



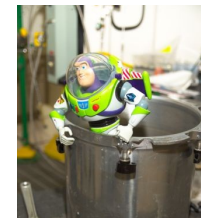


SPACE SHUTTLE MISSIONS SUMMARY

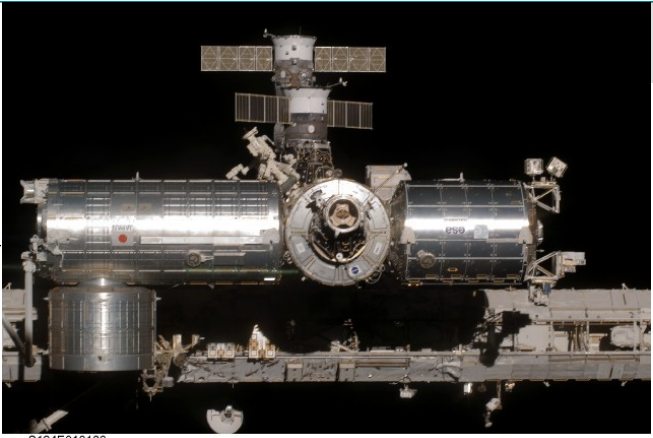

<p>STS-124/ISS 1J</p> <p>SEQ FLT# 123</p> <p>KSC-123</p> <p>PAD 39A-46</p> <p>MLP-3</p> <p>26TH SHUTTLE FLIGHT TO ISS</p>	<p>OV-103 (Flight 35) DISCOVER Y</p> <p>OMS PODS: LPO1-38 RPO3-36 FRC3-35</p>	<p>CDR: Mark E. Kelly (Flt 3 - STS-108, STS-121)</p> <p>P763/R271/V181/M237</p> <p>PLT: Kenneth T. Ham P764/R326/M282</p> <p>MS 1/Robotics: Karen L. Nyberg P765/R327/F45</p> <p>MS 2/EV2: Ronald J. Garan P766/R328/M283</p> <p>MS 3/EV1: Michael E. Fossum (Flt 2 - STS-121)</p> <p>P767/R296/V196/M259</p> <p>MS 4/Robotics: Akihiko Hoshide (Japan) P768/R329/M284</p> <p>MS 5 UP/Stay as EXP 17/18 FLT ENG: Gregory E. Chamitoff P769/R330/M285</p> <p>MS 5 DN/EXP 16/17 FLT ENG: Garrett E. Reisman (Up on STS-123, stay ISS) P770/R325/M281</p> <p>SPECIAL EDUCATOR "Buzz" Lightyear (UP/EXP 18) See "Firsts"</p>	<p>KSC 39A 152:21:02:12Z 5:02:12 PM EDT (P) 5:02:12 PM EDT (A) Saturday (7) 05/31/08 (7)</p> <p>LAUNCH WINDOW: 6M 47S (PLT IN-PLANE)</p> <p>EOM PLS: KSC TAL: MRN TAL WX: FMI</p> <p>SELECTED: RTL: KSC 15 N/N TAL: MRN 20 N/N (ZZA NO-GO) AOA: KSC 15 N/N 1ST DAY PLS: EDT 22 N/N</p> <p>TDEL: 0:000(P) 0.508(A)</p> <p>MAX Q NAV: 715.16(P) 701.98(A)</p> <p>SRB STG: 2:03:36(P) 2:02:56(A)</p> <p>PERF: NOMINAL</p> <p>2 ENG TAL (ZZA): 2:48(P) 2:47(A)</p> <p>NEG RETURN: 3:48 3:55</p> <p>PTA (U/S 159 FPS): 5:19 5:23</p> <p>SE TAL (FMI 104): 6:08 6:13</p> <p>PTM (U/S 180 FPS): 6:18 6:29</p> <p>SE PRESS 104 7:01 7:07</p> <p>MECO CMD: 8:24 8:26.3</p>	<p>KSC 15 (KSC 69) 166:15:15:18Z 11:15:18 AM EDT Saturday (22) 06/14/08 (8)</p> <p>DEORBIT BURN: 166:14:10:12Z</p> <p>XRANGE: 270.2 NM</p> <p>ORBIT DIR: A/L 39</p> <p>AIM PT: NOMINAL</p> <p>MLGTD: 2100 FT 166:15:15:17Z VEL: 209 KGS 208 KEAS HDOT: -2.1 FPS</p> <p>TD NORM 195: 3172 FT</p> <p>DRAG CHUTE DEPLOY: 194 KEAS 166:15:15:20Z</p> <p>NLGTD: 5601 FT 166:15:15:28Z VEL: 155 KGS 148 KEAS HDOT: -7.0 FPS</p> <p>BRK INIT: 77 KGS</p> <p>DRAG CHUTE JETTISON: 54 KGS 166:15:15:59Z</p> <p>BRK DECEL FPS: AVE 4.8 PK 6.3</p> <p>WHEELS STOP: 166:15:16:19Z 11421 FT</p> <p>ROLLOUT: 9321 FT 1:02 M:S</p>	<p>104/104/10 9%</p> <p>PREDICTED: 100/104.5/ 104.5/72 104.5</p> <p>ACTUAL: 100/104.5/ 104.5/72 104.5</p> <p>1 = 2051 (7) 2 = 2048 (8) 3 = 2058 (2)</p> <p>M 3 EOM:</p> <p>WEIGHT: 203604.5 LBS</p> <p>X CG: 1088.03 IN</p> <p>LANDING:</p> <p>WEIGHT: 203558.5 LBS</p> <p>X CG: 1090.00 IN</p>	<p>BI-134 RSRM 102</p> <p>ET-128</p> <p>SLWT 31</p> <p>ET IMPACT</p> <p>MET 1:14:18</p> <p>LAT: 36.362 S</p> <p>LONG: 158.44 9W</p>	<p>51.6 (26)</p> <p>DIRECT INSERTION</p> <p>POST OMS-2: 170.3x125.0 NM</p> <p>DEORBIT: HA 190.6 NM HP 23.3 