



# STS-125 FLIGHT READINESS REVIEW

## Flight Operations and Integration (FO&I) Status

April 20, 2009



**Chuck Shaw**  
 Mission Director  
 281-483-5416



### FO&I Agenda

Presenter	MO/Chuck Shaw	
Date	April 20, 2009	Page 2

- **Changes since October, 2008**
  - Mission Overview
  - Payload Bay Launch configuration
  - Requirements & Documentation Status
- **Payload Readiness**
  - **HST Payload Readiness – Preston Burch**
  - ICBC3D/High Definition Camcorder Payload Readiness
- **STS-125 Payload Bay, On-Orbit Engineering, Middeck**
  - Payload/Cargo Engineering Status
  - On-Orbit Engineering Status
  - Middeck Engineering Status
- **Accepted Risk Hazard Report Summaries**
- **Previous Mission In-Flight Anomalies**
- **Open work - Summary**
- **STS-125/HST SM4 Readiness Statement**
  
- **STS-400 Readiness**
  - Requirements
  - Cargo Bay Configuration
  - Mid-Deck Engineering



<b>Significant changes since October, 2008</b>	Presenter <b>MO/Chuck Shaw</b>
	Date <b>April 20, 2009</b> Page <b>3</b>

- **Replacement Science Instrument Command and Data Handler (SI C&DH) assembly has been added to the HST payload compliment:**
  - **No changes required to the Orbiter PLB Configuration**
    - **Mounted on aft face, stbd side, of Multi-Use Lightweight Equipment Carrier (MULE)**
    - **PL arrived at Pad A on April 18th**
    - **No issues with the updates to the Cargo Engineering**
  - **Mission Priorities, Flight Rules, Timelines, Procedures, Training and KSC operations have incorporated the SIC&DH update.**
    - **PSRP has been fully engaged, two ARHRs have been updated (no issues)**
- **Late Inspection operations have been updated, and an Orbit Adjust has been baselined in the timeline**
  - **Updated inspection operations have increased detection capability to lower MMOD risk**
  - **Orbit Adjust reduces MMOD risk**
- **STS-400 crew assignment updated to the STS-126 crew (Ferguson, Boe, Bowen, Kimbrough)**
  - **Maintains training benefits of assigning a recently flown crew**



<b>STS-125 Flight Overview</b>	Presenter <b>MO/Chuck Shaw</b>
	Date <b>April 20, 2009</b> Page <b>4</b>

Orbiter	OV-104 (FLT 30)	Cryo Tank Sets	5 ( Fully Loaded )
ET	<b>ET-130</b>	RMS	Installed
SRB	<b>BI-137</b>	Misc. Equipment	ODS/OBSS/5 N2 Tks
SSME	2059, 2044, 2057	OMS Load	25,063 ( 100 % )
Throttle Profile	104.5/104.5/72//104.5	FWD RCS Load	2,446 ( 100 % )
Software	OI-32 (FLT 5)	AFT RCS Load	4,970 ( 100 % )

LAUNCH / ASCENT		ORBIT		NEOM LANDING	
Date	<b>May-12-09</b>	Altitude	304 nm	Date	<b>May-23-09</b>
Time	<b>13:11 EDT</b>	Duration	11 + 0 + 2 days	Time	<b>09:58 EDT</b>
	<b>Planned Launch:</b>	Grapple:	<b>May 14 10:17 CDT</b>		10 / 20 : 47 : 00 MET
	<b>13:31 EDT</b>	( Daylight )			( Daylight )
Window	<b>66 mins (46)</b>	EVA	5 Scheduled	Runway	KSC 15
APM* <b>-560* lbs (CMR is another -440)</b>		1 Unscheduled			
Inclination	28.45 deg.	Release:	<b>May 20 06:15 CDT</b>		
Insertion	Direct to 297 nm	Deorbit Rev.	165		
PAD / MLP	39A / 2	Deorbit TIG	10 / 19 : 37 MET		
TAL Sites	MRN				

PAYLOADS		CREW	
Deploy	HST-SM4 (new hardware)	Schedule	( Single Shift )
Retrieve	HST-SM4 (replaced hardware)	Commander	Scott D. Altman (4th Flt)
Non-Deploy	HST-SM4 (Carriers)	Mission Specialist	Michael J. Massimino (2nd Flt)
	ICBC-3D (IMAX)		Megan McAuthur (1st Flt)
Crew Module	HST-SM4, MAUI, SEITE		Andrew J Feustel (1st Flt)
National Lab Pathfinder Payload (NLP-Vaccine-1C)			Michael T Good (1st Flt)
Short Duration Bioastronautics Investigation (SDBI-1634)			John M. Grunsfeld (5th Flt)
Unique Configs: Battery Cooling, GN2 purge, and APCU			Gregory C Johnson (1st Flt)
Payload Wt Up/Down <b>22,544 lbs* / 21,750 lbs*</b>		DTO 695 (Thrust Oscillation Seat)	
		DTO 805 (Crosswind Landing)	
		DTO 900 (RSRB Chmbr P., strain gage, Accel) rates)	

