



# **ISS-7A / STS-104 Flight Readiness Review**

---

## **KSC ISS / Payloads Processing Directorate**

### **ISS-7A**

**Joint Airlock Module**

**Spacelab Logistics Double Pallet**

**High Pressure Gas Tanks (4)**

**IMAX Cargo Bay Camera – 3D**

**Assembly Power Converter Unit (2)**

**Station Power Distribution Unit**



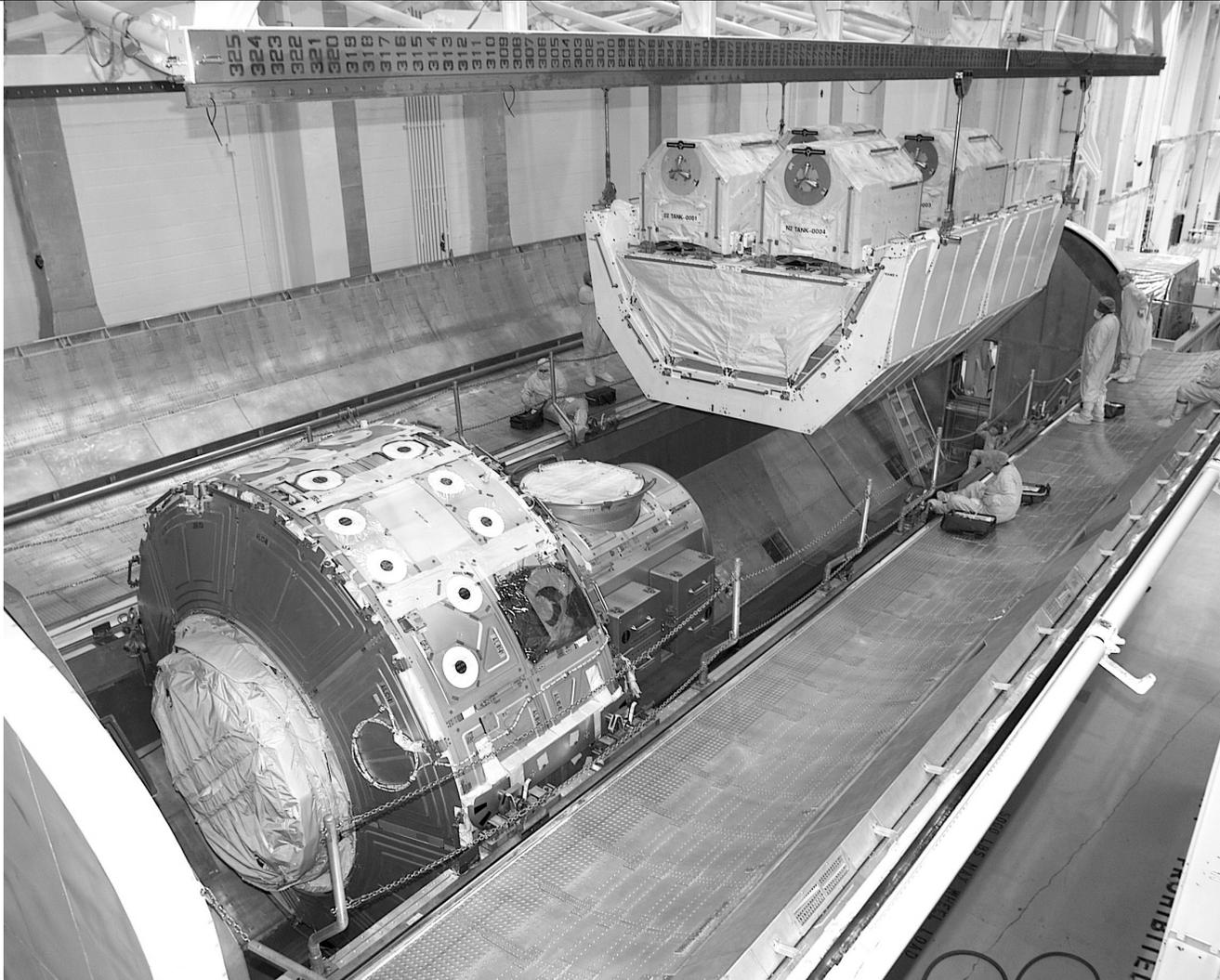
# Agenda

---

- Acronyms In Back-Up
- Hardware Images To Be Briefed
- Processing Milestones To Be Briefed
- Expanded Master Milestone Schedule In Back-Up
- Middeck Experiment Requirements To Be Briefed
- Launch Delay Requirements To Be Briefed
- Engineering Status To Be Briefed
- Special Topic: ICBC-3D Cable Damage To Be Briefed
- Issues / Concerns None
- Readiness Certification To Be Briefed



# Airlock / SLDP / HPGT





# Airlock / SLDP / HPGT





# 7A Processing Milestones

---

## Pad 39B

- Transfer Airlock and SLDP to Pad PCR 22 May (Complete)
- CBM Cover Girth Strap Rework Complete 1 June (Complete)
- Airlock Towel Bar Bracket Rework Complete 12 June (Complete)
- Transfer ICBC-3D to Pad PCR 20 June (Complete)
- Transfer Space Shuttle Vehicle to Pad 21 June (Complete)
- Install ICBC-3D into Orbiter / Electrical Mates 24 June (Complete)
- ICBC-3D IVT 25 June (Complete)
- Install Airlock and SLDP into Orbiter / Electrical Mates 26 June
- Airlock FRGF Installation 26 June
- Airlock and SLDP LTA Heater IVT 27 June
- Payload Bay Closeouts 28 June
- Terminal Countdown Demonstration Test T-0 29 June
- Final Payload Bay Door Closure 29 June
- Micro-WIS Check-out 2 July
- Middeck Experiment Late Stow 11 July
- Launch 12 July



# 7A Middeck Experiment Requirements

<u>Payload</u>	<u>Installation</u>	<u>IVT</u>	<u>Ascent Power</u>	<u>Launch Delay Requirement</u>	<u>Post-Landing Destow</u>