NM</p> <p>ENTRY VELOCITY: 25866 FPS</p> <p>ENTRY RANGE: 4396 NM</p>	<p>OI-32 (4)</p> <p>CARGO: 41997 LBS</p> <p>PAYLOAD CHARGEABLE: 33969 LBS</p> <p>DEPLOYED: 33890 LBS</p> <p>NON-DEPLOYED: 0 LBS</p> <p>MIDDECK: 79 LBS</p> <p>SHUTTLE ACCUMULATE D WEIGHTS: DEPLOYED: 1456917 LBS</p> <p>NON-DEPLOYED: 1601747 LBS</p> <p>CARGO TOTAL: 3943245 LBS</p> <p>PERFORMANCE MARGINS (LBS): FPR: 2651 FUEL BIAS: 1063 FINAL TDDP: 1308 RECON: 2513</p> <p>PAYLOADS: PLB: ISS 1J</p> <p>MIDDECK: ISS 1J MAUAI</p> <p>5 CRYO TK SETS</p> <p>SRMS (80) ODS, OBSS (Return Only) SSPTS</p>	<p>BRIEF MISSION SUMMARY: STS-124/1J (26th ISS mission) delivered the second and main segment of the Japanese (JAXA) Station Kibo (Hope) Laboratory. This segment known as the Japanese Pressurized Module (JPM) is the ISS's largest laboratory measuring 14.4 feet in diameter and 36.7 feet long. The Kibo complex also includes: An airlock and two robotic arms also delivered on this flight; the Japanese Experiment Logistics Module Pressurized Section (JLP) launched on STS-123; and an exterior platform for experiments exposed to space, scheduled for delivery on STS-127. The STS-124 mission is the first in which the JAXA Flight Control Team activated and control a module from Kibo Mission Control in Tsukuba, Japan. Also, as the STS-124 launch countdown got underway, a special Russian pump was added to Discovery's manifest to fix "a balky toilet" on the ISS.</p> <p>KSC W/D: OPF: 157, VAB HB-1: 7, PAD A: 29 = 193 Total Work Days (+ 13 Holidays @ OPF)</p> <p>LAUNCH POSTPONEMENTS: - Added STS-124 to FDRD - launch date of 02/28/08 on 02/20/07. - Ppd. to 04/24/08 on 04/16/07. Slip due to STS-117 rollback. - Ppd. to 05/25/08 on 03/07/08. Slip due to ET delivery delay and Beta Angle restriction. - Ppd. to 05/31/08 on 04/03/08. Slip due to adverse weather conditions affected on dock delivery date of ET-128.</p> <p>LAUNCH SCRUBS: None</p> <p>LAUNCH WINDOW: Total launch window was 7 minutes 45 seconds with window open at 152:21:01:14Z and close at 152:21:08:59Z. Preferred Launch Time was 152:21:02:12Z (In-Plane Time) for a launch window of 6m47s.</p> <p>LAUNCH DELAYS: None. Launch occurred on time at 152:21:02:12Z, 5:02:12 p.m. EDT, Saturday, May 31, 2008. On launch day, the seabreeze pushed across KSC with showers just west of the launch pad several hours before launch time. However, the seabreeze had pushed west of KSC by early afternoon with near ideal conditions for launch. Thunderstorms were occurring over central Florida but were well outside the 20 nautical mile thunderstorm flight rule limit. "Nice day to send 'Hope' to the ISS" - PAO. Cain: "If you watched today, you saw a flawless countdown."</p>
									
