

# SPACE SHUTTLE MISSIONS SUMMARY

FLT NO.	ORBITER	CREW (7) TITLE, NAMES & EVA'S	LAUNCH SITE, LIFTOFF TIME, LANDING SITES, ABORT TIMES	LANDING SITE/ RUNWAY, CROSSRANGE, LANDING TIMES, FLT DURATION, WINDS	SSME-TL NOM-ABORT EMERG THROTTLE PROFILE ENG. S.N.	SRB RSRM AND ET	ORBIT		FSW	PAYLOAD WEIGHTS, PAYLOADS/ EXPERIMENTS	MISSION HIGHLIGHTS (LAUNCH SCRUBS/DELAYS, TAL WEATHER, ASCENT I-LOADS, FIRSTS, SIGNIFICANT ANOMALIES, ETC.)
							INC	HA/HP			
STS-92/ISS 3A	OV-103 (Flight 8) (Discovery)	<p>CDR: Brian Duffy (Flt 4 - STS-45, STS-57, STS-72) P591/R142/V94/M126</p> <p>PLT: Pamela A. Melroy P592/R261/F34</p> <p>M/S 1/EV1: Leroy Chiao (Flt 3 - STS-65, STS-72) P593/R179/V125/M157</p> <p>M/S 2/EV2: William S. McArthur (Flt 3 - STS-58, STS-74) P594/R172/V124/M150</p> <p>M/S 3/EV3: Peter J. K. (Jeff) Wisoff (Flt 4 - STS-57, STS-68, STS-81) P595/R166/V110/M145</p> <p>M/S 4/EV4: Michael E. Lopez-Alegria (Flt 2 - STS-73) P596/R202/V163/M175</p> <p>M/S 5: Koichi Wakata (Japan) (Flt 2 - STS-72) P597/R208/V164/M181</p> <p>SS EVA #51 EMU/TETHERED EVA #44 SCHEDULED EVA #45 DURATION 6:28</p> <p>SS EVA #52 EMU/TETHERED EVA #45 SCHEDULED EVA #46 DURATION 7:08</p> <p>Continued...</p>	<p>KSC 39A 285:23:17:00 Z 6:17:00 PM EST 6:17:00 PM EST Wednesday 10 10/11/00 (10)</p> <p>LAUNCH WINDOW: 4:12 USING PLT (IN-PLANE TIME)</p> <p>EOM PLS: KSC TAL: ZZA TAL WX: MRN, BEN</p> <p>SELECTED: RTL: KSC 33 N/N TAL: BEN 36 CI/N AOA: KSC 33 N/N PLS: EDW CI/N</p> <p>TDDEL: 0:00 -0:04</p> <p>MAX Q NAV: 752 748</p> <p>SRB STG: 2:02.6 2:02</p> <p>PERE: NOMINAL</p> <p>2 ENG TAL (BEN): 2:25 2:27</p> <p>NEG RETURN: 3:57 3:57</p> <p>PTA (U/S 282): 4:40 4:41</p> <p>PTM (U/S 282): 5:56 6:05</p> <p>SE ZZA: 6:02 6:02</p> <p>SE PTM: 6:48 6:55</p> <p>MECO CMD: 8:25.3 8:25.6</p> <p>Continued...</p>	<p>EDW 22, CONC EDW 46, CONC 27 298:20:59:42 Z 12:59:42 PM PST</p> <p>Tuesday 16 10/24/00 (8)</p> <p>DEORBIT BURN: 298:19:52:00Z</p> <p>XRANGE: 200 NM</p> <p>ORBIT DIR: AL 26</p> <p>AIM PT: NOMINAL</p> <p>MLGTD: 2656 FT 298:20:59:42Z</p> <p>VEL: 205 KGS 201 KEAS HDOT: -2.9 FPS</p> <p>TD NORM 195: 3287 FT</p> <p>DRAG CHUTE DEPLOY: 188 KEAS 298:20:59:46Z</p> <p>NLGTD: 6504 FT 298:20:59:54Z</p> <p>VEL: 144 KGS 152 KEAS HDOT: -6.7 FPS</p> <p>BRK INIT: 67 KGS</p> <p>DRAG CHUTE JETTISON: 55 KGS 298:21:00:21Z</p> <p>BRK DECELFPSS<sup>2</sup>: AVE 3.5 PK 5.3</p> <p>WHEELS STOP: 298:21:00:49Z 11746 FT</p> <p>ROLLOUT: 9090 FT 67 SEC</p> <p>WINDS: 2009P16 KTS SS: 8H 4L PK: 15H 7L</p> <p>DENS ALT: 3743 FT</p> <p>Continued...</p>	<p>104/104/ 109%</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 = 2045 (3) 2 = 2053 (2) 3 = 2048 (2)</p> <p>ALL BLOCK IIA ENGINES</p> <p>LAT: 2.00 S°</p> <p>LONG: 127.7°W</p> <p>M 3 EOM:</p> <p>WEIGHT: 205188 LBS</p> <p>X CG: 1079.95</p> <p>LANDING: WEIGHT: 205129 LBS</p> <p>X CG: 1081.77</p>	<p>BI-104</p> <p>RSRM 76</p> <p>ET-104</p> <p>SLWT 9</p> <p>ET BRKUP: 283 K</p> <p>ET IMPACT 1:26:22 MET</p> <p>LAT: 2.00 S°</p> <p>LONG: 127.7°W</p> <p>DEORBIT: APOGEE 213 NM PERIGEE 200.9 NM</p> <p>ENTRY RANGE: 4352 NM</p> <p>ENTRY VELOCITY: 25901</p>	<p>51.60 (5)</p> <p>DIRECT INSERTION</p> <p>POST OMS-2: 175.1 x 85.4 NM</p> <p>TI