Program Freeze Point

PRCB Presentation

S115127B(Replacement Charts)
Baseline the STS-127 Mission Specific Requirements and Flow Plans.
The STS-127 Integrated Launch Site Requirements were established by PRCBD S115127B dated 09/30/08. This CR and the Associated Data Package were reviewed at the 10-20-08 FRWG.

<table>
<thead>
<tr>
<th>Flight Management*</th>
<th>MO3/USA-PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orbiter Engineering*</td>
<td>USA-OE</td>
</tr>
<tr>
<td>KSC ISS and Payload Processing</td>
<td>UB-R3</td>
</tr>
<tr>
<td>Shuttle Processing*</td>
<td>PH-A</td>
</tr>
</tbody>
</table>

**Status in BackUp**

<table>
<thead>
<tr>
<th>KSC Integration*</th>
<th>MK-SIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flight Software</td>
<td>USA-FSW</td>
</tr>
<tr>
<td>Orbiter GFE</td>
<td>MV5</td>
</tr>
<tr>
<td>EVA</td>
<td>XA</td>
</tr>
<tr>
<td>Payload/Cargo Engineering</td>
<td>USA-PI</td>
</tr>
</tbody>
</table>

| SSME                     | Status at DLSFR | MP21 |

*Backup Material
STS-127 LAUNCH SITE FLOW REVIEW

STS-127/2J/A

Launch Site Flow Review (LSFR)

Flight Requirements Status

PRCB 23 October 2008

Ann M. Patterson, STS-127 MIM
James Flores, USA Flight Mgr.
Adam Richards/Boeing Mass Properties
STS-127 LAUNCH SITE FLOW REVIEW

LAUNCH

05/15/09
39A/ MLP 3
CREW SIZE: 7UP/7DN

ORBIT

51.6 DEG
122 NM
DIRECT INSERTION
DURATION: 15 + 1 + 2 DAYS

CONFIGURATION

OV-105 (23)
LP03;RP04
ET-131
BI-138
RSRM-106
(1) TBD (2) TBD (3) TBD
OI-33
SRMS,ODS,OBSS,SSPTS
ECSHS(2),PPSUS(2),ROEU

CONSUMABLES

CRYO TANK SETS 5 (FULL)
GN2 TANKS 6 (FULL)
FWD RCS 1912# (OFFLOAD)
AFT RCS 4970# (FULL)
OMS 22760# (FULL)

PAYLOAD

ISS-2J/A ISS-2J/A
DRAGONSAT MAUI
ANDE-2 SEITE

LANDING

SITE KSC
TAL ZARAGOZA
ALT. TAL MORON & ISTRES
SCA 911
PERFORMANCE MARGIN

- SIMULATION MARGIN (CIRAF127) +3026

- WEIGHT CHANGES SINCE SIMULATION
  - PAYLOAD +279
  - OPERATOR +183
  - ORBITER -8
  - CREW COMPARTMENT +9
  TOTAL WEIGHT CHANGES +463

- OTHER PERFORMANCE PROJECTIONS
  - RENDEZVOUS ALT OF 195 NM +580
  - PROTECTION FOR DOL DISPERSIONS -700
  - 05/15/09 LAUNCH DATE (PMBT & ATMOS) +120
  - INCREASED OMS BALLASTING -350
  - SRB – M.P. UPDATES -212
  - SRB – BR / 1.85 MIL LOWER THAN 0.3705 AVG -666
  - PROJ TO 5 MIN WINDOW FROM INPLANE -600
  - PERFORMANCE CHANGES ADJUSTMENT +32

- CURRENT BASELINED APM (10/14/08) +767

VOLUME III: ASCENT PERFORMANCE MANAGER’S RESERVE GUIDELINE AT FPSR/CIR IS 800 LBS
**FLIGHT MASS PROPERTIES**

<table>
<thead>
<tr>
<th>CASE</th>
<th>TOUCHDOWN</th>
<th>MACH 3.5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WEIGHT</td>
<td>X C.G. inches</td>
</tr>
<tr>
<td></td>
<td>pounds</td>
<td>(LIMIT)</td>
</tr>
<tr>
<td>NOMINAL</td>
<td>215335</td>
<td>(233000)</td>
</tr>
<tr>
<td>RTLS</td>
<td>236578</td>
<td>(245000)</td>
</tr>
<tr>
<td>TAL</td>
<td>235199</td>
<td>(244000)</td>
</tr>
<tr>
<td>AOA</td>
<td>231395</td>
<td>(242000)</td>
</tr>
<tr>
<td>CONT RTRN</td>
<td>220944</td>
<td>(233000)</td>
</tr>
</tbody>
</table>

**NOTE:**  
RTLS INCLUDES 185 SEC ARCS & 25 SEC FRCS DUMP  
TAL INCLUDES 120 SEC ARCS & 65 SEC FRCS DUMP  
2714 LBS AFT FUSELAGE BALLAST  

ESTIMATES BASED ON CIRAF127 AND MODIFIED FOR WEIGHT CHANGES THRU 10/14/08.
STS-127 OV-105 Flight 23
LSFR
Orbiter Element

Kim Guodace
USA/OE
Greg Manuel
Boeing / VMMO

October 23, 2008
Purpose:

• Obtain program authorization for baseline of modifications to be performed prior to STS-127, OV-105 Flight 23.
  – Mandatory Mods – No new requirements
  – Mission Kit Mods – Dragon Eye DTO
  – Potential Mods – Bay 4 Longeron

• Present summary of other requirements
  – RCNs and Chits

Back-up

• Modification Matrix
• Description of mods previously baselined at LSRR
Mission Kit modification
• 30234 – Dragon Eye DTO Implementation
  – Installs DTO box with flash LIDAR and data acquisition unit on ODS truss
  • Update additional tech order
    – M072-363838-003 (was -001) – added post LSRR
Bay 4 Longeron requirement

- Bay 4 longeron bridges V073-340103-001 and -002 are required for JEM-EF on STS-127
  - The only flight pair is manifested to support the forward end of Super Lightweight Integrated Carrier (SLIC) currently installed on STS-125
    - STS-125 delay directly impacts installation of STS-127 bay 4 bridges
    - Second “original build” pair was flown on and recovered after STS-107

- Six options proposed by PRT
  1. Install Bridges from STS-125 on STS-127 (Do nothing/adjust schedule)
  2. Modify a set of Bay 3 Longeron Bridges
  3. Repair damaged Bay 4 Longeron Bridges from STS-107
  4. Build to print another set of Bay 4 Longeron Bridges from Titanium forgings
  5. Build another set of Bay 4 Longeron Bridges from Titanium plate
  6. Build another set of Bay 4 Longeron Bridges from Aluminum

- Summary
  - Only Option 2 supports current schedule
  - Stress analysis shows modified bridge will work with 2.0 Safety Factor
Significant Attrition Modifications

• 18985 – Installation of refurbished MO10W Panel
  – Installation required to replace faulty N2/O2 Crossover valve contained in present MO10W Panel
  – Updated panel includes new design flow meters

• TPS priorities including repairs
  – To be addressed at Delta LSFR
## RCNs/Chits

RCNs and Chits are presented for information only

<table>
<thead>
<tr>
<th>RCN No.</th>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OV17793R1</td>
<td>ET Door Bell Crank TPS Clearance – Verifies Gap Between Bellcranck and Tile</td>
<td>In Approval cycle</td>
</tr>
<tr>
<td>OV17787</td>
<td>MLG Door Seal update - Specifies Minimum door seal bulb diameter to ensure permanent set does not affect door sealing</td>
<td>Preliminary in review</td>
</tr>
</tbody>
</table>
## RCNs/Chits

<table>
<thead>
<tr>
<th>Chit No.</th>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>J6116</td>
<td>AMES Gap Filler Removal and Replacement</td>
<td>Approved</td>
</tr>
<tr>
<td>J6275A</td>
<td>Orbiter Structure IML Surface Corrosion Sampling Inspection</td>
<td>Approved</td>
</tr>
<tr>
<td>J6306</td>
<td>OV-105 Mid Fuselage Lockbolt collar inspections</td>
<td>Approved – Performs sampling prior to Flights 21, 22 and 23</td>
</tr>
<tr>
<td>J6321A</td>
<td>ASA and ATVC R&amp;R for Tin Whisker remediation</td>
<td>Approved – Further Tin Whisker remediation will R&amp;R ASA slot #1, #2 and ATVC slot #1, #4 to establish 4-4-2-2 (ASA-ATVC-RJDA-RJDF) remediated box configuration</td>
</tr>
<tr>
<td>J6327</td>
<td>WLE RCC Joggle Inspection</td>
<td>Approved</td>
</tr>
<tr>
<td>J6341A</td>
<td>Evaluation of OMS Pod LI-900 Tile Installed on 0.090” SIP</td>
<td>Approved – All tiles have been upgraded</td>
</tr>
<tr>
<td>J6402</td>
<td>Micro Inspection of Captive Gap Fillers</td>
<td>Approved</td>
</tr>
<tr>
<td>J6410</td>
<td>Aft Stub Cracked Tile Inspection</td>
<td>Approved – To be worked in vertical: VAB or Pad</td>
</tr>
<tr>
<td>J6414</td>
<td>Rudder Speed Brake Thermal Tab Inspection</td>
<td>In Assessments</td>
</tr>
<tr>
<td>J6417A</td>
<td>WLE IR Thermography Statistical Study</td>
<td>In Draft</td>
</tr>
<tr>
<td>J6419</td>
<td>Putty Repair Tile Removal</td>
<td>Approved</td>
</tr>
<tr>
<td>J6420</td>
<td>Sampling of OV-105 APU System 3 Lube Oil</td>
<td>Approved</td>
</tr>
<tr>
<td>J6423</td>
<td>DRAGONEYE Interface Plate Fit Check</td>
<td>Approved</td>
</tr>
<tr>
<td>J6425</td>
<td>Acquisition of Certification Data for the Integrated Window Inspection Tool (IWIT) on OV-105, Flow 23</td>
<td>In Assessments</td>
</tr>
<tr>
<td>J6429</td>
<td>ET Door Drive Actuator Changeout and Refurbishment</td>
<td>In Assessments</td>
</tr>
<tr>
<td>J6430</td>
<td>Middeck Partition Inspection</td>
<td>Approved</td>
</tr>
<tr>
<td>J6433</td>
<td>STS-127 Port and Starboard Sill Requirements</td>
<td>In Assessments</td>
</tr>
<tr>
<td>JXXXX</td>
<td>Parallel Latch Harness Bench Testing</td>
<td>In Draft</td>
</tr>
</tbody>
</table>
KSC International Space Station and Spacecraft Processing