				<p>"Shuttle launch exhaust thrust damaged flame trench and blasted bricks and other debris beyond a perimeter fence some 1,800 feet from</p>					
		<p>Continued...</p>		<p>Continued...</p>					
		<p>Continued...</p>		<p>Continued...</p>					

SPACE SHUTTLE MISSIONS SUMMARY

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FLT	ORBITER	CREW (7)	LAUNCH SITE, LIFTOFF TIME,	LANDING SITE/ RUNWAY, CROSSRANGE	SSME-TL NOM- ABORT EMERG	SRB RSRM	ORBIT		FSW	PAYLOAD WEIGHTS,	MISSION HIGHLIGHTS (LAUNCH SCRUBS/DELAYS,
NO.		TITLE, NAMES & EVA'S	LANDING SITES, ABORT TIMES	LANDING TIMES FLT DURATION, WINDS	THROTTLE PROFILE ENG. S.N.	AND ET	INC	HA/HP		PAYLOADS/ EXPERIMENT S	TAL WEATHER, ASCENT I-LOADS, FIRSTS, SIGNIFICANT ANOMALIES, ETC.)

SPACE SHUTTLE MISSIONS SUMMARY

<p>STS-124/ISS 1J Continue d...</p>	<p>Continued...</p> <p>SS EVA 122 DOCKED QUEST EVA 45 EMU/TETHERED EVA 115 SCHEDULED EVA 113 DURATION 6:48</p> <p>SS EVA 123 DOCKED QUEST EVA 46 EMU/TETHERED EVA 116 SCHEDULED EVA 114 DURATION 7:11</p> <p>SS EVA 124 DOCKED QUEST EVA 47 EMU/TETHERED EVA 117 SCHEDULED EVA 115 DURATION 6:33</p> <p>MCC WHITE FCR (53)</p> <p><u>FLIGHT DIRECTORS:</u> <u>SHUTTLE:</u> ASC - N. D. Knight LD/O1 - M. R. Abbott O2 - M. L. Sarafin PLNG - P. F. Dye/ A. J. Ceccacci ENT - R. S. Jones MOD - J. A. McCullough Team 4 - R. E. LaBrode</p> <p>ISS: LD/O2 - A. P. Hasbrook O1 - R. C. Dempsey O3 - E. J. Nelson Team 4 - B. T. Smith IP FD - H. E. Ridings (I/F w/JAXA)</p> <p>Continued...</p>	<p>Continued...</p> <p>VI: 25819 25820</p> <p>OMS-2: 37:20 37:21 250.7 FPS 249.1 FPS</p>	<p>Continued...</p> <p>WINDS: 0 KT 5 L KTS OFFICIAL: 07007P12 KTS 1H 12L KTS</p> <p>DENS ALT: 1748 FT</p> <p>FLT DURATION 13:18:13:06</p> <p>S/T: 1166:19:10:16</p> <p>OV-103: 305:08:10:09</p> <p>DISTANCE: 5,735,643 sm</p> <p>TOTAL SHUTTLE DISTANCE: 473,659,150 sm</p>	<p>Continued...</p> <p>S124-E-010186 (11 June 2008) --- The Kibo laboratory (center left) is shown attached to the port side of the Harmony Node with: Kibo logistics module at bottom left, Columbus lab at center right, and at top center is</p>	 <p>S124-E-006279 (4 June 2008) --- JAXA astronaut Akihiko Hoshide works in the newly installed Kibo IPM.</p> 	<p>Continued...