IMAX-3D Film	</= 7 Days	No	No	15 days	Runway
PCG-EGN Dewar (note 1)	</= 24 Hours	No	No	48 Hours	Runway (note 2)
PCG-STES (note 3)	N/A	N/A	N/A	N/A	Runway
CPCF-2 (note 4)	N/A	N/A	N/A	N/A	Runway
ADVASC-GC (note 4)	N/A	N/A	N/A	N/A	Runway
BBND Hard Drive (note 4)	N/A	N/A	N/A	N/A	Runway
CGBA (note 4)	N/A	N/A	N/A	N/A	OPF

## Notes:

1. Ascent only – hardware to be transferred to ISS.
2. Only applicable if ISS transfer does not occur.
3. Descent only – hardware to be returned from ISS. May or may not be powered – will be determined during mission based on Orbiter consumable state.
4. Descent only – hardware to be returned from ISS. Unpowered.



# 7A Launch Delay Requirements

---

## Airlock

- Based on extrapolated off-gas test data, the Airlock atmosphere will reach a T-value of 3 on 17 October, 2001
  - At present, there is no capability to perform a module purge at the Pad
  - Respiratory protection might be required if the T-value is between 3 and 6 at initial Airlock crew ingress
- Emergency Egress Lighting System battery will require recharge on 7 September, 2001
  - At present, there is no capability to charge the battery at the Pad
  - Battery can be recharged on orbit

## HPGT

- Pressure verification is required if launch is delayed beyond 14 October 2001
  - At present, there is no capability to verify HPGT pressures at the Pad
  - The ISSP engineering community has agreed that this requirement can be extended, if required

## ICBC-3D

- Film will “expire” on 23 August, 2001
  - Camera must be removed for film change-out (3 days required off-line for refurb)
  - SLDP/Airlock must be removed from Orbiter to allow for ICBC removal/reinstallation