JAXA EF
JAXA ELM-ES w 3 EF Payloads
ICC-VLD w 9 ORUs
ANDE-2
DRAGONSAT

Scott Higginbotham / UB-R
2JA NASA-KSC Mission Manager
October 23, 2008
Flight 2J/A JAXA Hardware
EF, ELM-ES, ICS-EF, SEDA-AP, and MAXI

ISS-2JA / STS-127 LSFR
J. F. KENNEDY SPACE CENTER
JEM
“Kibo”

Experiment Logistics Module-Pressurized Section (ELM-PS)

Remote Manipulator System (JEMRMS)

Pressurized Module (PM)

Exposed Facility (EF)

Experiment Logistics Module-Exposed Section (ELM-ES)
Flight 2J/A ICC-VLD Launch Configuration

+X-Side
6 Batteries

-X-Side
PM, SGANT and LDU
Hardware Processing Status Summary

JAXA EF / ELM-ES and EF Payloads
- Offline SSPF processing of EF, ELM-ES, and ICS-EF is underway
- MAXI and SEDA-AP are due to arrive at KSC in late October and early November, respectively

ICC-VLD
- Astrium standalone carrier preparations are underway at the SPPF
- All six battery ORUs are at the vendor (Loral)
- LDU ORU is ready for integration
- LDU FSE / SAPA integration is complete
- Pump Module ORU has been serviced and is ready for integration
- Pump Module FSE / LAPA integration is underway
- SGANT ORU is ready for integration
- SGANT FSE / SAPA integration is complete

Sidewall Payloads (ANDE-2 and DRAGONSAT)
- Advance technical/support planning is continuing
2JA Processing Milestones

**EF / ELM-ES and EF Payloads**
- ICS-EF on dock KSC 9 September (A)
- EF / ELM-ES on dock KSC 24 September (A)
- MAXI on dock KSC 30 October
- SEDA-AP on dock KSC 7 November
- ELM-ES payload installation complete 19 December
- CEIT multiple dates
- ICD Walkdown TBD March
- EF weight and c.g. measurement / canister installation 8 April
- ELM-ES weight and c.g. measurement / canister installation 9 April

**ICC-VLD and ORUs**
- Pump Module turnover to Astrium 27 October (U/R)
- LDU turnover to Astrium 29 October (U/R)
- SGANT turnover to Astrium 3 November (U/R)
- Battery turnover to Astrium 23 January
- CEIT 13 March
- ICD Walkdown TBD March
- ICC-VLD on dock KSC / canister installation 10 April
2JA Processing Milestones

Sidewall Payloads
- ANDE-2 on dock KSC 17 February
- DRAGONSAT on dock KSC 19 February
- ANDE-2 transfer to OPF / installation into Orbiter 24 February
- ANDE-2 to Orbiter IVT 25 February
- DRAGONSAT transfer to OPF / installation into Orbiter 26 February
- DRAGONSAT to Orbiter IVT 26 February
- Orbiter CEIT 13 March

Integrated Operations
- EF / ELM-ES / ICC-VLD transfer to Pad A 14 April
- SSV transfer to Pad A 17 April
- EF / ELM-ES / ICC-VLD transfer into Orbiter 18 April
- EF / ELM-ES / ICC-VLD to Orbiter IVTs 19 April
- Flight Crew walkthrough 22 April
- Launch Package closeouts 23 April
- Final payload bay door closure 23 April
- Middeck experiment late stow / Orbiter IVTs 14 May
- Launch 15 May
KSC Launch and Landing Project

STS-127

Launch Site Flow Review

October 23, 2008
Multi Flow

K. Tenbusch
### STS-127 KSC Milestone Interface Chart

**OPR:** USA - R. GILLETTE, INTG. OPS.

**NASA:** C. FORD, PH-0

**CREW / DURATION:** 7 / 15

**ET:** 131 / B1133 / RSRM 106 / MLP-3 / PAD-A / YAB HD-1

**SSP APPROVED MANIFEST PRCE 7-3-09 (REF. CR #5042013HK)**

**Status as of:**

10/17/2008

#### CY2008

<table>
<thead>
<tr>
<th>JUL</th>
<th>AUG</th>
<th>SEP</th>
<th>OCT</th>
<th>NOV</th>
<th>DEC</th>
<th>JAN</th>
<th>FEB</th>
<th>MAR</th>
<th>CY2009</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FDRD BL: 4-24-08</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPF R/I: 11-26-08</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPF R/O: 3-18-09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSV TO PAD: 3-25-09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAUNCH: 4-20-09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRCB BL: 7-3-08</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPF B/I: 4-10-09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPF R/O: 4-17-09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAUNCH: 5-15-09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STS-126 LAUNCH (REF.) 12 $\otimes$ 14 U/R $\otimes$ &amp;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LSFR $\otimes$ 23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSME REMOVAL/INSTLN. COMPLETE $\otimes$ 13 $\otimes$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEIT $\otimes$ 14 $\otimes$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORB. OPF-2 PROCESSING</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORB/ET MATE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAB OPS (VAB HB1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17 SSV TO PAD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TCDT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 LAUNCH MISSION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 ORB. LANDING @ KSC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 ET MATE / CLOSEOUTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 STS-127 SSV INTEG./LOCKOUT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 LH AFT SRM C/D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 LH AFT SRM C/D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24 LH SRB AFT ASSY B/U</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27 MLR-3 TO YAB (HB1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 MLP-3 STACK PREPS (VAB HB1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>START STACK (VAB HB1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 SRB STACK CPS/JOINT C/O</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 SRB INTEGRATED CLOSEOUTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 ET-131 O/D KSC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-23 ET-131 PROCESSING (HB2 EAST)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### THREATS:

- TWENTY-NINTH ISS/SSP FLIGHT
- LAUNCH DATE WOULD BE 5/13/09 TO SUPPORT
- LCN FOR STS-119 IF CALLED UP

### NOTES:

1. TWENTY-NINTH ISS/SSP FLIGHT
2. LAUNCH DATE WOULD BE 5/13/09 TO SUPPORT LCN FOR STS-119 IF CALLED UP

**Prepared By:** Manifest Planning  **FILE:** JPC123  **Run Time/Date:** 6:23:58AM, 10/17/2008  **Denotes changes since last publication**

---

**Page 23 of 83**
Flight Element Processing

R. Goodman
Flight Element Processing Overview

• Processing Deltas Presented
• OPF Flow Milestones Presented
• Issues and Concerns Presented
• TPS Work Content Presented
• Integrated Operations Summary Presented
• Configuration/Facilities Backup
Processing Deltas

• **Mods:**
  - Airlock Upper Hatch Decal/Blanket Mod
  - Mid-Deck Partition Lexan Covers
  - APU GN2 QD Heater Mod
  - Expanding Payload Retention Active Latch Control Capability (Mission Kit Mod)

• **Time & Cycle**
  - PLB Vent Door Filters R/R (14 Each)
  - GPS Batteries R/R (3 Each)

• **Deferred to Flight 23**
  - MO10W Panel R/R
  - UHF Transceiver R/R
  - Wireless Video System Antenna Radome Repair Scratches
  - Forward/Aft Radiator retract Flexhoses **Potential** R/R (Flt to Flt inspection)
  - NLGD Captive Gap Filler Fabric is Torn
  - LH Pod Y-Web Door FIB
# Processing Deltas

