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# **STS-118 MOD FRR FLIGHT DESIGN AND DYNAMICS**

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# Shuttle CoFR Status Summary

MOD Requirements Codes *	DM	USA FDD		
CRITICAL PROC./APPL	G	G	G	Ready to support flight or standard open work
NON-CRITICAL PROC/APPL	G	G		
FD-TRAJECTORY	N/A	G		
FD-ANALYST CERT	N/A	G		
FD-CTF	N/A	Y		
FDF	Y	G		
EMCC	G	G		
TRNG-MCC/POCC	G	Y		
FTP-NEW OPS	G	G		
FLIGHT ANOMALY RES	Y	G		
ANOMALY-PROCEDURE	Y	G		
EX/AI FROM PRIOR REVIEW	None	None		
NO CONSTRAINTS	None	None		
LEVEL II ACTIONS	None	None		
MISSION REQUIREMENTS	G	G		
CMD PROC	G	Y		
FPPP REQ MET	Y	Y		
CONTRACTOR PROCESS INSIGHT	G	N/A		
			R	Open work without expected resolution
			Y	Non-standard open work with expected resolution
			N/A	Does not apply
			None	None identified

\* as defined in DA8-020 "MOD Certification of Flight Readiness Process" document

# Mission Overview Summary

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- **Insertion Altitude / Inclination**                      122 nm / 51.6 deg
- **First Stage Design Criteria**                      DOLILU II / High
- **FRR Launch Window Open(10 min.)**              August 9, 2007              22:05:54 GMT (18:05:54 EDT)
  - **Note: August 7 Launch Window Open (10 Min.) is 22:54:09 GMT (18:54:09 EDT)**
- **FRR Launch Window Close (10 min.)**              August 9, 2007              22:15:53 GMT
- **FRR Landing Time (KSC)**                      August 20, 2007              18:19:00 GMT (14:19:00 EDT)
  
- **I-load Design APM**                      2334 lbs (APM above a 5 minute window centered at in-plane)
- **Projected APM\***                      1885 lbs (APM above a 5 minute window centered at in-plane)
  
- \* **Based on 06/22/07 APM simulation.**
  
- **Launch hold capability inside of drainback is dependent upon actual DOL performance. Abort coverage has sufficient overlap from liftoff to MECO.**

# Significant Requirements Changes Since Design Baseline

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- **Launch Date from NET 05/01/07 to 08/09/07**
- **Launch Date from 08/09/07 to 08/07/07 approved at 6/28 PRCB**
  - **Change being incorporated in L-30 day products and deliveries**
- **OMS load change to 24,860 lbm**
  - **Optimizes load for the OMS mixture ratio**

# Significant Mission Firsts And Unique Items

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- **First Flight for 3-String GPS (Special Topic in GAF section)**
  - No Flight Design issues
- **First flight of OV-105 post-OMM**
  - No Flight Design-related issues identified with vehicle
- **First flight of OI-30 FSW on OV-105**
  - Not first flight of OI-30. No Flight Design issues or concerns
- **First flight of Station Shuttle Power Transfer System (SSPTS)**
  - Planning reflects a nominal 11 day mission without SSPTS
  - Upon SSPTS activation and checkout, expect mission to be extended by 3 days
- **First mission with 5 contingency days for planning (mission duration of 11+3+2)**
  - No Flight Design issues

# Significant Mission Firsts And Unique Items - concluded

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- **First flight of DOLILU Operations performed on Linux IPS workstations**
  - No issues; details on p. 11
- **First flight to use HR AMPS Balloons as prime for DOLILU Operations**
  - No issues; details on p. 11
- **First Flight of Traj Server V11.0.2.4**
  - No issues; details in GAF charts

# Exceedances And Deviations

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## Deviations/Violations

- None
- Contingency Abort Black Zone Assessment was not required
  - Liftoff mass properties did not exceed the NSTS-07700 Vol. III criteria (Weight > 259,000 lbm. And Xcg > 1115.0 in.)
    - FRR cycle Liftoff Weight = 266,244 lbm, Xcg = 1111.0 in.
- No-Dock UPR PLS Thermal Assessment
  - Five out of sixteen trajectories had TSEP heat load violations using the Nominal EOM limit, but were less than the ATO limit. Since the TSEP violations were less than the ATO limit, Boeing Orbiter agreed these trajectories did not require further assessment.