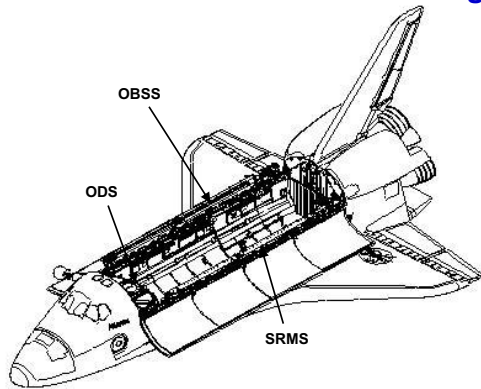
\* Source document:s HST Mass Properties Report, Rev S, 1/12/09 and 3/24/09 Greenbook



**No changes to the Orbiter's Payload Bay Configuration**

Presenter **MO/Chuck Shaw**

Date **April 20, 2009** Page **5**

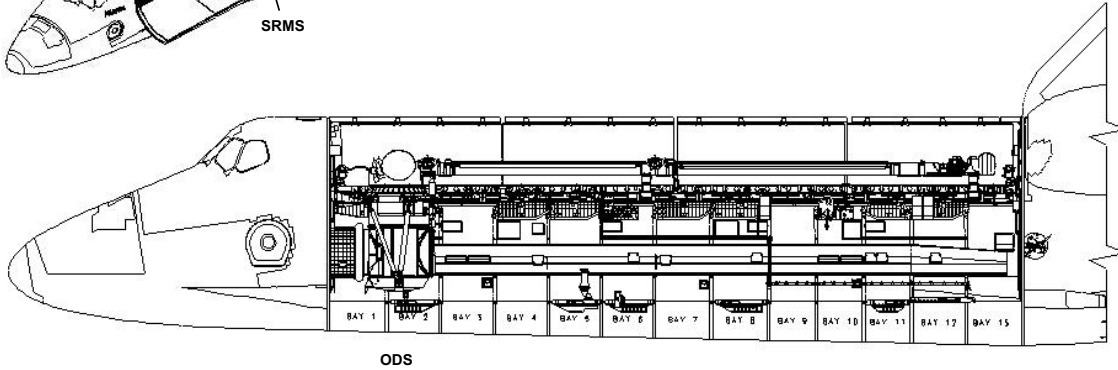


**PAYLOAD BAY PAYLOADS:**

None

**SUPPORT HARDWARE:**

- |           |                                       |
|-----------|---------------------------------------|
| APC (2)   | Adaptive Payload Carrier              |
| APCU (2)  | Assembly Power Converter Units        |
| LWTSA (2) | Lightweight Tool Stowage Assembly     |
| MFR       | Manipulator Foot Restraint            |
| PFR       | Portable Foot Restraint               |
| RSC       | RMS Side View Camera                  |
| SPDU      | Space Station Power Distribution Unit |



Pre-Decisional. Internal Use Only.

**Science Instruments**  
**Command and Data Handler**

Soft Capture Mechanism  
 Cosmic Origins Spectrograph  
 Rate Sensor Units  
 Fine Guidance Sensor  
 ICBC  
 Batteries

Wide Field Camera 3

Multi-use Logistic Equipment Carrier  
 Flight Support System  
 Orbital Replacement Unit Carrier  
 Super Lightweight Interchangeable Carrier

Replacement SI C&DH hardware was added to the aft starboard face of the MULE

No changes required to the Orbiter's PLB Configuration



## Updated 125/HST SM4 Mission Priorities

Presenter	MO/Chuck Shaw	
Date	April 20, 2009	Page 7

1. RSUs(3) (Rate Sensor Units/2 Gyros each unit)
2. WFC3 (Wide Field Camera 3)
3. [SI C&DH \(Science Instruments Command & Data Handling\)](#)
4. COS (Cosmic Origins Spectrograph)
5. Battery Modules Bay 3 and Bay 2
6. [STIS \(Space Telescope Imaging Spectrograph\) or ACS \(Advanced Camera For Surveys\) Repair](#)
7. FGS 2 (Fine Guidance Sensor)
8. [Remaining Instrument Repair](#)
9. NOBLs 8, 5, 7 (New Outer Blanket Layer)
  - NOBL 8 (EVA 4), NOBL 5 (EVA 5), NOBL 7 (Get Ahead Task)
10. SCM (Soft Capture Mechanism)
11. Reboost

NOTE: SMD letter received updating priorities. HST PIP and Flight Rules updated



## SSP Requirements and Documentation Status

Presenter	MO/Chuck Shaw	
Date	April 20, 2009	Page 8

Except as noted below, there are no open or pending CRs against the following STS-125 Shuttle Program Requirements Documents:

- Volume III Flight Definition & Requirements Directive (FDRD) NSTS 07700, Volume III
- Flight Requirements Document NSTS-17462-125
- HST SM4 Payload Integration Plan (PIP) (NSTS 14009)
  - [ICD PIRN A05727 Static Bonding Non Compliance update \(Section 20\) – ECD 4/29/09](#)  
(No technical issue. CoFR Exception required due to schedule for completing work)
- IMAX 3D PIP (NSTS 21417)
- MAUI PIP (NSTS 21530)
- SEITE PIP (NSTS 21542)
- FTSOD - (NSTS 16725)
  - SDBI 1634 Sleep short
  - National Laboratory Pathfinder (NLP)- Vaccine-1C