<table>
<thead>
<tr>
<th>L/I</th>
<th>CHIT</th>
<th>DESCRIPTION</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>J6116</td>
<td>AMES Gap Filler Removal &amp; Replacement</td>
<td>Approved</td>
</tr>
<tr>
<td>2.</td>
<td>J6275A</td>
<td>Orbiter Structur IML Surface Corrosion Sampling Inspection</td>
<td>Approved</td>
</tr>
<tr>
<td>3.</td>
<td>J6306</td>
<td>OV-105 Mid Fuselage Lock Bolt Collar Inspection</td>
<td>Approved</td>
</tr>
<tr>
<td>4.</td>
<td>J6321A</td>
<td>ASA &amp; ATVC R&amp;R For Tin Whisker Remediation</td>
<td>Approved</td>
</tr>
<tr>
<td>5.</td>
<td>J6327</td>
<td>WLE RCC Joggle Inspection</td>
<td>Approved</td>
</tr>
<tr>
<td>6.</td>
<td>J6341A</td>
<td>Evaluation Of OMS Pod LI-900 Tile Installed on 0.090&quot; SIP</td>
<td>Approved</td>
</tr>
<tr>
<td>7.</td>
<td>J6402</td>
<td>Micro Inspection Of Captive Gap Fillers</td>
<td>Approved</td>
</tr>
<tr>
<td>8.</td>
<td>J6410</td>
<td>Aft Stub Cracked Tile Inspection</td>
<td>Approved</td>
</tr>
<tr>
<td>9.</td>
<td>J6414</td>
<td>RSB Thermal Tab Inspection</td>
<td>Pending</td>
</tr>
<tr>
<td>10.</td>
<td>J6417</td>
<td>WLE IR Thermography Study</td>
<td>Rewrite</td>
</tr>
<tr>
<td>11.</td>
<td>J6419</td>
<td>Putty Repair Tile Removal</td>
<td>Approved</td>
</tr>
<tr>
<td>12.</td>
<td>J6420</td>
<td>Sampling Of APU Sys 3 Lube Oil</td>
<td>Approved</td>
</tr>
<tr>
<td>13.</td>
<td>J6423</td>
<td>Dragoneye Interface Plate Fit Check</td>
<td>Approved</td>
</tr>
<tr>
<td>14.</td>
<td>J6425</td>
<td>Acquisition of Certification Data for IWIT</td>
<td>Pending</td>
</tr>
<tr>
<td>15.</td>
<td>J6429A</td>
<td>ET Door Drive Actuator Changeout &amp; Refurbishment</td>
<td>Pending</td>
</tr>
<tr>
<td>16.</td>
<td>J6430</td>
<td>Mid Deck Partition Inspectin</td>
<td>Approved</td>
</tr>
<tr>
<td>17.</td>
<td>J6433</td>
<td>Port &amp; Starboard Sill Measurements</td>
<td>Draft</td>
</tr>
<tr>
<td>18.</td>
<td>JXXXX</td>
<td>Parallel Latches Bench Test</td>
<td>Draft</td>
</tr>
<tr>
<td>NOV</td>
<td>DEC</td>
<td>JAN</td>
<td>FEB</td>
</tr>
<tr>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FLOW MILESTONES**

- 29 KSC LANDING
- 29 ORBIT AT OFF DOOR
- 1 CRV OFFLOAD COMPLETE
- 2 PLD'S OPEN COMPLETE
- 6 HYPER OFFLOAD COMPLETE
- 9 PAYLOAD REMOVAL COMPLETE
- 12 HEATSHIELD REMOVAL COMPLETE
- 11 FRCS FUNCTIONAL COMPLETE
- 13 SSME REMOVAL COMPLETE
- 16 FRCS REMOVAL COMPLETE
- 19 MOLOM INSTALLATION COMPLETE
- 22 RH ET DOOR PDU INSTALLATION COMPLETE
- 23 RCC THERMOGRAPHY COMPLETE
- 7 APS POD FUNCTIONAL COMPLETE
- 12 FRCS INSTALLATION COMPLETE
- 13 ASA/ATVC INSTALLATION COMPLETE
- 19 APD LEAK/FUNCTIONAL COMPLETE
- 4 DRAG CHUTE INSTALLATION COMPLETE
- SEPTS TESTING COMPLETE G
- ET DOOR FUNCTIONAL COMPLETE 13
- PAYLOAD PREMATE TEST COMPLETE 16
- ORBITER/PAYLOAD IVT COMPLETE 19
- SSME INSTALLATION COMPLETE 27
- LANDING GEAR FUNCTIONAL COMPLETE 5
- HEAT SHIELD INSTALLATION COMPLETE 12
- CEIT COMPLETE 14
- INTEGRATED WED OPS COMPLETE 18
- FINAL PLB DOORS CLOSED 24
- WET/CG COMPLETE 8
- ROLLOUT FIRST MOTION 10

**Status**

- Plan/Baseline
- Deviation from baseline
- Activity completed
- Activity canceled
- Activity duration
- Schedule change

**Status Date:** 20-OCT-2008

**Plot Date:** 20-OCT-2008

**Network:** OPP127706

**Contact:** Tuten, Linda (1-0671 OPP BAY-2) EEX:CUSOPESU.27
Issues and Concerns

• High Work Content/Growth
  – Payload Download/Upload
    • Longerons (12 Each)
    • Keels (3 Each)
    • Sidewall Payloads (7 Each)
  – Parallel Processing With STS-128 Flow (OV-104)
  – Potential Problem Areas:
    • Chin Panel
    • Windows
    • FRCS F5R Leakage
    • Bay 4 Longeron Bridges
    • Radiator Retract Flexhoses
    • ASA & ATVC R/R
## STS-127 Cavity Estimate

<table>
<thead>
<tr>
<th>Priority</th>
<th>Description</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory</td>
<td>Deferred Tile/Fib for 1-Flight (Minimum)</td>
<td>7</td>
</tr>
<tr>
<td>Mandatory</td>
<td>In-Flight Tile/Fib Damage/Putty Grind Outs</td>
<td>50</td>
</tr>
<tr>
<td>Mandatory</td>
<td>Highest Priority Putty Repairs (9A)</td>
<td>1</td>
</tr>
<tr>
<td>Mandatory</td>
<td>Operational (Adjacent Ops,C/P Ops,Veh Suppt)</td>
<td>20</td>
</tr>
<tr>
<td>10</td>
<td>2nd Subset Putty Repair Removals (3 NLGD)</td>
<td>8</td>
</tr>
<tr>
<td>11</td>
<td>Structure IML Surface Corrosion Inspection</td>
<td>12</td>
</tr>
<tr>
<td>15</td>
<td>Base Heat Shield 9lb/90 SIP Tile Upgrade</td>
<td>9</td>
</tr>
</tbody>
</table>

**BRI Implementation**

None

**TPS Removal TOTAL (Estimate)**

*Final TPS Work Content Will Be Baselined At The Delta LSFR*
Backup Material

FRWG Presentation (With Minor Changes)
STS-127 LAUNCH SITE FLOW REVIEW

- **Documentation Status**
- **MIP – NSTS 21434, Basic, Chg 1 (6/20/08)**
  - CR-0005 (Not out for review): Update Task Priority Table
  - Add DragonEye CSR Requirements
  - TBD items

- **PIP – DRAGONSAT, Basic (12/12/07)**
  - NSTS 21540
    - No Open CRs

- **PIP – ANDE-2, Basic (7/13/07)**
  - NSTS 21544
    - No Open CRs

- **PIP – MAUI, Basic, Chg 2 (5/5/08)**
  - NSTS 21530
    - No Open CRs

- **PIP - SEITE, Basic (11/19/07)**
  - NSTS-21542
    - No Open CRs

- **PIP – SIMPLEX, Rev A (6/16/08)**
  - NSTS 21327
    - No Open CRs

- **I P – DTO 701B DragonEye Flash Lidar, Basic (7/28/08)**
  - NSTS 21552
    - No Open CRs

- **FDRD**
  - SO72127A: Add SIMPLEX to STS-127
    - Post LSFR
**STS-127 LAUNCH SITE FLOW REVIEW**


  - CRs in work:
    - FRD17462-127-0013: Add DragonEye to Applicable Documents and Update TCS Configuration

- CRs posted at [http://sspweb.jsc.nasa.gov/icbdata](http://sspweb.jsc.nasa.gov/icbdata)
# Modifications Matrix

<table>
<thead>
<tr>
<th>MCR NO.</th>
<th>MCR TITLE</th>
<th>KIT/ MOD RECORD &amp; DESCRIPTION</th>
<th>TECH ORDER IMPACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>30099</td>
<td>D-Hatch Decals Relocation</td>
<td>TCTIM00030099REF, 0003, 1</td>
<td>M072-364828-005, was -002</td>
</tr>
<tr>
<td></td>
<td>Replaces Decal for hatch handle location when closing. Replaces MR decal from STS-126</td>
<td></td>
<td>M072-593828-005, was -001</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Model MV0828A</td>
</tr>
<tr>
<td>30179</td>
<td>Mid Deck Partition Impact Protection, OV-105</td>
<td>VK70-334795-001, 0105, 0</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Installs lexan panels to protect thin structural walls in crew module near the external airlock hatch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30189</td>
<td>APU QD Heating Modification</td>
<td>030189, 0105, 0</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Installs heaters on GN2 fill QDs to help preclude leakage on-orbit</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Mods Previously Baselined at LSRR

<table>
<thead>
<tr>
<th>MCR NO.</th>
<th>MCR TITLE</th>
<th>KIT/ MOD RECORD &amp; DESCRIPTION</th>
<th>TECH ORDER IMPACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>23029</td>
<td>Payload Retention Sys-Active Latch Control Capability</td>
<td>VK73-774010-001, 0001, 0</td>
<td>M072-544101</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>M072-544201</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Model MV0073A</td>
</tr>
<tr>
<td>30234</td>
<td>DRAGONEYE DTO Implementation</td>
<td>030234, 0105, 0</td>
<td>M072-341828-0XX, was -026</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>M072-730021-022, was -020</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Model MV0828A</td>
</tr>
<tr>
<td>30099</td>
<td>External Airlock Ducting Configuration Change</td>
<td>None</td>
<td>M072-643402</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Model MV0828A</td>
</tr>
<tr>
<td>17222</td>
<td>RMS Elbow camera installation</td>
<td>None</td>
<td>M072-544504-015 (is) -009 (was)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Model MV0082A</td>
</tr>
</tbody>
</table>

