6116	0104 001 SPAR	AMES GAP FILLER REMOVAL AND REPLACEMENT	ORB-0076R11 2006-08-16	MAND 029
	AUTH KSC	J6154	0104 001 SPAR	POSTFLIGHT DAMAGE 3-D ACQUISITION	ORB-0076R13 2006-08-23	MAND 029
	AUTH KSC	J6162	0104 001 SPAR	PERFORM MEASUREMENTS ON OBSS MPM SHOULDER & X-GUIDE ON IBA	ORB-0076 R14 2006-10-23	MAND 029
	COMP KSC	J6169	0104 000 SPAR	SASA FSE TO GAS BEAM FIT CHECK	ORB-0076R15 2006-11-06	MAND 029
	COMP KSC	J6185	0104 001 SPAR	REMOVAL AND INSPECTION OF BBU'S IN OV-104 GPC'S #1,2,3,& 4, AND INSTALLATION OF REPLACEMENT BBU'S ALL BBU'S COMPLETED ON FLT 28 WAD	ORB-0076R16 2006-12-11	MAND 029
	AUTH KSC	J6187	0104 000 SPAR	ADTA #3 AND #4 RETROFIT FOR OV-104, FLT 29	ORB-0076R17 2007-01-08	MAND 029

TOTAL MODS =

8

MCR/ECP	STAT	ITEM/KIT NUMBER	SEQ	DESCRIPTION / GENERAL REMARKS	PRCB	PRIOR
-----	SITE	TCTI NUMBER	EISN NO.	-----	AUTHDATE	FLT
	AUTH	B470ECP3789R000	B131 000	RSRM AFT SEGMENT STIFFENER RING FOAM APPLICATION TCTI	S170809R2	
	KAS				2006-08-15	

TOTAL MODS = 1

Approved STS-120 OMRS Waivers and Exceptions

WVR EXC	ELEMENT PROJECT	PRCBD NUMBER WAIVER# (STAT) (INITIAL STS)	ABSTRACT RAS REQUIREMENTS	STS EISN PAYLOAD	BEG END	
+	E	ORB	S053297AU EV10331R1 (A)	OMRSD EXCEPTION REQUEST - V30 INTERVAL EXTENSION TO 6 YEARS (EV10 331R1)	104	027 030
			S053297BP EK10355 (A)	OMRSD EXCEPTION REQUEST - V31 MID FUSELAGE ZONAL INTERNAL SURVEIL LANCEINSPECTIONS (EK10355)	104	027 030
			S053298FM EK10492 (A)	OMRSD EXCEPTION REQUEST - OV-104 VENT DOOR ZONAL INSPECTIONS (EK1 0492)	104	027 029
	W	OMS	S053296GY WK10188R1 (A)	OMRSD WAIVER REQUEST - LRCS OXIDIZER GHE ISOLATION VALVE LEAK(WK 10188R1)	0014	025 032
			S053296YG WK10318R1 (A)	OMRSD WAIVER REQUEST - RIGHT RCS OXIDIZER GHE SYSTEM INTERNAL LEA KAGE(WK10318R1)	0021	034 042
			S053298NV WK10522 (A)	OMRSD WAIVER REQUEST - RIGHT OMS SECONDARY REGULATOR CREEP RATE(W K10522)	0021	035 043
		ORB	S053296YT WK10332R2 (A)	OMRSD WAIVER REQUEST - PV6 PREVALVESCREEEN PARTICLES (WK10332R2)	104	027 031
			S053298HY WK10502 (A)	OMRSD WAIVER REQUEST - BODY FLAP DRIVE RATE TEST	104	027 031

(WK10502)

RCS	S053298JF	OMRSD WAIVER REQUEST -	0021	034 042
	WK10503 (A)	RRCS OX TANKOUTLET		
		TRANSDUCER ACCURACY (WK		
		10503)		