# 7A Engineering Status

---

## **OMRSD / ACOMC**

- No pending changes
- No open waivers or exceptions

## **Nonconformances**

- All Problem Reports have been closed

## **Procedures**

- All payload processing procedures have either been released or are scheduled to be released and will meet all applicable “on the shelf” requirements

## **Launch Commit Criteria**

- None

## **Certificate of Flight Readiness**

- No exceptions



# Special Topic: ICBC-3D Cable Damage

---

## Problem

- During the installation of the ICBC3D MLI thermal blanket at Pad B on 6/24/01, the Heater Extension Cable (payload to payload interface) strain relief was inadvertently broken

## Action Taken

- The Heater Extension Cable P/N SED39134596-301, S/N 1001 was replaced with S/N 1002 per Discrepancy Report (DR) LICBC0130007
- Four of the ten conductors in this cable (camera window door control) were successfully re-verified during the ICBC-3D IVT
- The remaining six conductors (camera window heater power/control) could not be verified as doing so would require removal/disassembly of the camera

## Flight Rationale

- The heater thermostats were functionally tested during STS-104 offline ICBC3D processing
- The currently installed cable is an identical replacement to the initial cable
- The replacement cable had passed all required NASA/JSC testing including contact retention, insulation resistance, dielectric withstanding voltage, and continuity testing



# Special Topic: ICBC-3D Cable Damage

---

## Flight Rationale (continued)

- The replacement cable connectors were soft-mated and contacts re-inspected before final mating
- The camera window door control conductors within the cable were tested successfully

## Risk Assessment

- The only risks associated with the replacement cable are to payload mission success in the event that the electrical connection is not properly made.
- In the event of an improper electrical connection, the window heaters would not be powered which could lead to condensation on the window in certain mission thermal profile cases

## Status

- The ICBC-3D Mission Manager has elected to “fly-as-is” with this untested interface
- Discrepancy Report LICBC0130007 and the associated Boeing-PGOC Problem Report SS-ST5-104-PLD-P001 have both been closed



# Readiness Certification

---

**Pending successful completion of the remaining scheduled Pad operations, the KSC ISS / Payloads Processing Directorate is ready to proceed with launch and on-orbit stage operations for Launch Package 7A.**