## Mission Kit Mods to be Baselined at LSFR

<table>
<thead>
<tr>
<th>MCR NO.</th>
<th>MCR TITLE</th>
<th>KIT/ MOD RECORD &amp; DESCRIPTION</th>
<th>TECH ORDER IMPACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>30234</td>
<td>DRAGONEYE DTO Implementation</td>
<td>030234, 0105, 0</td>
<td>M072-363838-003 (is), -001 (was)</td>
</tr>
</tbody>
</table>
STS-127 OV-105 Flight 23 – Approved Mods

Mod baselined at LSRR

• **30099 – Airlock Upper Hatch Decal/Blanket Mod**
  
  – During STS-124, crew experienced difficulty closing the upper airlock “D” hatch
  
  – Hatch closure requires proper handle positioning and associating mechanism positioning to ensure latch kickers do not interfere
  
  – Research of drawings indicated that a stop bolt mod and re-rigging was previously implemented but the hatch decals were not relocated to match the revised configuration
  
  – For STS-126 a temporary decal mod was implemented on OV-105 via one flight MR to add new position decal and cover incorrect decal with white tape
  
  – For STS-127, implementation of this mod will relocate the UNLATCH decals on the inner and outer surface of the D hatch and the outside hatch surface TCS blanket
  
  – Tech Order Updates Required:
    • M072-364828 and M072-593828
Mod baselined at LSRR

- **30179 – Mid-Deck Partition Lexan Covers**
  - Modification to implement 0.060” Lexan covers on the crew module aft mid-deck partitions (port and starboard), to provide impact protection for primary structure
    - Lexan will cover the entire surface of each partition (excluding trash bag area)
    - Warning decals previously applied on the partitions (for STS-124 and subs) following evaluation showing the partitions carry a significant part of the reactive load on the aft bulkhead from CM pressure, and are also located in high traffic area
    - Implementation of covers for STS-119 & subs approved by OPO at 7/22/08 OCCB

![Diagram of views looking aft](image-url)
Mod baselined at LSRR

- **30189 – APU GN2 QD Heater Mod** – Modification installs heaters to the APU GN2 fill QDs to alleviate concerns of possible on-orbit QD leakage
  
  - For Systems 1 and 2 this mod installs a parallel heater to the system 1 fuel fill and test line heater along with an over-temperature thermostat and uses that new heater to heat both the systems 1 and 2 GN2 QDs (1st flight on STS-119, OV-103)
  
  - For System 3 this mod replaces the existing fuel fill heater with a longer heater and uses that heater to heat both the fuel fill line and the GN2 fill QD (1st flight)
Mission Kit mod baselined at LSRR

• 23029 – Expanding PL Retention Active Latch Control Capability
  – Some ISS Flights exceeded the Payload Latch Control Capability. New Payload Latch Control harnesses were designed and built to expand the Payload Latch Control Capability beyond the 15 active latches controlled today.
  – However, the released System 2 harness engineering was incorrect. As a result, some legs of the System 2 latch harnesses were built too short to reach their interface point.
  – Updates two tech orders and MECSLSI
    • M072-544101 and M072-544201
  – Currently, STS-127 requires 18 latches. Modification of as built harnesses to meet STS-127 requirement is in work.
Mission Kit mods baselined at LSRR

• 30234 – Dragon Eye DTO Implementation
  – Installs DTO box with flash LIDAR and data acquisition unit on ODS truss
    • Updated two tech orders and MECSLSI
      – M072-341828 and M072-730021

• 30099 External Airlock Ducting Configuration Change
  – Revised configuration to launch with ducting installed versus stowed
    • Updates one tech order and MECSLSI
      – M072-643402
CONFIGURATION / Facilities

- OV-105: Flight 23
- OMS Pods: LP03 / RP04
- ET: 131
- SRB: BI-138/RSRM 106
- SSME: TBD(#1), TBD (#2), TBD (#3) U/R
- Payload: ISS-2JA, JEM-EF, ELM-ES, ICC-VLD, Dragonsat, ANDE2
- Flight Software: OI-33
- Firing Room: 4
- OPF Bay: 2
- MLP: 3
- VAB High Bay: 1
- Pad: A
**SSP ICD Changes**

The Following ICD Changes, Program Designated for STS-127, are in the Review/Approval Cycle:

<table>
<thead>
<tr>
<th>IRN #</th>
<th>Description</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>IO-3321/ICD-2-0A001</td>
<td>These IRNs are permanent waivers allowing the ground main and pre-flight test bus DC power supplies to exceed the present ICD impedance requirements. These IRNs will replace the present expiring ICD waivers on these requirements. CR S063880A has been released for evaluation and program approval.</td>
<td>In Work</td>
</tr>
<tr>
<td>IO-3322/ICD-2-0A002</td>
<td></td>
<td>Awaiting</td>
</tr>
<tr>
<td>IO-3323/ICD-2-1A001</td>
<td></td>
<td>Program OSB</td>
</tr>
<tr>
<td>IO-3324/ICD-2-1A002</td>
<td></td>
<td>Approval</td>
</tr>
</tbody>
</table>
Mandatory RCNs:
NONE

Non-Mandatory Value Added RCNs:

<table>
<thead>
<tr>
<th>RCN</th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>OV17793</td>
<td>V56 – ET Door Bell Crank/TPS Clearance</td>
<td>11/07/08</td>
</tr>
<tr>
<td>OV17787</td>
<td>V31 – MLG Door Seal Update</td>
<td>Preliminary</td>
</tr>
</tbody>
</table>
STS-127
Launch Site Flow Review
Flight Software Overview

Judi Powell
Flight Software
PRCB
STS-127 LSFR (FSW)

• STS-127/OV-105 Base System is the Third Scheduled Flight of Operational Increment (OI) 33 Flight Software (FSW)

• STS-127/OV-105 Flight Software Payload/Vehicle Support:
  – ISS-2J/A
  – Orbiter Interface Unit (OIU)
  – Sequential Still Video (SSV)
  – Orbiter Docking System (ODS)
  – Trajectory Control System (TCS)
  – Assembly Power Converter Units (APCUs) & Station to Shuttle Power Transfer System (SSPTS) (generic support for both configurations)
  – ISS Caution and Warning (ISSCW)

• Major New Flight Software Support Items:
  – None
STS-127 Source Changes/Edits for Primary Flight Software (Base)

- SCR 92882 - Allow Three String GPS for STS-116 and Subsequent OV-105 Flights
- SCR 93211A - Update of SSMEC Vehicle Data Table (VDT) for Enhanced Accelerometer Operations
- SCR 93215A - Protect Ascent Bearing Spec From MM 104 Retrograde Guidance Solution
- SCR 93252A - Raise Fwd RCS Tank Temperature Limits
- SCR 93267A Removal of the Set and Reset to False Cmds For the RCS Tank Iso Valves
- DR 124995 - Runway Label Not Displayed Above the Runway
- DR 124997 - Wrong DEU for Spec 54 Automatic Ascent to Entry Bearing Switch
- DR 126166 - I-Load Constraint Checker for STS 126 Failed with an Abend
- DR 126187 - Entry Bearing Display not Displayed on CRTs with Unsupported MF after MM602 Transition

STS-127 Patch Implementation for Primary Flight Software

- None
STS-127 LSFR (FSW)

• STS-127 Patch/Edit Implementation for Backup Flight Software (included on the delivered mass memory)
  – SCR 93223 - Change N2/O2 BFS FDA K-Loads to I-Loads
  – SCR 93261 – Correction to OI-33 BFS High Rate GPS Updates Introduced in SCR 93201
  – DR 121410 - BFS Setting of Unused Bits in Feature Control Words
  – DR 121418 – BFS – Erratic HSI During Ascent

• STS-127 Patch Implementation for Backup Flight Software
  – None
• **Products**
  - **STS-127/OV-105 Base software production schedule (available to field)**
    • Shuttle Data Tape: September 22, 2008A
    • Mass Memory Unit: October 16, 2008A
  - **STS-127/OV-105 ADTL software production schedule (available to field)**
    • This cycle may not be required.
      - Decision to deliver this set of products will be made in November, 2008
    • Shuttle Data Tape: February 5, 2009
    • Mass Memory Unit: February 19, 2009

• **Open Items**
  - None

• **Issues or Concerns**
  - No issues or concerns with STS-127 at this time
STS-127 LSFR
FLIGHT CREW EQUIPMENT/GFE