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ACTIVE WAIVERS FOR
OV-104

Item #	Authority	Date	Waiver Description	Effectivity	Wad
53	S052428A	03/27/91	Allows specified flights to fly with interim TPS repair after each mission to minimize damage to surrounding tile during ferry flight	STS-37, STS-39, STS-40, STS-42 thru STS-999	STAYS OPEN
101	S076972	11/19/91	Permit the modified GPCs (AP101-S) Battery Back-up Unit to fly with annotated fastener improvements without rolling the LRU Part Number	STS-42, STS-44, STS-47 and STS-49 thru STS-999	STAYS OPEN
325	S061956	07/15/03	Blanket on the Control Moment Gyro (CMG) Orbital Replacement Unit (ORU) on the Lightweight MPESS Carrier (LMC) will NOT be re-installed on-orbit per configuration defined in ICD-A-21494. It will be secured around the FSE and attached to the aft bulkhead.	OV-104, Flight 27	
334	S115115JR1	07/19/06	<p>The following requirement is waived to allow OV-104 to fly with the following out-of-configuration condition:</p> <p>Tech Order M072-544501-067 (RMS, MPM over-center stop and MPM pedestal insulation cover fasteners) will be implemented in total, less the requirement to perform bench rigging per updated specification requirements for for OV-104, Flight 27 and subsequent OV-104 flights until such time that all MPMs can be removed and bench rigging can be performed.</p>	OV-104, Flight 27 thru OV-104, Flight 999	STAYS OPEN

VEHICLE LIMITED LIFE STATUS REPORT

PRELIMINARY SUBMITTED 01/08/2007

LAUNCH DATE USED 09/07/2007

MISSION DURATION = 11 DAYS

NO.	SYS	REQT / PART DESC / PART NO	TOP / SEPAR	ANTICIPATED ACTION	CONSTR	ELE
1	PYRO	C00AA0.110.032 NASA STANDARD DET. SEB26100094-201	V5032.004 V5029.001	REMOVE/INSTALL	2	O
2	PYRO	C00AA0.110.033 CARTRIDGE SKD26100098-301	V5032.004 V5127	REMOVE/INSTALL	2	O
3	PYRO	C00AA0.110.034 AFT ATTACH BSTR CART. SKD26100099-401	V5032.004 V5029.001	REMOVE/INSTALL	4	O
4	PYRO	C00AA0.110.035 NLG THRUSTER CART. SKD26100100-301	V5032.004 V5127	REMOVE/INSTALL	2	O
5	PYRO	C00AA0.110.043 GAS PRESS CTG. SEB26100001-25X	V5056	INSTALL	4	O
6	PYRO	C00AA0.115.001 GAS SAMPLER BATTERY SED33101116-321	V5012.001 V5029.004	REMOVE/INSTALL	4	O
7	INS	C00AA0.140.004 MADS TAPE RECORDER ME435-0055-0003 THRU 0005	S0007 V1200 V1248	TEST	4	O
8	MEQLG	C00AB0.010.003 NLG TIRE MC194-0007-0006 (2)	V1165.003 V1165.004	REMOVE/INSTALL	2	O
9	MEQLG	C00AB0.010.004 MLG TIE BOLTS & NUTS MC621-0051-0038 (4 WHEELS)	V1165.001 V1165.002	REMOVE/INSTALL	2	O
10	MEQLG	C00AB0.010.005 MAIN WHEEL ASSEMBLY MC621-0051-0038 (4)	V1165.001 V1165.002	REMOVE/INSTALL	2	O
11	MEQLG	C00AB0.010.006 NOSE WHEEL ASSEMBLY MC621-0050-0004 (2)	V1165.003 V1165.004	REMOVE/INSTALL	2	O

Constraints

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

Elements

O=ORBITER
M=MISSION EQUIP.