# Exceedances And Deviations (continued)

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## Previous Mission Anomalies

- **Previous mission (STS-117)**
  - **During STS-117, data from Dryden (FDRC) showed variable time biases due to use of newer Radar Information Processing System (RIPS)**
    - RIPS S/W fixed and successfully used later during the flight
    - Data Enhancement System (DES) available for use if needed
  - **Fix for delayed data receipt (data burst) implemented, no issues reported on STS-117**
  - **FOV-1 refraction correction workarounds still in effect**
    - Workaround procedures documented in AEGNAV5B and AEGNAV11
  - **GDR Data Dropouts during ascent (IFA MOD-117-005, AR 051205: details in GAF charts)**
  - **Miscommunication on ISS solar array positions for undocking. AR 2454 written and closed; no DM actions (details in GAF charts)**

# Exceedances And Deviations (concluded)

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- **Significant ARs**
  - **None**

# Special Topics

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- **First flight of DOLILU Operations performed on LINUX IPS workstations**
  - **Significant user end-to-end testing and Integrated System Verification Testing has been completed with results equivalent to the AIX platform**
  - **Two weather sims have been supported on the LINUX MPSR with no issues (01/30/06 and 03/27/06)**
  - **USA Flight Critical Software Certification Review and FDD, AEFTP and SICB Operational Acceptance Reviews completed by 04/10/07**
  - **AIX will be used as backup if any problems arise during the STS-118 TCDT / L-3 weeks system checkout**
- **First flight to use HR AMPS balloons as prime for DOLILU Operations**
  - **STS-117 was the second of four AMPS transition flights**
    - **Used Jimspheres as prime with AMPS as backup**
    - **AMPS backup balloon was used for the L-4:50 I-Load assessment with no issues**
  - **Overall reliability has been observed to be similar to the Jimspheres**
  - **Jimsphere balloon data will be used as backup if needed**

# Non-Conformance Reports and Open Risk Assessments

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- **Non-Conformance Reports (NCR)**
  - **None**
- **Risk Assessments**
  - **None**

# Issues and Concerns

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- None

# Exceptions and Standard Open Work

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- **Exceptions**
  - None
- **Standard Open Work (complete listing in backup charts)**
  - All open work is scheduled to be completed per standard flight template
  - Dates adjusted for an 08/07/07 launch date
  - No issues have been identified

# CAF Non-Standard Open Work

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- **Non-standard Open Work (continued)**
- **OCR/D S164080CB closure** **7/13/07**
  - TSEP violations from Commit-to-flight assessment
  - AOA trajectory was sent to Boeing for clearance; expect closure on 7/13/07 with no issues
- **Certification – Landing Analysts** **7/13/07**
  - Certified backups available if needed
- **ET/SRB Load Indicator Margin Update** **7/19/07**
  - Program-directed Database update only
  - PRCBD S052189FT (5/29/07): Revise CMM-00196, ET SLWT Load indicators to reflect revised roll maneuver loads
  - Presented to SSEIG for implementation for STS-118 (AI #070618-D01)
  - No issues or concerns

## CAF Non-Standard Open Work - concluded

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- **Certification - DOL Operator** **7/19/07**
  - Certified backups available if required
- **Certification – DOL Loads QA** **7/19/07**
  - Certified backups available if required



# STS-322 Rescue Mission Status

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- **Flight Design has completed a flight-specific Ascent/Entry design cycle for the first OI-32 LON build on OV-103**
  - **Level A GR&C approved April 9, 2007**
  - **Software Production Facility (SPF) inputs provided June 12, 2007**
  - **I-Load patch approved on June 21, 2007**
- **All pre-callup products will be delivered per the established schedule – no issues identified**
  - **All facility support products will be completed prior to STS-118 launch**
- **Console staffing will be defined post callup - no issues anticipated**
- **FDD Level 5 schedule includes all standard Uplink and DOL products/milestones beginning with the Uplink TDDP at L-30 days**
  - **Will be implemented post-callup - if required**
- **MOD-developed post-callup production schedule will be implemented - if required**
- **Launch date is currently NET 10/05/2007**