Kenneth Brown
Manager, GFE & Flight Crew Equipment Office
Johnson Space Center
• Delivery dates are partnered
BACKUP
<table>
<thead>
<tr>
<th>Hardware</th>
<th>Tech Order</th>
<th>KSC Eng Need</th>
<th>KSC Eng (TO) Release</th>
<th>Cert O/C</th>
<th>KSC Need</th>
<th>JSC Planned</th>
<th>JSC Remarks</th>
<th>JSC Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (port forward)</td>
<td>M072-750025-080</td>
<td>10/20/08</td>
<td>07/06/07</td>
<td>O</td>
<td>11/19/08</td>
<td>11/19/08</td>
<td></td>
<td>Randall Moore</td>
</tr>
<tr>
<td>B (port aft)</td>
<td>M072-750025-081</td>
<td>10/20/08</td>
<td>07/06/07</td>
<td>O</td>
<td>11/19/08</td>
<td>11/19/08</td>
<td></td>
<td>Randall Moore</td>
</tr>
<tr>
<td>C (starboard aft)</td>
<td>M072-750025-082</td>
<td>10/20/08</td>
<td>07/06/07</td>
<td>O</td>
<td>11/19/08</td>
<td>11/19/08</td>
<td></td>
<td>Randall Moore</td>
</tr>
<tr>
<td>D (starboard forward)</td>
<td>M072-750025-083</td>
<td>10/20/08</td>
<td>07/06/07</td>
<td>O</td>
<td>11/19/08</td>
<td>11/19/08</td>
<td></td>
<td>Randall Moore</td>
</tr>
<tr>
<td>Payload Ops camera</td>
<td>M072-340107</td>
<td>1/27/09</td>
<td>O</td>
<td>2/27/09</td>
<td>2/27/09</td>
<td></td>
<td></td>
<td>Randall Moore</td>
</tr>
<tr>
<td>SRMS elbow camera</td>
<td>M072-544504-015</td>
<td>10/20/08</td>
<td>3/3/09</td>
<td>O</td>
<td>11/19/08</td>
<td>11/19/08</td>
<td></td>
<td>Randall Moore</td>
</tr>
<tr>
<td>SRMS wrist camera</td>
<td>M072-544504-010</td>
<td>1/2/09</td>
<td>3/3/09</td>
<td>O</td>
<td>11/19/08</td>
<td>11/19/08</td>
<td></td>
<td>Randall Moore</td>
</tr>
<tr>
<td>Centerline Airlock Camera</td>
<td>M072-660828-002, CCCD</td>
<td></td>
<td></td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td>Randall Moore</td>
</tr>
<tr>
<td>Hardware</td>
<td>Tech Order</td>
<td>KSC Eng Need</td>
<td>Eng(TO) Release</td>
<td>Cert O/C</td>
<td>KSC Need</td>
<td>JSC Planned</td>
<td>JSC Remarks</td>
<td>JSC Contact</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>----------------------------</td>
<td>--------------</td>
<td>-----------------</td>
<td>----------</td>
<td>----------</td>
<td>-------------</td>
<td>------------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Digital Television (DTV)</td>
<td>M072-710570-007</td>
<td></td>
<td></td>
<td>C</td>
<td></td>
<td></td>
<td>Hardware is still on the vehicle.</td>
<td>Randall Moore</td>
</tr>
<tr>
<td>MCIU/RMS Situational Awareness Display (RSAD)</td>
<td>M072-710543-001</td>
<td>03/07/00</td>
<td></td>
<td>O</td>
<td></td>
<td></td>
<td>Installed hardware.</td>
<td>Larry Schmidt</td>
</tr>
<tr>
<td>Portable Foot Restraint (PFR)</td>
<td>M072-661568-029</td>
<td>03/11/05</td>
<td></td>
<td>C</td>
<td>2/16/09</td>
<td>2/16/09</td>
<td></td>
<td>Sandy Peterson</td>
</tr>
<tr>
<td>Tools for Rendezvous and Docking (TRAD)</td>
<td>M072-730021-020</td>
<td></td>
<td></td>
<td>O</td>
<td>11/19/08</td>
<td>11/19/08</td>
<td></td>
<td>Larry Schmidt</td>
</tr>
<tr>
<td>Tool Stowage Assembly (TSA)</td>
<td>M072-660853-002 M072-660850-005</td>
<td>10/01/07</td>
<td></td>
<td>C</td>
<td>2/27/09</td>
<td>2/27/09</td>
<td></td>
<td>Sandy Peterson</td>
</tr>
<tr>
<td>Video Processing Unit (VPU)</td>
<td>M072-710338-006</td>
<td>07/05/01</td>
<td></td>
<td>C</td>
<td></td>
<td></td>
<td>Installed hardware.</td>
<td>Larry Schmidt</td>
</tr>
<tr>
<td>Winches</td>
<td>V070-650007-085</td>
<td>11/19/04</td>
<td></td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td>Sandy Peterson</td>
</tr>
<tr>
<td>Hardware</td>
<td>Tech Order</td>
<td>KSC Eng Need</td>
<td>Eng(TO) Release</td>
<td>Cert O/C</td>
<td>KSC Need</td>
<td>JSC Planned</td>
<td>JSC Remarks</td>
<td>JSC Contact</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------------</td>
<td>--------------</td>
<td>-----------------</td>
<td>----------</td>
<td>----------</td>
<td>-------------</td>
<td>-----------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Wireless Video System (WVS)</td>
<td>M072-744007-001 UHF</td>
<td></td>
<td></td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td>Randall Moore</td>
</tr>
<tr>
<td></td>
<td>M072-744004-013 S-BAND</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>M072-744004-012 S-BAND</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>M072-744004-015 S-BAND</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>M072-744004-017 S-BAND</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>M072-744004-018 S-BAND</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>M072-794026-017</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Space to Space Orbiter Radio (SSOR)</td>
<td>M072-344828-002</td>
<td></td>
<td></td>
<td>C</td>
<td></td>
<td></td>
<td>Installed hardware.</td>
<td>Larry Schmidt</td>
</tr>
<tr>
<td></td>
<td>M072-740828-002 antenna</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RMS Sideview Camera (RSC)</td>
<td>M072-710281-002</td>
<td></td>
<td>12/07/07</td>
<td>C</td>
<td>4/19/09</td>
<td>4/19/09</td>
<td></td>
<td>Randall Moore</td>
</tr>
<tr>
<td></td>
<td>M072-000416-004 camera</td>
<td></td>
<td>11/24/04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wing Leading Edge (WLE) Instrumentation - Left Wing**</td>
<td>M072-756111-003</td>
<td></td>
<td></td>
<td>O</td>
<td></td>
<td></td>
<td></td>
<td>Gary Cox</td>
</tr>
<tr>
<td>Wing Leading Edge (WLE) Instrumentation - Right Wing**</td>
<td>M072-756111-004</td>
<td></td>
<td></td>
<td>O</td>
<td></td>
<td></td>
<td></td>
<td>Gary Cox</td>
</tr>
<tr>
<td>OBSS Sensor Package 2</td>
<td>M072-710282-006</td>
<td></td>
<td></td>
<td>O</td>
<td>1/30/09</td>
<td>1/30/09</td>
<td></td>
<td>Larry Schmidt</td>
</tr>
<tr>
<td>Airlock Adapter Plate</td>
<td></td>
<td>O</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Installed hardware.</td>
<td>Sandy Peterson</td>
</tr>
<tr>
<td>Hardware</td>
<td>Tech Order</td>
<td>KSC Eng Need</td>
<td>KSC Eng Need</td>
<td>Cert O/C</td>
<td>KSC Need</td>
<td>JSC Planned</td>
<td>JSC Remarks</td>
<td>JSC Contact</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------</td>
<td>--------------</td>
<td>--------------</td>
<td>----------</td>
<td>----------</td>
<td>-------------</td>
<td>-----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>RMS</td>
<td></td>
<td>O</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Installed hardware,</td>
<td>Kenneth Ruta</td>
</tr>
<tr>
<td>OBSS Sensor Package 1</td>
<td>M072-710282-008</td>
<td>O</td>
<td>1/30/09</td>
<td>1/30/09</td>
<td></td>
<td></td>
<td></td>
<td>Randall Moore</td>
</tr>
<tr>
<td>OBSS</td>
<td>M072-544506-002</td>
<td>O</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Installed hardware,</td>
<td>Kenneth Ruta</td>
</tr>
</tbody>
</table>
EVA Status
STS-127/2JA
Launch Site Flow Review

Bridget Ziegelaar
EVA Office
Johnson Space Center
October 23, 2008
• **Forward Bulkhead PFR**
  – Portable Foot Restraint, SED33105308-307, to be installed on forward bulkhead
    • Delivery date - 2/16/09
    – Released T.O. M072-661568-029
    – Required to protect for contingency EVA TPS inspection/repair

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

• **No Starboard TSA**

• **Winches**
  – Winch P/N SED33101570-327 on Forward Bulkhead
  – Winch P/N SED33101570-325 on Aft Bulkhead
  – Both installed, expiration date is January 2010
STS-127
ISS – 2J/A  JEM EF, ELM-ES, ICC-VLD, DRAGONSAT, ANDE-2
Launch Site Flow Review

Payload Cargo Engineering Status

MICHAEL BARIDO
281.212.6072
OCTOBER 23, 2008
Engineering Flight Product Status

<table>
<thead>
<tr>
<th>Drawing No</th>
<th>Title</th>
<th>Rev</th>
<th>EO</th>
<th>Released</th>
</tr>
</thead>
<tbody>
<tr>
<td>V072-200207</td>
<td>MECSLSI</td>
<td>A</td>
<td>A01</td>
<td>10-13-08</td>
</tr>
<tr>
<td>VA72-200207</td>
<td>Cargo Arrangement</td>
<td>A</td>
<td>A01</td>
<td>10-14-08</td>
</tr>
<tr>
<td>VD72-200207</td>
<td>Avionics Diagram</td>
<td>A</td>
<td>A01</td>
<td>10-13-08</td>
</tr>
<tr>
<td>VS72-200207</td>
<td>Integrated Schematic</td>
<td>A</td>
<td>A01</td>
<td>10-13-08</td>
</tr>
<tr>
<td>VS70-540345</td>
<td>Retention Schematic</td>
<td>A</td>
<td>A01</td>
<td>10-13-08</td>
</tr>
</tbody>
</table>

Rescue Flight Status
- STS-128 Reconfiguration Engineering Products will be developed by the Engineering Order To Follow (EOTF) process.