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12	PLM	C00AB0.160.020A VIDEOSPECTION CAMERA ASSY SED39125120-310	TPS-TBD SEPAR TBD	REMOVE/REFURB/INSTALL	4	M
13	TPS	C00AB0.170.001 RCC ARROWHEAD PLATE MC621-0007-7009	V5139.001 V5139.002	REMOVE/REINSTALL	2	O
14	TPS	C00AB0.170.002 RCC ARROWHEAD PLATE MC621-0007-7010	V5139.001 V5139.002 SEPAR TBD	REMOVE/REPLACE/INSTALL	2	O
15	TPS	C00AB0.180.213 THRU 5 INSULATOR V070-19024X-XXX	SEPAR-TBD	REMOVE/REPLACE/INSTALL	2	O
16	TPS	C00AB0.180.513 INSULATOR V070-199838-006	SEPAR-TBD	REMOVE/REPLACE/INSTALL	2	O
17	TPS	C00AB0.180.515A INSULATOR V070-199838-008	SEPAR-TBD	REMOVE/REPLACE/INSTALL	2	O
18	TPS	C00AB0.180.517A INSULATOR V070-199838-010	SEPAR-TBD	REMOVE/REPLACE/INSTALL	2	O
19	TPS	C00AB0.180.525 INSULATOR V070-199839-004	SEPAR-TBD	REMOVE/REPLACE/INSTALL	2	O
20	TPS	C00AB0.180.527A INSULATOR V070-199843-002	SEPAR-TBD	REMOVE/REPLACE/INSTALL	2	O
21	TPS	C00AB0.180.533 INSULATOR V070-199839-012	SEPAR-TBD	REMOVE/REPLACE/INSTALL	2	O
22	TPS	C00AB0.180.534 INSULATOR V070-199839-013	SEPAR-TBD	REMOVE/REPLACE/INSTALL	2	O

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23	TPS	C00AB0.180.535 INSULATOR V070-199839-014	SEPAR-TBD	REMOVE/REPLACE/INSTALL	2	O
24	TPS	C00AB0.180.576C, D & H INSULATOR V070-19026X-XXX	SEPAR-TBD	REMOVE/REPLACE/INSTALL	2	O
25	TPS	C00AB0.180.576E & F INSULATOR V070-190289-XXX	SEPAR-TBD	REMOVE/REPLACE/INSTALL	2	O
26	PYRO	C00AD0.030.009 SPHERICAL BEARING ASSY V070-562036-002	V5032.004 V5127	REMOVE/INSTALL	2	O
27	PYRO	C00AD0.030.012 PYRO CENTERING MECHANISM SKD26100098-501	V5032.004 V5127	REMOVE/INSTALL	2	O
28	PLM	JSC24937.30 PORTABLE FOOT RESTRAINT ASSY SED33105308-307	TPS-TBD	REMOVE/REFURBISH/INSTALL	2	M
29	FCS	JSC24937.56 EMER EGRESS SLIDE SYS MC623-0015-0023	TPS-TBD	REMOVE/INSTALL	4	M
30	PLM	JSC24937.63 PAN TIL UNITS 2294822-508	TPS-TBD SEPAR-TBD	REMOVE/REPLACE/INSTALL	4	M
31	ECLSS	V61AIL.010-C LIOH CANNISTER MC621-0008-0409	TPS-TBD	INSTALL AT PAD	4	O
32	ECLSS	V61AIL.015-C HYDRAZINE (CO RMVL CART.) MC621-0008-0060	TPS-TBD	INSTALL AT PAD	4	O
33	ECLSS	V61AIL.016-C ATCO CARTRIDGE MC250-0024-0001	TPS-TBD	INSTALL AT PAD	4	O

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LAUNCH DATE USED 09/07/2007

MISSION DURATION = 11 DAYS

34	ECLSS	V61AJ0.141 PPO2 SENSOR MC250-0002-3165	V1053.010	RECALIBRATE SENSORS AT PAD	4	O
35	FCS	V66AIL.060 POLE CREW ESCAPE SYS ASSY SED27101375-322	TPS-TBD	REMOVE/INSTALL	4	M

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