# STS-118 Flight Design and Dynamics Readiness Accountability Statement

☑ **Software** : All software used to create mission products, and MCC software required for mission support including related ISS software and designated critical processors meets generic and mission-specific Program requirements, and is maintained under configuration control in accordance with the FDD Software Management Plan.

☑ **Flight Software** : All flight software Principal Functions (PFs) owned by FDD are ready for flight. All Discrepancy Reports and Program Notes and Waivers related to USA-owned PFs have been reviewed and appropriately dispositioned for this flight.

☑ **Anomaly Resolution** : All anomalies that could impact mission support have been closed, or have accepted and approved work-arounds in place.

☑ **Production** : All flight reconfiguration products and real-time console support products meet generic and mission-specific Program requirements.

☑ **Operations** : All mission support personnel are or will be certified and current prior to supporting mission related activities.

*The FDDOC Flight Readiness Review Process Plan (USA009229) and the Flight Operations Flight Preparation and Readiness Plan (USA008977; Appendix D and E) which defines the processes and products required for a successful flight have been executed and the applicable Program CoFR requirements satisfied.*

The undersigned certify that the Flight Design and Dynamics Department, upon satisfactory resolution of any noted exceptions, is ready to support flight STS-118.

<b>Flight Design and Dynamics</b>	<b>A. F. Najarian Director</b>	Original signed by A. F. Najarian signature	01/24/07 date
<b>Flight Design and Dynamics Software</b>	<b>F. M. Hamilton Software Project Manager</b>	Original signed by F. M. Hamilton signature	01/24/07 date
<b>Ascent/Descent Flight Design</b>	<b>D. J. Brockway Manager</b>	Original signed by D. J. Brockway signature	01/24/07 date
<b>Orbit Flight Design</b>	<b>R. M. Hill Manager</b>	Original signed by R. M. Hill signature	01/24/07 date
<b>Navigation &amp; Flight Design Integration</b>	<b>G. E. Schrage Manager</b>	Original signed by G. E. Schrage signature	01/24/07 date
<b>Trajectory Operations &amp; Software Development</b>	<b>F. M. Hamilton Manager</b>	Original signed by D. K. Mains II for signature	01/24/07 date
<b>Management &amp; Engineering Services</b>	<b>A. T. McDowell Manager</b>	Original signed by A. T. McDowell signature	01/24/07 date

# FLIGHT DESIGN AND DYNAMICS DECLARATION OF COMPLIANCE WITH CoFR ENDORSEMENT REQUIREMENTS FOR STS-118 FLIGHT READINESS

- ☑ **Software** : All software used to create mission products, and MCC software required for mission support including related ISS software and designated critical processors meets generic and mission-specific Program requirements, and is maintained under configuration control in accordance with the FDD Software Management Plan.
- ☑ **Flight Software** : All flight software Principal Functions (PFs) owned by FDD are ready for flight. All Discrepancy Reports and Program Notes and Waivers related to USA-owned PFs have been reviewed and appropriately dispositioned for this flight.
- ☑ **Anomaly Resolution** : All anomalies that could impact mission support have been closed, or have accepted and approved work-arounds in place.
- ☑ **Production** : All flight reconfiguration products and real-time console support products meet generic and mission-specific Program requirements.
- ☑ **Operations** : All mission support personnel are or will be certified and current prior to supporting mission related activities.

**Requirements Compliance:** All requirements defined by the documents below (as required by the FIDP Compliance Matrix) have been or will be satisfied prior to flight.