Engineering Open Work
- FRED Tech Orders 10-24-08

Standardization
- Mission configuration does comply with NSTS 60523 Orbiter/Payload Integration Standardization Document except for the following waivers:
  - S063799 – Add monitoring of PPSUs and parallel latch ready-to-latch via MDMs, replace 3 standard cables with mission unique cables
  - S063885 – ODS X1/X2 connector mate verification via MDM PF01, PF02 not required
OMRS Status

Open Work

• Baseline OMRS
  – FII, V2 Post Mate
    • PP17749R2  P434 – ISS-2J/A BASELINE 11/04/08
    • PP17XX XX  P434 – ADD. OF PWRD MIDDECK PAYLOADS 01/13/09
    • PP17738R2  P1540 – SSPL/DRAGONSAT BASELINE 11/04/08
    • PP17737R2  P544 – ANDE2 BASELINE 11/04/08
  – FII, V4 Pre-mate
    • PS17XXX  Mission Unique List 12/02/08
    • PS17XXX  FIII MUL 12/02/08
    • PS17XXX  Adjacent Pin 12/02/08
    • PS17796  S07 – PARALLEL RETENTION LATCHING 10/28/08
  – FII, V6 Shuttle Experiments
    • PX17XXX  701B – DRAGONEYE BASELINE 12/16/08

ECD

Issues/Concerns

• None
Annex 1

Baselined Files

• NSTS 21434 ISS-2J/A MIP Annex 1
  Baselined

• NSTS 21540 DRAGONSAT PIP Annex 1
  Baselined

• NSTS 21544 ANDE2 PIP Annex 1
  Baselined

Open Work

• NSTS 21434 ISS-2J/A MIP Annex 1  
  11/24/08
  – Update ICC-VLD Static length, 2J/A Mechanical Drawings, Safety Critical Switch List, ICC-VLD launch and Landing configuration figure, Functional Flow Diagrams, Schematic Diagrams, Safety Critical Circuit diagrams, c.g. figures

• NSTS 21540 DRAGONSAT PIP Annex 1  
  10/27/08
  – Modify DRAGONSAT part number, update deploy profile figure

Issues/Concerns

• None
## TGHR Status

<table>
<thead>
<tr>
<th>Status</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Submittal</td>
<td>01/15/09</td>
</tr>
<tr>
<td>Release For Review</td>
<td>02/13/09</td>
</tr>
<tr>
<td>Baseline</td>
<td>03/16/09</td>
</tr>
</tbody>
</table>

### Issues/Concerns

- None
## Payload ICDs/PIRNs

All Payload-Unique ICDs are baselined

### PIRNS that impact Flight Products

<table>
<thead>
<tr>
<th>PIRN #</th>
<th>ICD/Payload</th>
<th>Title</th>
<th>ECD</th>
</tr>
</thead>
<tbody>
<tr>
<td>A05657</td>
<td>ANDE 2/ICD-A-21544</td>
<td>ANDE 2 Cable I/F U/D</td>
<td>10/15/08</td>
</tr>
<tr>
<td>TBD-06</td>
<td>ANDE 2/ICD-A-21544</td>
<td>CAD Model U/D</td>
<td>10/20/08</td>
</tr>
<tr>
<td>TBD-014</td>
<td>JEM ES/ICD-A-21434-ES</td>
<td>Final CAD Model U/D</td>
<td>12/16/08</td>
</tr>
<tr>
<td>A04370</td>
<td>JEM EF/ICD-A-21434-EF</td>
<td>Baseline Exceedances</td>
<td>1/23/09</td>
</tr>
<tr>
<td>A05651</td>
<td>JEM EF/ICD-A-21434-EF</td>
<td>Revise Wiring Figures</td>
<td>9/30/08</td>
</tr>
<tr>
<td>TBD-016</td>
<td>JEM EF/ICD-A-21434-EF</td>
<td>Cargo Validated Model/ DPA Data U/D</td>
<td>12/19/08</td>
</tr>
<tr>
<td>A05608</td>
<td>ODS ISS/ICD-A-21342</td>
<td>DRAGONEYE &amp; TRIDAR Config U/D</td>
<td>11/07/08</td>
</tr>
</tbody>
</table>
**STS-127 LSFR**

**Cargo Close Clearance Process**

- No Close Clearance areas were identified at the CIR so none are currently being tracked.
STS-127  LSFR

Cargo Integration Hardware Status

Delivery Status

• CIH delivery to KSC
  – 5 Wire Harnesses
  – 1 Harness Support Bracket Assy  ECD: 10/28/08

Open Work

• Working STS-125/127 possible Cargo Integration hardware interdependencies
  – Workarounds may solve problem. Evaluation inwork, assessment to be complete by 10-24-08
  • Completion dependent on final engineering release on 10-24-08
### Backup Material

- **SSP Systems Drawings**  
  Attachment 1
- **SSP Authorized Modifications/Non-Standard Work**  
  Attachment 2
- **SSP OMRS Waivers and Exceptions**  
  Attachment 3
- **Launch Window**  
  Attachment 4
- **Open Configuration Waivers**  
  Attachment 5
SSP System Drawings

The Drawings Baseline Was Released By PRCB S115127 on 07-24-08

- V072-000001-278 (Rev. VK) Space Shuttle System (Rel. 08-25-08)
- V072-200207-001 (Rev. NEW) Mission Equipment Cargo Support (Rel. 07-10-08)
- SGD32104450-501 (Rev. NEW) Crew Compartment Configuration (Rel. 09-26-08)
- V070-000001-005 Orbiter General Assembly
  - V070-410100-018 SSME Installation
- 10100-0061-175 Integrated SRB General Assembly (BI-138)
- 80901000000-529 External Tank Assembly (ET-131)

- STS-127 CIR + 70 days Mission Configuration Product Plan (MCP) and LSRR +18 days will be published on 10-17-08.
SSP System Drawings – (Continued)

Ferry Configuration

- V072-000001-279 (Rev. VK) Space Shuttle System Drawing (Rel. 08-25-08)
- V072-200207-002 (Rev. NEW) Mission Equipment Cargo Support (Rel. 07-10-08)
- SGD32104450-001 (Rev. NEW) Crew Compartment Configuration (Rel. 09-26-08)
- V072-300055-026 (Rev. BR) Ferry Flight Configuration (Rel. 09-24-08)

SCA 911
Modification Impact Report

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

• A total of 5 MCRs have been approved and/or pending mods

• Current MCR impact status:
  
