STS-107

Prelaunch Mission Management Team (MMT) Review
January 14, 2003

And

Mission Management Team L-1 Day Review
January 15, 2003
Agenda

Introduction Manager, Launch Integration
Mission Operations Director, Mission Operations
APM, Flight Operations, SFOC
EVA Manager, EVA Project
Flight Crew Director, Flight Crew Operations
Space and Life Sciences Director, Space and Life Sciences
Program Integration Flight Manager
Manager, Space Shuttle Systems Integration
Manager, Space Shuttle Customer and Flight Integration
Manager, Space Shuttle KSC Integration
APM, Program Integration, SFOC
Payload Processing Director of ISS/Payloads Processing
External Tank Manager, External Tank Project
RSRM Manager, Reusable Solid Rocket Motor Project
SRB Manager, Solid Rocket Booster Project
APM, SRB Element, SFOC
SSME Manager, Space Shuttle Main Engine Project
Vehicle Engineering Manager, Space Shuttle Vehicle Engineering
APM, Orbiter Element, SFOC
APM, FCE/EVA, SFOC
Ferry Readiness Ferry Operations Manager
Shuttle Processing Director of Shuttle Processing, KSC
APM, Ground Operations, SFOC
Range United States Air Force
DDMS Commander, DOD, Manned Space Flight Support Office
Launch Weather 45th Weather Squadron
Landing Weather National Weather Service
SS SR&QA Manager, Space Shuttle Safety, Reliability & Quality Assurance
Readiness Poll Manager, Launch Integration
STS-107
Prelaunch Mission Management
Team Review

Jeff Dutton
EVA Project Office
Johnson Space Center
January 14, 2003
Manager, EVA Project Office

C. Allen Flynn

Original signed by:

The EVA Project Office certifies there are no constraints to the launch of the STS-107 mission.

- The EVA Project Office has no exceptions.
Space and Life Sciences Directorate
Pre-Launch Mission Management Team

STS-107

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STS
L-2 Mission Management Team
Space and Life Sciences Directorate
All Crew Physicals have been completed or are scheduled.

No Crew Health Concerns.
Habitability and Environmental Factors

- Toxicology
  - No issues for STS-107 L-3 day Water Analyses is in work
  - No issues or problems are expected.

- Microbiology:
  - >1 CFU/100 ml

- Iodine:
  - 6.5 ppm

STS-107 January 3, 2003 Water Analyses

- Water Quality

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- No Space Weather or Radiation Constraints to Launch
- Projected crew exposures within limits.

**Shuttle Crew Radiation Exposure Projections**

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SLSD is ready to support STS-107

Constraints to Launch
- No open Space and Life Sciences issues or

Presented
S. L. Pool

Date: January 14, 2003

STS-107
L-2 Mission Management Team
Space and Life Sciences Directorate
VEHICLE ENGINEERING
ORBITER

January 14, 2003

STS-107

PRELAUNCH MMT REVIEW
FRF Corr Exception Resolution - BSTAT Ball Cracks

To Be Presented

Special Topics

To Be Presented

Waivers and Exceptions

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AGENDA

Organizer/Date: 01/14/03

Presenters:

Doug White

STS-107 PRELAUNCH MMT
WAIVER AND EXCEPTIONS

Orbiter 01/14/03
Organizational/Date:  
Preparer:  

STS-107 PRE-LAUNCH MMT
Shutting power to the strain gauge circuit, eliminating any potential for the SGU battery will remain installed, but not apply excitation. Secondary measurement (V35G90454A) is functional. Flght is not an issue across the fleet — loss of data from one measurement for one Micro SGUs will be flown on an adequate number of flights. The unit will not be programmed for Flight, nor will the unit be downloaded-post-flight. Cannot be verified. V35G90444A (Group 3, Engine 1, Primary), the unit is functionally installed for STS-107. 12 aft fuselage thrust structure micro strain gauge units are EXK10312 Micro SGU Requirements.

FRR:

OMRS Exception Approved at SSVEO VECB Since

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David Ripy
Presenter

- Bstra Ball Cracks

STS-107 PreLaunch MMT Review
Special Topics For The
12 inch feedlines downstream of feedline screens
17 inch feedlines upstream of feedline screens
FOD generation in structural failure of the feedline
Lack of articulation capability of the feedline resulting in:
Failure of ball could result in:
Concern:
Similar design in 12 inch and 17 inch feedlines
Assembly (BSTRA) nearest the LO2 manifold revealed a crack in the ball of the Ball Strut. The Rod
OMRSD inspection of OV-103 17 inch LO2 feedline
Observation:

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Rod Assembly Ball Crack MPS 17” Feedline Ball Strut The

STS-107 Flight Readiness Review
No spalling

- Crack propagation does not create FOD
- FOD from cracked balls
- Binding
  - Friction
  - Joint actuation capability not compromised
  - Load margins remain positive
  - Ball remains intact

Cracks must be self-limiting

Joint performance with cracked balls

Flight rationale based on resolution of two issues

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<td>David Rigby</td>
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STS-107 Flight Readiness Review

MPS 17" Feedline Ball Strut Tie Rod Assembly Ball Crack
Testing Activities
Approaches to Flight Rationale
Build Records and Acceptance Testing of BTRA
Qualification Testing Summary
Vehicle Inspection Summary
MPS Feedline Introduction

Agenda:

MPS 17" Feedline Ball Strut The
Rod Assembly Ball Crack

Date: 01/14/03
David Rigby

STS-177 Flight Readiness Review
MPS Feedline Introduction:

- Structural deflections
- ET umbilical retract (17 inch feedline)
- Dynamic loads
- Pressure expansion
- Cryogenic shrinkage

By allowing the joint to articulate to compensate for:

- BSTRA provides internal structural support to feedline
- BSTRA joints are located in the two upstream joints of each 12 inch engine feedline and all three 17 inch feedline joints

STS-107 Flight Readiness Review

Date:
Orbiter 01/14/03

Presenter:
David Rigby

MPS 17” Feedline Ball Crack

Rod Assembly Ball Crack
<table>
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<tr>
<th>Quantity</th>
<th>Ball Diameter</th>
<th>Feeding Line Description</th>
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<tr>
<td>9</td>
<td>1.25 inches</td>
<td>LH2 12 and 17 Inch</td>
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<tr>
<td>6</td>
<td>1.75 inches</td>
<td>LO2 12 Inch</td>
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<tr>
<td>3</td>
<td>2.24 inches</td>
<td>LO2 17 Inch</td>
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Vehicle Per Ball of Balls Quantity

**Manufacturing**
- Vitrolyte coating
- Cobalt / Chrom / Tungsten Alloy
- Balls are manufactured from Stawy #2
- Cups, Hubs, and Struts are manufactured from Inconel
- Cups
- Pressure carrier, and a ball located inside the hub
- Flow stream by three struts mounted to pads on the hub
- Each BSTRA consists of two hubs, suspended in the hub

**MPS**

**Rod Assembly Ball Crack**

**MPS 177” Feeding Ball Strut**
LO2 Feedline Installation (Foamed, OV-103 and Subs)

LO2 Manifold
Joint Nearest Ball In BSTRA
Cocked

Rod Assembly Ball Crack

MPS 17" Feedline Ball Strut Tie

STS-107 FLIGHT READINESS REVIEW