<u>DOCUMENT</u>	<u>VERSION</u>	<u>DATE</u>
Flight Implementation Data Pack (FIDP) - Generic	GENERIC-HW	1/30/07
Flight Implementation Data Pack (FIDP) - Flight Specific	117-BASE2 AV	2/01/07

## Waivers & Exceptions:

**None**

*The FDDOC Flight Readiness Review Process Plan (USA009229) and the Flight Operations Flight Preparation and Readiness Plan (USA008977; Appendix D and E) which defines the processes and products required for a successful flight have been executed and the applicable Program CoFR requirements satisfied.*

*Pending completion of open work and closure of noted exceptions, if applicable, Flight Design & Dynamics Operations Center is ready to support STS-118.*

*original signed by A. F. Najarian 07/02/07*

**Director** **Date**  
**Flight Design & Dynamics**  
**Operations Center**

## DM Flight Design and Dynamics (Trajectory Operations) Significant Mission Firsts And Unique Items

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- **First docking with two outboard arrays in place (minor concern for increased Radar wander)**
- **Info: Third flight with no lighting constraints for launch**
  - **Umbilical photos lit 8/5/07 through 9/10/07**
    - **+X translation after ET sep will be performed**
    - **Photos meet STS-115 FRD reqts 8/13/07 through 8/30/07**
  - **Hand-held photos lit 8/5/07 through 9/15/07**
    - **Photos meet STS-115 FRD reqts 8/28/07 through 9/13/07**

# Exceedances And Deviations

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## Previous Mission Anomalies (STS-117)

- **GDR Data dropouts on Trajectory Displays during STS-117 ascent (IFA MOD-117-05, AR 051205, FDD AR 2007-CAF050)**
  - From -17:00 to 47:00 MET, Trajectory Application Officer (TAO) observed numerous Generalized Data Retrieval (GDR) backlog messages & the Ascent team reported data dropouts
  - After a GDR restart by Data Acquisition performed by TAO at 52:00 MET, the GDR Display updates returned to normal about a minute later.
  - Dropouts did not impact ability to make flight calls so aggressive corrective action was not taken.

# Exceedances And Deviations

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## In-Flight Investigation

- Traj Server personnel evaluated GDR log files from STS-117 Ascent
  - Observed significant time gaps in back-to-back GDR transactions
  - Confirmed through comparison with data from:
    - STS-117 Ascent Simulation #6 – similar signature observed
    - STS-121 & STS-116 Ascents
  - Time gap determined to be cause of W/S dropouts
- MSOC personnel evaluated: LAN performance, TRS2 performance logs, NFS File System, TRS2 disk fragmentation and found no issues.

## In-Flight Mitigation Action Taken for Entry Phase

- Selected over to TRS3 prior to L-1
  - Saw a reduction from 60 ms (TRS2) to 40 ms (TRS3) for ave write time
- Developed procedure for TAO if backlogs re-occurred
- Performance indicators were nominal during entry.

# Exceedances And Deviations

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## Post-flight Investigation

- **Piggy-backed STS-118 generic ascent (TRS 11.0.2.4)**
  - 5 sub-runs
  - Cycled through all 3 servers (TRS1, TRS2 and TRS3)
  - Overloaded GDR sub-runs 2 through 5
    - ~300 GDR transactions
    - 1250 kb of data
  - Results: No data dropouts and No unexpected backlogs
- **Piggy-backed STS-117 generic ascent (TRS 10.1.0) – July 5th**
  - Reproduce GDR load environment at launch
  - Reproduce problem so can isolate to hardware or software
    - Develop optimum mitigation plan for STS-118
  - Results still being analyzed; 3 of runs = TAL cases, problem not created
  - An ATO run showed possible symptoms; logs need to be studied.

# Exceedances And Deviations

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## Current Status

- **Current mitigation plan is to inhibit GDR logging (under review)**
- **The nature of the problem has not been isolated to either software or hardware at this time**
- **TRS3 will be the primary server for STS-118; this is the normal flight rotation for the servers**



# Exceedances And Deviations

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## Previous Mission Anomalies (STS-117)

- **GPS “YETI” occurred during STS-117 on 6/21 (MOD AR 2469 written)**
  - “YETI” = Y-code Erroneous Tracking Incident
  - “YETI” is a known problem in the GPS firmware (DR110646) which results in a hardware channel being unable to acquire precise Y-code signals
  - STS-117 entry team fixed the “YETI” condition by executing a GPS re-initialization per program-approved OPS note.
  - GPS performance was nominal following re-initialization and was used to update PASS and BFS nav during entry.