  • No impacts for all six disciplines  
  
  • Possible impacts still under review

  • MCR’s 23029, 30234, and 30189 are being reviewed for all impacts
<table>
<thead>
<tr>
<th>MCR/ECP</th>
<th>STAT</th>
<th>ITEM/KIT NUMBER</th>
<th>SEQ</th>
<th>TCTI NUMBER</th>
<th>EISN NO.</th>
<th>DESCRIPTION / GENERAL REMARKS</th>
<th>PRCB</th>
<th>AUTH</th>
<th>PRIOR</th>
<th>AUTHDATE</th>
<th>FLT</th>
</tr>
</thead>
<tbody>
<tr>
<td>023029</td>
<td>AUTH</td>
<td>VK73-774010-001</td>
<td>0001</td>
<td>0000</td>
<td></td>
<td>PAYLOAD RETENTION SYS-ACTIVE LATCH CONTROL CAPABILITY ADDED PER MCR BASIC.</td>
<td>S115127A</td>
<td>2008-10-06</td>
<td>023</td>
<td></td>
<td></td>
</tr>
<tr>
<td>030099</td>
<td>AUTH</td>
<td>TCTIM0030099REF</td>
<td>0003</td>
<td>001</td>
<td></td>
<td>D-HATCH DECALS RELOCATION ADDED PER V828-000002 F18 &amp; V828-360179 A02</td>
<td>S115127A</td>
<td>2008-10-06</td>
<td>023</td>
<td></td>
<td></td>
</tr>
<tr>
<td>030234</td>
<td>AUTH</td>
<td>030234</td>
<td>0105</td>
<td>000</td>
<td></td>
<td>DRAGON EYE DTO IMPLEMENTATION ADDED PER S. COPENHAVER REQUEST FOR STS-127 LSRR</td>
<td>S115127A</td>
<td>2008-10-06</td>
<td>023</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TOTAL MODS = 3
<table>
<thead>
<tr>
<th>STAT</th>
<th>ITEM/KIT NUMBER</th>
<th>SEQ</th>
<th>EISN NO.</th>
<th>DESCRIPTION / GENERAL REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTH</td>
<td>J6116</td>
<td>0105 002</td>
<td>SPAR</td>
<td>AMES GAP FILLER REMOVAL AND REPLACEMENT</td>
</tr>
<tr>
<td>KSC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUTH</td>
<td>J6275A</td>
<td>0105 001</td>
<td>SPAR</td>
<td>ORBITER STRUCTURE IML SURFACE CORROSION SAMPLING INSPECTION</td>
</tr>
<tr>
<td>KSC</td>
<td></td>
<td></td>
<td></td>
<td>CORROSION SAMPLING CAPABILITIES WILL BE PROJECTED AT LSFR, AND FINALIZED AT DLSFR FOR EACH FLOW.</td>
</tr>
<tr>
<td>AUTH</td>
<td>J6306</td>
<td>0105 002</td>
<td>SPAR</td>
<td>OV-105 MID FUSELAGE LOCK BOLT INSPECTION</td>
</tr>
<tr>
<td>KSC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUTH</td>
<td>J6321A</td>
<td>0105 001</td>
<td>SPAR</td>
<td>ASA #1 &amp; #2 AND ATVC #1 &amp; #4 R&amp;R FOR OV-105, FLT 23</td>
</tr>
<tr>
<td>KSC</td>
<td></td>
<td></td>
<td></td>
<td>ASA AND ATVC R&amp;R’S WILL BE IMPLEMENTED IN PARALLEL WITH PLANNED OV-105 STS-127 FLT 23 PROCESSING.</td>
</tr>
<tr>
<td>AUTH</td>
<td>J6327</td>
<td>0105 001</td>
<td>SPAR</td>
<td>WLE RCC JOGGLE INSPECTION</td>
</tr>
<tr>
<td>KSC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUTH</td>
<td>J6341A</td>
<td>0105 001</td>
<td>SPAR</td>
<td>EVALUATION OF OMS POD LI-900 TILE INSTALLED ON 0.090” SIP</td>
</tr>
<tr>
<td>KSC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUTH</td>
<td>J6402</td>
<td>0105 001</td>
<td>SPAR</td>
<td>MICRO INSPECTION OF CAPTIVE GAP FillERS</td>
</tr>
<tr>
<td>KSC</td>
<td></td>
<td></td>
<td></td>
<td>DOCUMENTS MICRO INSPECTION OF SPECIFIC CAPTIVE GAP FillERS DUE TO RECENTLY OBSERVED FLT DEGRADATION.</td>
</tr>
<tr>
<td>AUTH</td>
<td>J6410</td>
<td>0105 001</td>
<td>SPAR</td>
<td>AFT STUB CRACKED TILE INSPECTION</td>
</tr>
<tr>
<td>KSC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUTH</td>
<td>J6412</td>
<td>0105 001</td>
<td>SPAR</td>
<td>STS-126 PAYLOAD CLOSE CLEARANCE REQUIREMENTS</td>
</tr>
<tr>
<td>KSC</td>
<td></td>
<td></td>
<td></td>
<td>POST STS-126 REQUIREMENTS</td>
</tr>
<tr>
<td>AUTH</td>
<td>J6419</td>
<td>0105 000</td>
<td>SPAR</td>
<td>OV-105 PUTTY REPAIR</td>
</tr>
<tr>
<td>KSC</td>
<td></td>
<td></td>
<td></td>
<td>Req’d TPS REPLACEMENT WILL BE PERF’D IN PARALLEL WITH PLANNED STS-127 GROUND PROCESSING.</td>
</tr>
<tr>
<td>AUTH</td>
<td>J6420</td>
<td>0105 000</td>
<td>SPAR</td>
<td>SAMPLING OF OV-105 APU SYSTEM 3 LUBE OIL</td>
</tr>
<tr>
<td>KSC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUTH</td>
<td>J6423</td>
<td>0105 000</td>
<td>SPAR</td>
<td>DRAGONEYE INTERFACE PLATE FIT CHECK</td>
</tr>
<tr>
<td>KSC</td>
<td></td>
<td></td>
<td></td>
<td>FIT CHECK WILL BE PERF’D OFFLINE IN THE FLT CREW EQMNT LAB AREA WITH TRAJ CONTROL SYS CARRIER ASS’Y</td>
</tr>
<tr>
<td>AUTH</td>
<td>J6430</td>
<td>0105 000</td>
<td>SPAR</td>
<td>MIDDECK PARTITION INSPECTION</td>
</tr>
<tr>
<td>KSC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUTH</td>
<td>VK70-334795-001</td>
<td>0105 000</td>
<td>SPAR</td>
<td>KIT - MID DECK PARTITION IMPACT PROTECTION, OV-105</td>
</tr>
<tr>
<td>KSC</td>
<td>NOT REQUIRED</td>
<td></td>
<td></td>
<td>ADDED BY EDS I/F &amp; V070-334794 NEW, REF FCS-5-12-0 279</td>
</tr>
</tbody>
</table>

Page 72 of 83
TOTAL MODS = 15
<table>
<thead>
<tr>
<th>MCR/ECP</th>
<th>STAT</th>
<th>ITEM/KIT NUMBER</th>
<th>SEQ</th>
<th>TCTI NUMBER</th>
<th>EISN NO.</th>
<th>DESCRIPTION / GENERAL REMARKS</th>
<th>PRCB</th>
<th>PRIOR</th>
<th>AUTHDATE</th>
<th>FLT</th>
</tr>
</thead>
<tbody>
<tr>
<td>008840</td>
<td>APPD</td>
<td>K725-710086-001</td>
<td>0001</td>
<td>000</td>
<td></td>
<td>KIT - INTEG H/W; ICC-VLD (VERTICAL LIGHT DEPLOYABLE)</td>
<td>NOT REQD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KSC</td>
<td>NOT REQUIRED</td>
<td>0001 000</td>
<td></td>
<td></td>
<td></td>
<td>ADDED BY EDS I/F &amp; KIT EO NEW</td>
<td>023</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>APPD</td>
<td>K845-774022-001</td>
<td>0001 000</td>
<td></td>
<td></td>
<td></td>
<td>KIT - INTEG H/W, ICC-VLD</td>
<td>NOT REQD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KSC</td>
<td>NOT REQUIRED</td>
<td>0001 000</td>
<td></td>
<td></td>
<td></td>
<td>ADDED PER V845-774980 NEW &amp; V845-774981 NEW</td>
<td>023</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TOTAL MODS = 2
<table>
<thead>
<tr>
<th>STAT SITE</th>
<th>ITEM/KIT NUMBER</th>
<th>SEQ</th>
<th>DESCRIPTION / GENERAL REMARKS</th>
<th>PRCB</th>
<th>PRIOR</th>
<th>AUTHDATE</th>
<th>FLT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auth</td>
<td>KLO-1624</td>
<td>2045 000</td>
<td>INSPECT SSME FLEET ELECTRICAL HARNESS ROUTING AND SLACK</td>
<td>S071807K</td>
<td>MAND</td>
<td>2008-08-01</td>
<td>010</td>
</tr>
<tr>
<td>Auth</td>
<td>KLO-1624</td>
<td>2060 000</td>
<td>INSPECT SSME FLEET ELECTRICAL HARNESS ROUTING AND SLACK</td>
<td>S071807K</td>
<td>MAND</td>
<td>2008-08-01</td>
<td>001</td>
</tr>
</tbody>
</table>

**TOTAL MODS =** 2
<table>
<thead>
<tr>
<th>E</th>
<th>ORB</th>
<th>S053296PJ</th>
<th>EORRS WSX REQUEST - WING LEADING EDGE RCC PANEL REFURBISHMENT (EK10261)</th>
<th>105</th>
<th>019 023</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
<td>ET</td>
<td>S053293FZ</td>
<td>ET2/LH2 TANK PRESSURE MONITOR FOR MOVE</td>
<td>ET</td>
<td>099 999</td>
</tr>
<tr>
<td>OMS</td>
<td></td>
<td>S053294ZV</td>
<td>OMRSD WAIVER REQUEST - OMS HEATER RESISTANCE (WK10093)</td>
<td>0024</td>
<td>024 031</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S053296UN</td>
<td>OMRSD WAIVER REQUEST - LOMS HELIUM ISOLATION VALVE LEAKAGE (WK103 01R1)</td>
<td>0013</td>
<td>031 034</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S053299HG</td>
<td>OMRSD WAIVER REQUEST - LEFT LOMS HELIUM ISOLATION VALVE INTERNAL LEAK (WK10648R2)</td>
<td>0013</td>
<td>033 036</td>
</tr>
<tr>
<td>ORB</td>
<td></td>
<td>S053296LJ</td>
<td>OMRSD WAIVER REQUEST - WSB 2 GN2 REG PRESS BELOW OMRSD (WK10240)</td>
<td>105</td>
<td>018 026</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S053298TA</td>
<td>OMRSD WAIVER REQUEST - MODULAR AUXILIARY DATA SYSTEM FREQUENCY DI VISIONMULTIPLEXER 1 FREQUENCY CALIBRATIONOV-105 (WK10538)</td>
<td>105</td>
<td>020 026</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S053298TB</td>
<td>OMRSD WAIVER REQUEST - MODULAR AUXILIARY DATA</td>
<td>105</td>
<td>020 026</td>
</tr>
</tbody>
</table>
SYSTEM FREQUENCY DI
VISIONMULTIPLEXER 2 MUX CH.
1 DATA SHIFT OV-105
(WK10540)

S053299DQ
WK10614 (A)
OMRSD WAIVER REQUEST -
MODULAR AUXILIARY DATA
SYSTEM FREQUENCY DI
VISIONMULTIPLEXER-M1A,
NOISE RATIO/NOISE LEVEL
(WK10614)