BURN: 1/14:52 MET</p> <p>ORBIT: 206.2 X 200.1 NM</p> <p>DEORBIT: APOGEE 213 NM PERIGEE 200.9 NM</p> <p>ENTRY RANGE: 4352 NM</p> <p>ENTRY VELOCITY: 25901</p>	<p>OI-27 (5)</p> <p>CARGO: 35250 LBS</p> <p>PAYLOAD CHARGEABLE: 28009 LBS</p> <p>DEPLOYED: 21998 LBS</p> <p>NON-DEPLOYED: 4678 LBS</p> <p>MIDDECK: 1333 LBS</p> <p>SHUTTLE ACCUMULATED WEIGHTS: DEPLOYED: 961605 LBS NON-DEPLOYED: 1487225 LBS CARGO TOTAL: 3072373 LBS</p> <p>PERFORMANCE MARGINS (LBS): FPR: 3274 FUEL BIAS: 818 FINAL TDDP: 1532 RECON: 2330</p> <p>PAYLOADS: PLB: ISS-3A ISS Z1 TRUSS CMG'S KU/S-BAND PMA-3/SLP ICBC30 RMS, ODS</p> <p>MIDDECK: DTO EMU H/W EVA TOOLS</p> <p>5 CRYO TK SETS 6 GH2 TKS</p> <p>Continued...</p>	<p>KSC W/D: OPF 197, VAB 10, PAD 21 = 238 days total.</p> <p>LAUNCH POSTPONEMENTS: - Baselined launch date of 7/23/98 on 3/13/97 - Postponed launch to 1/14/99 on 5/27/97. ISS Flight Delays - Postponed launch to 6/17/99 on 6/4/98. ISS Flight Delays - Postponed launch to 12/2/99 on 2/4/99. ISS Flight Delays - Postponed launch to 6/14/00, then to 10/28/99, to 9/21/00, to 10/5/00 due to ISS Service Module Delays</p> <p>LAUNCH SCRUBS: - Scrubbed launch on EST date of 10/5/00 at ET Tanking MMT due to Orb/ET Attach Bolt Protrusion. Launch was scheduled for 9:38:46 PM EST (280:01:38:46Z GMT date of 10/6/00). A Review of STS-106 ET 35 mm film revealed RH Orbiter/ET attach bolt protruding several inches causing concern for bolt contact with Orbiter during sep sequence with potential for a tip load and subsequent ET/Orbiter contact. Film review of additional flights and loads analyses needed to clear STS-92 launch. During recycle, POGO valve #2 did not get an open indication when valve was cycled open. Replaced POGO valve with launch date of 10/9/00. Completed film review and analyses which cleared protruding bolt concern (within pogo valve replacement time.). Technical Scrub. Reset launch for 10/9/00 EST, 10/10/00 GMT. - Scrubbed launch on EST date of 10/9/00 at ET Tanking MMT due to wind gusts greater than 42 knots holding up extension of the GOX Vent Arm. Ran out of time to complete work in time for launch at 8:05:17 PM EST, 284:00:05:17Z GMT date of 10/10/00 (3.5 hours work after arm extension before tanking could start at L-8.5 hour). Weather Scrub. Reset launch for 10/10/00 at 7:39:36 EST. - Scrubbed 10/10/00 launch at L-1H07M due to a concern for debris damage by a wayward pip pin and tether seen on the LO2 feedline foam inboard support bracket. Pip pin was discovered during ice/debris team walkdown. (Launch had been scheduled for 7:39:36 EST. Technical scrub. Reset launch for 10/11/00.</p> <p>LAUNCH WINDOW: - Total launch window was 7M58S. Window opened at 285:23:13:14Z and closed at 285:23:21:12Z. Selected Preferred Launch Time (PLT) of 285:23:17:00Z (in-plane time) giving a launch window of 4M12S.</p> <p>LAUNCH DELAYS: None - Launched on time at 285:23:17:00Z, 6:17:00 PM EST on Wednesday, October 11, 2000.</p> <p>Continued...</p>		



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		TITLE, NAMES & EVA'S					INC	HA/HP			
STS-92/ISS 3A		Continued...	Continued...	Continued...						Continued...	Continued...