</p> <p><u>TAL WEATHER:</u> The TAL weather conditions were rather challenging. An upper low had been spinning over Spain for several days, drifting slowly to the northwest. Timing differences in the models made forecasting where precipitation would develop difficult. Initially on L-2 day, NO-GO forecasts were issued for Moron and Zaragoza, Spain with a GO forecast for Istres, France. Shuttle launches require only one of the three TAL sites have GO weather. As the upper low began to finally move to the northwest, forecasts were updated to GO for Moron, but a NO-GO for Istres. On launch day, Moron weather remained favorable and conditions at Istres improved and were GO. Zaragoza was observed NO-GO at TAL landing time.</p> <p><u>PERFORMANCE ENHANCEMENTS:</u> Include the standard set plus: 1) PE Operational High Q TRN/JUN, 2) OMS Assist, 3) A 52 nautical mile MECO, and 4) Del Psi.</p> <p><u>FLIGHT DURATION CHANGES/LANDING:</u> None</p> <p><u>FIRSTS/LASTS:</u></p> <ul style="list-style-type: none"> - First flight of an ET built from scratch with all of the safety modifications stemming from the 2003 Columbia accident. "This essentially is the completed return-to-flight tank," Shannon. - First docking of Shuttle while ATV also docked to ISS. - First OBSS transfer from ISS to Orbiter. - First Post-Undock Inspection (Orbiter heat shield) will be the full "FD2 Inspection" done on previous missions. - First flight of Modified EMU gloves: includes addition of Turtleskin™ patches to thumb and index finger - to provide increased protection against cuts. - A first: NASA and Disney joined forces for education. "Buzz Lightyear," a 12-inch tall action doll, based on the cartoon character from the Pixar Studios Toy Store animated movies was delivered to the ISS for a 6-month stay. While on ISS, Lightyear will demonstrate zero gravity to elementary school children. <p><u>NIGHT LAUNCH:</u> N/A</p> <p><u>RENDEZVOUS:</u> #71 - Rendezvous and dock with ISS</p> <p>Continued...</p>
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SPACE SHUTTLE MISSIONS SUMMARY

STS-124/ISS 1J
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Continued...

CAPCOMS:
SHUTTLE:
A/E - T. W. Virts
- K. A. Ford (Wx)
LD/O1 - N. J. Patrick
O2 - B. A. Drew
PLNG - S. W. Lucid
Team 4 - N/A

ISS:
O1 - M. T. Vande Hei
LD/O2 - C. J. Cassidy
O3/PLNG - M. C. Jensen
Team 4 - N/A



S124E009982

S124-E-009982 (11 June 2008) --- View of ISS configuration post Shuttle sep shows Kibo attached to Harmony at bottom center with first ESA ATV Docked at top center.