# Special Topics

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- **First 3-string GPS Mission**
  - **GPS will be incorporated in the PASS during entry as a TACAN replacement**
    - **BFS Nav state will be maintained with PASS state vector transfers**
    - **GPS Nav accuracy has been very good during ramp-up missions (STS-121, STS-115, STS-116, STS-117)**
  - **FS Rule 13A.1\_A8-1: GPS Operational Ramp up Guidelines**
    - **GPS to Auto in OPS 201 post undock for 6 hrs**
    - **PASS GPS to Auto during MM301, inhibit for MM 302/303**
    - **Resume GPS to Auto when confirmed by high speed tracking during MM304**
  - **Worked with DT to have desired GPS malfunctions inserted into integrated sim scripts for flight controller and crew training**
    - **Ascent/entry team is very proficient in responding to GPS faults**
  - **Console Handbook Procedures updated**

## Special Topics (continued)

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- **First 3-string GPS Mission (concluded)**
  - Analysis of sim and SAIL test data led to changes in GPS I-load values
    - Tighter BFS QA2 velocity limit to bound Nav walkoff (118 & subs)
    - No staleness in PASS selected GPS state for IMU dilemma case (120 & subs)
  - 3-string Launch Commit Criteria (CT-11) approved
    - Two of three GPS LRUs required for launch if high-speed tracking scheduled for EOM
  - Data Collection Update (FRD 17462-118-0071)
    - All three receivers will be powered ON throughout the mission to perform engineering evaluation of all strings prior to use during entry
    - GPS Antenna Gain Pattern data gathering will require GPS 1 Upper and GPS 3 Lower Preamps to be powered off for 24 hrs during undocked portion to characterize the antenna pattern for GPS 1 & 3

## Special Topics (concluded)

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- **Lots of ballast required for EOM (after ESP3 transferred to ISS)**
  - Approximately 3200 lbm OMS ballast
  - Simmed protecting large ballast
- **New Software**
  - **First flight on Traj Server version 11.0.2.4: ARD re-set capability (SR 53702)**
    - Allows ARD to be re-set in event bad data gets into the processor
    - Exercised by Ascent team during integrated sims & testing
  - **First flight on ROSS 9.2: ISP multi-sample fixes for ATV**
  - **First flight of Archive Server version 6.0**
- **PMA-3 Relocation: delayed until post STS-118/13A.1 (currently ISS port side)**
  - All rndz procedures & tool configs assume current location
  - If launch slips & PMA-3 relocated to nadir CBM, RGPO would require a late update to RPOP PGSC config & a 482 to Rndz FDF

# Issues And Concerns

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- **Issues**
  - **None**
  
- **Concerns**
  - **Space Control Center move from Cheyenne Mt. To Vandenberg (details in TOPO charts)**

# Exceptions and Standard Open Work

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- **Exceptions**
  - None
- **Standard Open Work: (complete listing in backup charts)**
  - All open work is scheduled to be completed per standard flight template
  - No issues have been identified

## Non-Standard Open Work

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- **Ascent FDO Console Handbook PCN-3** **7/24/07**
- **Ascent Checklist: PCN-2 in work (waiting for translation)**
- **Entry Checklist (Generic): PCN-2** **7/17/07**
- **Rendezvous Checklist: PCN-1 to print** **7/16/07**
- **ISS Reboost Planning** **8/02/07**

# STS-118 Flight Design & Dynamics Division Readiness Statement

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The Flight Design and Dynamics Division has performed the reviews necessary to assess the flight readiness relating to flight design requirements definition and trajectory operations. We have determined all applicable responsibilities acceptable for flight pending closure of the identified open work and issues.