# ISS-7A / STS-104 Flight Readiness Review

---

## KSC ISS / Payloads Processing Directorate Back-Up Material



# Acronyms

---

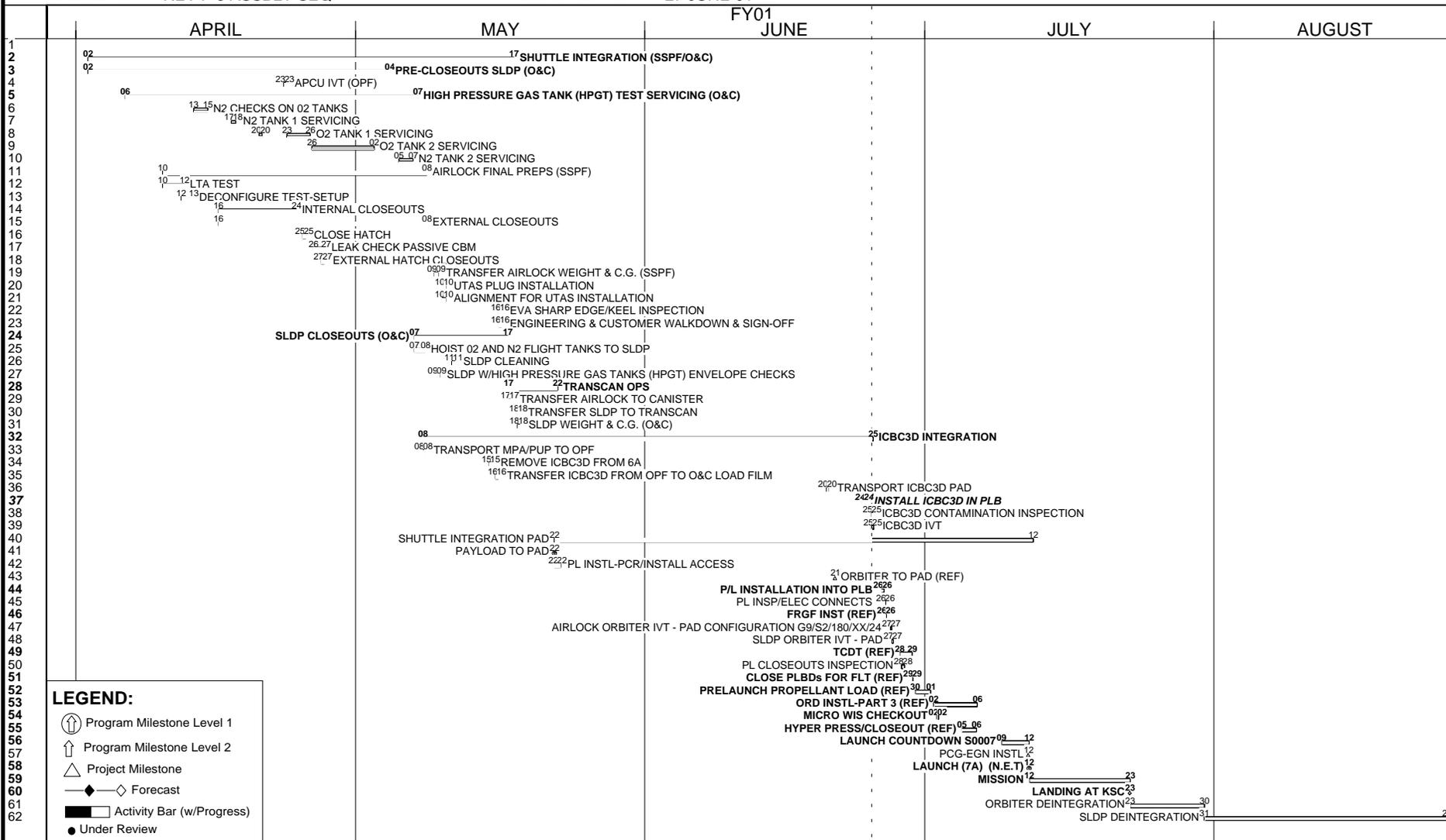
ACOMC	- Assembly, Checkout ,Operations, Maintenance, and Configurations
ADVASC-GC	- ADVanced AStroCulture – Growth Chamber
BBND	- Bonner Ball Neutron Detector
CBM	- Common Berthing Mechanism
CPCF-2	- Commercial Protein Crystallization Facility - 2
CGBA	- Commercial Generic Bioprocessing Apparatus
FRGF	- Flight Releasable Grapple Fixture
HPGT	- High Pressure Gas Tank
ICBC-3D	- IMAX Cargo Bay Camera – 3 Dimensional
IVT	- Interface Verification Test
LTA	- Launch To Activation
PCG-EGN	- Protein Crystal Growth – Enhanced Gaseous Nitrogen
PCG-STES	- Protein Crystal Growth – Single Thermal Enclosure System
PCR	- Payload Change-out Room
SLDP	- Spacelab Logistics Double Pallet
WIS	- Wireless Instrumentation System

# STS-104 ISS-10-7A - AIRLOCK / HPGTs ON SLDP / ICBC3D

## EXPANDED PAD FLOW

NASA: \_\_\_\_\_  
 S. HIGGINBOTHAM  
 BOEING PGOC: \_\_\_\_\_  
 V. CASSELLA  
 BOEING GO: \_\_\_\_\_  
 S. SHANNON

OPF BAY: 2      PAD: B      ORBITER: 104 Atlantis  
 MANIFEST: REV F-3 ASSBLY SEQ      STATUS AS OF: 27 JUNE 01      REV: K



**THREATS:**