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EVENTS:

- Shuttle launch sent asbestos 1,800 feet from pad. The 6 million pounds of thrust from Discovery's engines, channeled by the flame trench, blasted bricks, concrete rubble, and asbestos beyond a perimeter fence some 1,800 feet away. Bricks and some asbestos landed in a retention pond behind the fence. No damage to Shuttle.
- OMS2 ignition at 152:21:39:32.5Z resulted in a 170.3 by 125.0 NM orbit.
- NOTE: SRMS OBSS/LDRI survey of nosecap and port and starboard wing RCC (WLE's) was not performed until post undocking (no OBSS on Shuttle).
- FD2: TI Maneuver at 154:15:16:26.0Z resulted in a 183.9 by 182.2 NM orbit.
- R-Bar Pitch Maneuver was performed. No issues
- FD3: Docking Contact occurred at 154:18:03:20Z
- Hard Dock occurred at 154:18:16:30Z.
- ISS Hatch opened at 154:19:30:00Z, 2:30 PM CDT, Monday, June 02, 2008; welcomed by ISS crew.
- IELK Seat Liner Transfer at 154:22:35Z (5:35 PM CDT, June 2, 2008). At that time Garrett Reisman became a member of STS-124 and Greg Chamitoff joined the ISS Expedition 17 as Flight Engineer.
- FD4: EVA 1: EV1 & EV2: EVA 1 egress was delayed by about 1 hour to reconnect EV1's comm cap - lost comm during pre-breathe. EV1 & EV2, Fossum and Garan, prepared the Kibo (JPM) for its removal from the Shuttle payload bay, disconnecting cables and removing covers. JAXA MS/Hoshide and MS/Nyberg robotically removed Kibo from the Shuttle P/L bay and latched it to Harmony, Node 2. Hoshide noted: "We have a new 'Hope' on the ISS." EV1 & EV2 assisted in the transfer of the OBSS from its ISS stored position (since STS-123) back to the Shuttle. The OBSS would be used with the shuttle robotic arm on FD12 to inspect the Orbiter heat shield. EV1& EV2 also demonstrated a technique that could be used to clean the starboard SARJ, which has had limited capability for several months. EV2 installed a new bearing and EV1 verified by inspection that a spot on earlier EVA's was a divot. This will feed into further analysis of the origin of the damage. EVA 1 duration 6:48.
- FD4: Based on review of launch imagery, the MMT decided that the focused inspection of the Orbiter heat shield was not required.
- FD6: EVA 2 - Garan and Fossum outfitted the outside of the JPM, installing covers and external television equipment and removing thermal covers and insulation on the JAXA RMS and top hatch. They also loosened bolts holding two Nitrogen Tank Assemblies in place on the Station's truss. Those tanks will be swapped during EVA 3. They also retrieved a failed external television camera from the port truss. In addition, Fossum inspected the left SARG, which had been performing perfectly. No shavings or debris were found, but photos were taken to be sent to the ground for review. EVA 2 duration 7:11.