*original signed by B. A. Conte 7/9/07*

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**Barbara A. Conte**

**Chief, Flight Design Requirements and Integration Office**

*Original signed by M. F. Collins 7/9/07*

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**Michael F. Collins**

**Chief, Flight Design and Dynamics Division**

**As compiled by: FDM/S. Staas  
FDO/R. Theis**



# Back-Up

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- **Flight Readiness Open Work**
- **Launch Window “Dot” Chart**
- **Launch Window (separate file)**
- **Abort Regions Chart**
- **Nominal ET Impact Plot**
- **Ascent/Descent Flight Critical Software**

# Flight Readiness Open Work

Item	Responsible	Due Date	Status	Closure Rationale
<b>USA Flight Design Standard Open Work:</b>				
DATA43 FDD FRR Data Pack	FDM	7/3/07	7/3/07	Product delivered
DATA45 FDD FSW PF Sign-off	FDM	7/9/07	7/9/07	Product delivered
FSW Verification Test Results Review	ADFD	7/10/07		
RNDZ/FDO Phasing Plan Meeting	Orbit	7/10/07		
Review of ICHA Report	Orbit	7/10/07		
ONOR29B RNDZ Launch Target Data	Orbit	7/10/07		
ASCT43 MPS Minimum Sigma Level	ADFD	7/10/07		
L-4 week LDO Database Freeze	ADFD	7/10/07		
RNDZ08 RNDZ Phasing Limits	Orbit	7/13/07		
ONOR37B Daily Planar/Phase Windows	Orbit	7/17/07		
ASCT04 Uplink APM	ADFD	7/17/07		
NAVO18B GPO/ONAV Ops Memo	Navigation	7/17/07		

# Flight Readiness Open Work

Item	Responsible	Due Date	Status	Closure Rationale
<b>USA Flight Design Standard Open Work - Continued:</b>				
NAVO16B GPO COTM Data Pack	Navigation	7/17/07		
LDO: L-3 week LDO Checkout/TCDDT Sim	ADFD	7/17/07		
ONOR27 Launch and Landing Data	Orbit	7/19/07		
Orbit MPSR Flight Load Checkout	Orbit	7/23/07		
ASCT44 DOL Uplink I-loads	ADFD	7/23/07		
BuCrit Execution	ADFD	7/27/07		
ONOR29C RNDZ Launch Target Data	Orbit	7/30/07		
Dial Down Decision FIDP	FDM	7/30/07		
ONOR37C Daily Planar/Phase Windows	Orbit	7/31/07		
DSCT17 Landing Site Tables	ADFD	7/31/07		
C-Band tracking Scheduling Message	Navigation	7/31/07		
RNDZ02 RNDZ/Prox Ops Target Drag Characteristics	Orbit	7/31/07		
ASCT99 OMS Assist - ATO Update	ADFD	8/1/07		
RNDZ09 Rendezvous COLA Plans	Orbit	8/2/07		

# Flight Readiness Open Work

Item	Responsible	Due Date	Status	Closure Rationale
<b>USA Flight Design Standard Open Work – Concluded:</b>				
ASCT42 Collision Avoidance Data	ADFD	8/2/07		
ASCT47 Final MCC Trajectory Inputs	ADFD	8/4/07		
DSCT66 Real-Time Support Files	ADFD	8/4/07		
SRB Impact Point Update Memo	ADFD	8/4/07		
Range Safety Launch Window Cutout	ADFD	8/4/07		
Flight Annex Submittal	Navigation	8/4/07		
ASAB32B AME MCC Support Tables	ADFD	8/5/07		
DSCT05 Maximum Crossrange	ADFD	8/5/07		
L-2 day LDO System Test	ADFD	8/5/07		
ASAB-325P1 ARD Bias Tables	ADFD	8/6/07		

# Flight Readiness Open Work

Item	Responsible	Due Date	Status	Closure Rationale
<b>USA Flight Design Non-Standard Open Work:</b>				
Thermal Assessment of AOA/ATO trajectories with September atmospheres	ADFD	6/27/07	7/2/07	Completed; no issues
Discipline Software Update for LDAP	ADFD	7/6/07		
OCR/D S164080CB closure (TSEP violations from Commit-to-Flight assessment)	ADFD	7/13/07		
Landing Analysts certification	ADFD	7/13/07		
ET/SRB Load Indicator Margin Update – Data Change Only	ADFD	7/19/07		
DOL Operator Certification	ADFD	7/19/07		
DOL Loads QA Certification	ADFD	7/19/07		