S053299HE
WK10639R1 (A)
OMRSD WAIVER REQUEST -
AUXILIARY POWER UNIT 1 GAS
GENERATOR CHAMB ERPRESSURE
BIAS (WK10639R1)
<table>
<thead>
<tr>
<th>PRCBD NUMBER</th>
<th>WVR ELEMENT</th>
<th>WAIVER# (STAT)</th>
<th>EXC PROJECT</th>
<th>ABSTRACT</th>
<th>EISN</th>
<th>BEG END</th>
<th>PAYLOAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORB</td>
<td>S053299LM</td>
<td>WK10655 (A)</td>
<td></td>
<td>OMRSD WAIVER REQUEST - FUEL CELL POWER PLANT CELL</td>
<td>105</td>
<td>022 025</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PERFORMANCE MONITORSTACK DELTA VOLTAGE 1 AT 510 MILLIVOLTS (WK10655)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RCS</td>
<td>S053296DC</td>
<td>WK10138 (A)</td>
<td></td>
<td>OMRSD WAIVER REQUEST - RRCS FUEL HELIUM REGULATOR LEAKAGE (WK10138)</td>
<td>0024</td>
<td>025 030</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>S053296PV</td>
<td>WK10275 (A)</td>
<td></td>
<td>OMRSD WAIVER REQUEST - RRCS FUEL A&amp; B LEG REG LOCKUP PRESSURE (WK10275)</td>
<td>0024</td>
<td>026 034</td>
<td></td>
</tr>
<tr>
<td>SRB</td>
<td>S053293WA</td>
<td>WK03886 (A)</td>
<td></td>
<td>LH FWD AND RH MID SRB JOINT TEMP SENSORS (STS-103)</td>
<td></td>
<td>BI</td>
<td>099 999</td>
</tr>
</tbody>
</table>

| W | ORB | S053299LM | WK10655 (A) | OMRSD WAIVER REQUEST - FUEL CELL POWER PLANT CELL | 105 | 022 025 |
| W | ORB | S053299LM | WK10655 (A) | PERFORMANCE MONITORSTACK DELTA VOLTAGE 1 AT 510 MILLIVOLTS (WK10655) |      |         |
| RCS | S053296DC | WK10138 (A) | OMRSD WAIVER REQUEST - RRCS FUEL HELIUM REGULATOR LEAKAGE (WK10138) | 0024 | 025 030 |
| RCS | S053296PV | WK10275 (A) | OMRSD WAIVER REQUEST - RRCS FUEL A& B LEG REG LOCKUP PRESSURE (WK10275) | 0024 | 026 034 |
| SRB | S053293WA | WK03886 (A) | LH FWD AND RH MID SRB JOINT TEMP SENSORS (STS-103) |      | BI | 099 999 |

| Total Extracted | 13 | 1 | 0 | 0 | 14 |

Page 79 of 83
# ACTIVE WAIVERS FOR
OV-105

<table>
<thead>
<tr>
<th>Item #</th>
<th>Authority</th>
<th>Date</th>
<th>Waiver Description</th>
<th>Effectivity</th>
<th>Wad</th>
</tr>
</thead>
<tbody>
<tr>
<td>53</td>
<td>S052428A</td>
<td>03/27/91</td>
<td>Allows specified flights to fly with interim TPS repair after each mission to minimize damage to surrounding tile during ferry flight STS-42 thru STS-999</td>
<td>STS-37, STS-39, STS-40, STS-42 thru STS-999</td>
<td>STAYS OPEN</td>
</tr>
<tr>
<td>101</td>
<td>S076972</td>
<td>11/19/91</td>
<td>Permit the modified GPCs (AP101-S) Battery Back-up Unit to fly with annotated fastener improvements without rolling the LRU Part Number STS-42 thru STS-999</td>
<td>STS-42, STS-44, STS-47 and STS-49 thru STS-999</td>
<td>STAYS OPEN</td>
</tr>
<tr>
<td>341</td>
<td>S063701</td>
<td>08/07/07</td>
<td>The following requirement is waived to allow OV-105 to fly with the following out-of-configuration condition:</td>
<td>OV-105, Flight 20</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Partial installation of Tech Order M072-660010-004, Middeck Air Flow Re-routing Duct Tech Order, not to include bolt (NAS1003-8A) and washer (NAS620C10) in the lower aft corner of the vent housing cover assembly.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>During vertical stowage the nut plate (not under USA Tech Order configuration controlled) was noted missing from behind the starboard closeout panel. Without the nut plate, the bolt and washer cannot be installed. The area cannot be currently accessed to re-install the missing hardware. (NOTE: MRB in work on PR FCS-5-20-0476 to approve use of tape on the open hole. Lost and found PR LAF-5-20-0440 written to document lost nut plate.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Prepared by: Jeff McRoberts
USA RV/DR
861-2505
### ACTIVE WAIVERS FOR OV-105

<table>
<thead>
<tr>
<th>Item #</th>
<th>Authority</th>
<th>Date</th>
<th>Waiver Description</th>
<th>Effectivity</th>
<th>Wad</th>
</tr>
</thead>
<tbody>
<tr>
<td>344</td>
<td>S071024MP</td>
<td>12/20/07</td>
<td>During maintenance of an Advanced Master Events Controller (AMEC) it was discovered that the module cards are able to translate upward, away from connectors. The cards are retained by friction applied by wedge-locks. An assessment determined a 0.070 upward card translation, would result in card disengagement from connectors. The wedge-lock system can not assure the cards will not translate upwards. The AMEC vendor (Boeing Autonetics) is no longer on contract supporting SSP. A design proposal is to provide a secondary connector retention using the AMEC covers. The new design new lids will limit the upward translation to 0.055. The new design will reduce the milled section of the cover and add silicone pads to provide shock absorption. Due to the absence of the original vendor and no current alternate drawings available for the AMEC the modification is being requested via a program directed Material Review (MR).</td>
<td>OV-103, Flight 35</td>
<td>OV-104, Flight 30</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>P/N MC450-0016-0029</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>**** SEE NSTS 07700 VOLUME IV BOOK 2 FOR COMPLETE DETAILS *****</td>
<td></td>
<td></td>
</tr>
<tr>
<td>345</td>
<td>S115123AR5</td>
<td>03/03/08</td>
<td>The following requirement is waived to allow OV-105 to fly with the following out-of-configuration condition:</td>
<td>OV-105, Flight 21</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tech Order M072-544504-009, (CATIA) RMS elbow camera, fly with the RMS elbow camera/PTU assembly angle change from 10.6 degrees to 0 degrees for STS-123 launch.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A dynamic clearance assessment for STS-123 identified an interference between the camera/PTU assembly and the Payload Bay Door radiators. A decision was made to change the tilt angle from 10.6 degrees to 0 degrees for launch.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Prepared by: Jeff McRoberts
USA RV/DR
861-2505

Page 81 of 83
<table>
<thead>
<tr>
<th>Item #</th>
<th>Authority</th>
<th>Date</th>
<th>Waiver Description</th>
<th>Effectivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>346</td>
<td>S115126AR3</td>
<td>05/16/08</td>
<td>The following requirement is waived to allow OV-105 (STS-400/LON) to fly with the following out-of-configuration condition:</td>
<td>STS-400/LON (OV-105, Flight 22)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Allow the use of STS-126 reconfiguration engineering products on OV-105 Flight 22 for the configuration of STS-400 (engineering reflects STS-126 requirements and vehicle is in STS-400 configuration at roll-out, as-designed vs. as-built).</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Given time constraints after STS-400 is ordered to launch, approval of this configuration waiver provides the least costly and most efficient means to document the STS-400 launch configuration.</td>
<td></td>
</tr>
</tbody>
</table>
### ACTIVE WAIVERS FOR OV-105

<table>
<thead>
<tr>
<th>Item #</th>
<th>Authority</th>
<th>Date</th>
<th>Waiver Description</th>
<th>Effectivity</th>
<th>Wad</th>
</tr>
</thead>
<tbody>
<tr>
<td>347</td>
<td>S115126AR5</td>
<td>08/22/2008</td>
<td>The following requirement is waived to allow OV-105 (STS-400/LON) to fly with the following out-of-configuration condition:</td>
<td>STS-400/LON (OV-105, Flight 22)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Active latches without extended guides in Bays 8 and 12 will replace the respective STS-126 requirements:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bay 8 STBD M072-544201-203</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bay 8 Port M072-544201-204</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BAY 12 STBD M072-544101-028</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bay 12 Port M072-544101-027</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Latches changed from secondary to primary:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bay 12 STBD M072-002112-043 Partial in Lieu of M072-002212-045</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bay 12 Port M072-002112-044 Partial in Lieu of M072-002212-046</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The following Tech Orders will not be installed:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>M072-000423-001</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>M072-710801-001</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>M072-544001-008</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The following Tech Orders will be partially installed:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>M072-544752-003 ROEU installed but not mated and grease application not accomplished.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>M072-000442-004 Orbiter aft bulkhead handrails removed, but LMC installation not accomplished.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>M072-002113-003 and M072-002113-004 latch cap bolt MD111-4026-1635 torque to 20 +/- 5 ft-lbs.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Prepared by: Jeff McRoberts  
USA RV/DR  
861-2505  
10/15/2008