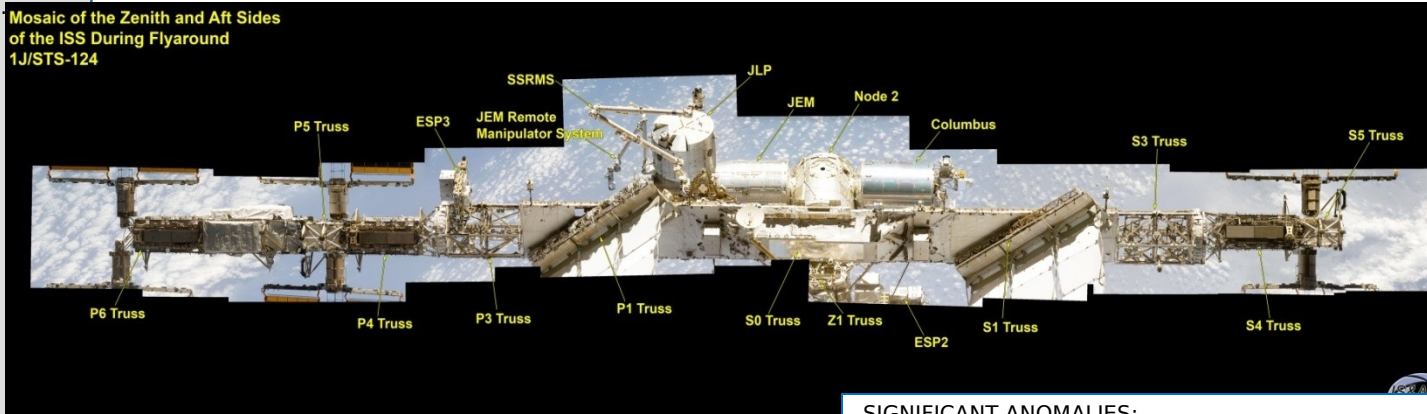
SPACE SHUTTLE MISSIONS SUMMARY

SPACE SHUTTLE MISSIONS SUMMARY

STS-124/ISS 1J

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d. Mosaic of the Zenith and Aft Sides of the ISS During Flyaround 1J/STS-124



SIGNIFICANT ANOMALIES:

Orbiter:

- TCS Dropouts during Rendezvous
- Engine # 2 Dome Heat C/P Tile Damage
- Imagery Showed F3D (V070-421558-024) and F44 (V070-421558-025) Tyvek Rain Covers Released Late
- IMU 1 Z Gyro excessive drift
- The Left Hand ET Door BRI-18 Tile V070-395055-255
- Rudder Speed Brake Thermal Tab found dislodged and floating
- A buildup of ceramic adhesive identified under the Thermal Barrier
- Closed 2 Indication failed to Transfer On when door was closed
- Crew reported difficulty latching the External Airlock Upper Hatch prior to Undocking

KSC:

- STS-124 Pad debris items

SRB:

- STS-124/BI-134rh Data Acquisition System failed to record video and obtained erroneous Accelerometer data

RSRM: None. SSME: None. MOD: None

ET:

- STS-124/ET-128 Post-Launch Camera Film Review showed two foam losses (80971008428-510) on Xt 1129 LO2 Feedline Support Fitting Closeout

Integration:

Continued...

- FD9: EVA 3: Garan and Fossum began the EVA 30 minutes ahead of schedule. The EVA was highlighted by Garan's dramatic robot ride some 80 feet over the top of the ISS to replace a 550 lb nitrogen tank on the starboard truss. The ride was dubbed the "windshield wiper maneuver" or as Mark Carreau (Houston Chronicle) headlined it: "Wild robot-arm ride caps workday at Space Station." Fossum returned to the port SARJ (inspected on EVA 2) taking particulate matter from inside the joint, using a strip of tape that was returned to Earth for analysis. He also removed thermal insulation from the Kibo robotic arm's wrist and elbow cameras and launch locks from one of the Kibo windows and deployed debris shields on Kibo. Other tasks by the pair included: The repaired video camera retrieved on EVA 2 was re-installed and several extra tasks (installation of thermal cover on Harmony, relocation of foot restraint aid, and removal of SARJ launch lock) were conducted. EVA 3 duration 6:33.

- Transfers:

- Hardware transferred to ISS (outside & inside): 34,353 lbs
- Hardware transferred to ISS (inside): 1,787 lbs
- Hardware transferred to shuttle (outside - OBSS): 536 lbs
- Hardware/supplies transferred from ISS (inside): 1,807 lbs
- H2O delivered to ISS: 569 lbs
- O2 used for the 3 EVA's: 92 lbs
- O2 used for "stack maintenance:" 29 lbs
- N2 transferred to ISS: 15 lbs
- FD12: Undocked at 163:11:41:54Z followed by a fly-around (1/2 lap).
- Conducted the late inspection of the Shuttle's heat shield using the OBSS. No issues.
- FD14: Rudder/Speedbrake thermal spring tab was seen floating away from the vehicle during the FCS checkout. The function of the tab is to prevent a flow path for ascent heating and is not required for entry. The TPS was cleared for entry.
- [Post-flight, this issue was presented to 08/07/08 PRCB; decision was made to continue to fly as is. PRCB directed a new ascent thermal environmental assessment to consider flying without the tabs.]
- No communications blackout during Entry

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