# Flight Readiness Open Work

Item	Responsible	Due Date	Status	Closure Rationale
<b>Trajectory Operations Standard Open Work</b>				
L-30 HA Server Audit	TOCSS	7/9/07		
CTL Trajectory Data	FDO	7/15/07		
TCDT Checkout in Ops Cert Mode	AE GPO	7/19/07		
DOD Support Readiness	FDO	7/25/07		
FS Orbit FDO Annex	FDO	7/26/07		
Flight Load Checklist Complete	AE FDO	8/3/07		
Flight Load Checklist Complete	Orbit FDO	8/3/07		
Flight Load Checklist Complete	AE GPO	8/3/07		
Flight Load Checklist Complete	LSO	8/3/07		
Flight Load Checklist Complete	DOLILU	8/3/07		
Flight Load Checklist Complete	Entry Support	8/3/07		
Flight Load Checklist Complete	Navigation	8/3/07		
Flight Load Checklist Complete	RGPO	8/3/07		
Flight Load Checklist Complete	Orbit-RNDZ	8/3/07		
Present new ops notes at Trench tagup	TOCSS	DM Trench tag up		

# Flight Readiness Open Work

Item	Responsible	Due Date	Status	Closure Rationale
<b>Trajectory Operations Standard Open Work</b>				
FOE CM Server Audits	J. Bedford	7/10/07		
PERA Pre-Flight Product	PERA Lead	7/31/07		
L-5 HA Server Audit	TOCSS	8/2/07		
Close-to-Launch update to Mass Properties & FDO Console Data Book	FDO	8/2/07		
Real Time Data Transfer Schedule	FDO	8/6/07		
Cargo Transfer Spreadsheet	FDO	8/6/07		

# Flight Readiness Open Work

Item	Responsible	Due Date	Status	Closure Rationale
<b>Trajectory Operations Non-Standard Work:</b>				
ARCSVR 6.0 SAR	TRJSVR	6/29/07	7/2/07	Completed
SAIL MTU Fail test	FDO	6/29/07	6/29/07	Test completed
ARCSVR 6.0 RTO	TRJSVR	7/3/07	7/2/07	Completed
GPO/ONAV MCC Nav display SAR	GPO	7/3/07	7/2/07	Completed
GPONAV 7.1 DA RTO	TOCSS	7/9/07		
MOD FRR Briefing: 3-String GPS Status	FDO	7/11/07		
MOD FRR Briefing: SCC Move to JSPOC	L. Howorth	7/11/07		
Ascent FDO Console Handbook PCN-3	AE FDO	7/24/07		
ISS Reboost Planning	FDO/TOPO	8/2/07		
TRJSVR IFA MOD-117-005 (AR 051205) closure	TRJSVR	8/7/07		



# Flight Readiness Open Work

Item	Responsible	Due Date	Status	Closure Rationale
<b>DM Standard Open Work:</b>				
Abort Readiness Statement	FDRIB	7/18/07		
Orbiter Readiness Statement	FDRIB	7/18/07		
Range Safety Readiness Statement	FDRIB	7/23/07		

The Flight Design and Dynamics Division has performed a final review and determined all Division and USA FDD open work and/or actions for this mission are closed or acceptable rationale is provided for proceeding with the flight.

\_\_\_\_\_  
 Flight Design Manager  
 Date \_\_\_\_\_

\_\_\_\_\_  
 Chief, Flight Design Requirements and Integration Branch  
 Date \_\_\_\_\_

\_\_\_\_\_  
 Director, Flight Design and Dynamics Department  
 Date \_\_\_\_\_

\_\_\_\_\_  
 Chief, Flight Design and Dynamics Division  
 Date \_\_\_\_\_

# Launch Window "Dot" Chart