Continued...		<p>SS EVA #53 EMU/TETHERED EVA #46 SCHEDULED EVA #47 DURATION 6:48</p> <p>SS EVA #54 EMU/TETHERED EVA #47 SCHEDULED EVA #48 DURATION 6:56</p> <p>MCC WHITE FCR (30)</p> <p>FLIGHT DIRECTORS: Asc - N. W. Hale Ent - L. E. Cain LD/O3 - C. W. Shaw O1 - R. E. Castle O2 - J. P. Shannon O4 - B. P. Austin</p> <p>ISS LD/O1 - S. P. Davis ISS O2 - M. A. Kirasich ISS PIng/O3 - R. E. LaBrode MOD - J. M. Heflin</p>	<p>VI: 25931      25928</p> <p>OMS-2: 43.30      43.33 82.4 FPS   82.1 FPS 00:54      00:54</p>	<p>FLT DURATION: 12:21:42:42</p> <p>S/T: 870:10:21:07</p> <p>OV-103: 217:05:38:18</p> <p>DISTANCE: 5,331,301 sm</p>						<p>Continued...</p> <p>RMS 57 (S.N. 301)</p> <p>RMS USED FOR OSVS checkout, Z1 truss grapple and install on ISS and EVA support PMA3/SLP on Z1</p> <p>TAL WX: - Zaragoza (prime) forecast and observed NO GO for rain, Moron forecast and observed NO GO for violent storms, Ben Guerir (selected) Qbar 353 vs 350 limit at 1100 feet cleared by L-10 minute balloon. NOTE: PTA set on AOA FOR KSC even though forecast showed chance of rain and chance 4000 ft broken and peak winds of 13 knots. EDW and NOR down for AOA/PLS, FD2 PLS would have resulted in additional 10 second TAL exposure.</p> <p>PERFORMANCE ENHANCEMENTS: - Standard Set Plus: (1) PE Operational High Q TRN/OCT, (2) OMS assist is 4000 lbs, (3) 52 nm MECO, and (4) Del Psi. - Note: OMS Assist Time reduced from 102 seconds to 41 seconds with DOLILU uplink (2400 lbs more OMS to orbit). - Inert weight adjustment is 199 lbs; was -200 lbs.</p> <p>SHUTTLE NIGHT LAUNCH #24</p> <p>FLIGHT DURATION CHANGES: - Total Flight duration extension was 2 days plus 3 orbits. - EDW was not called up for NEOM. - Did not close PLBD's. Waved-off landing at KSC on orbits 170 and 171 due to sustained high SLF crosswinds. EOM+1. Waved-off landing at KSC on orbits 186 and 187 (Did not close PLBD's or crew in suits) due to high crosswinds. - Retargeted to EDW on orbit 187, then waved-off due to broken ceiling and showers within 30 nm. - Targeted EDW on orbit 188, closed PLBD's, and put crew in suits. Waved-off landing at EDW on orbit 188 at Tig-16 minutes due to forecast and observed showers and rain within 30 nm. Waved-off landing at EDW on orbit 189 at Tig-1 hour for showers and rain within 30 nm. NOEM+2. Activated NOR for EOM+2. Did not attempt to land at KSC on orbits 201 and 202 due to forecast and observed high crosswinds, low ceiling, and rain within 30 nm. Landed at EDW runway 22 on orbit 203 at 298:20:59:42Z, 12:59:42 PM PST, Tuesday, October 24, 2000.</p> <p>EVENTS: - Ring capture at 287:17:45:10Z, 1:18:28:10 MET - Docked at PMA2 Node 1 Forward Port at 287:17:57:55Z - Z1 Truss grapple at 288:15:57:14Z, Z1 release 288:19:05:30Z - EVA 1 Start at 289:14:26Z, duration 6H28M. - PMA grapple at 290:15:43:30Z, PMA release at 290:17:59:35Z - EVA 2 Start at 290:14:13Z, duration 7H08M. - ISS Reboost maneuver #1 Start at 290:21:03:00Z, 4:21:46:00 MET, Delta V was 6 fps, 1.5 nm, 208 by 202 nm. - EVA 3 Start at 291:14:29Z, duration 6H48M. - ISS Reboost maneuver #2 Start at 291:22:45:59Z, 5:23:28:59 MET, 5.8 fps, 1.5 nm, 211 by 202 nm. - EVA 4 Start at 292:15:00Z, duration 6H56M. - ISS Reboost maneuver #3 Start at 292:22:23:32Z, 6:23:06:32 MET, 5.6 fps, 1.5 nm, 214 by 202 nm.</p>	





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