

# SPACE SHUTTLE MISSIONS SUMMARY

FLT NO.	ORBITER	CREW (6)	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.)
		TITLE, NAMES & EVA'S					INC	HA/HP			
STS-57 SEQ FLT #56 KSC-56 PAD 39B-20 MLP-2	OV-105 (Flight 4) Endeavour  Spacehab 1  OMS PODS LPO3-15 RPO4-11 FRC5-4	<b>CDR:</b> Ronald J. Grabe (Flt 4 - STS 51-J, STS-30 & STS-42) P305/R76/V41/M70  <b>PLT:</b> Brian Duffy (Flt 2 - STS-45) P306/R142/V94/M126  <b>M/S 1 (PAYLOAD CDR):</b> G. David Low (Flt 3 - STS-32 & STS-43) P307/R110/V64/M98  <b>M/S 2:</b> Nancy J. Sherlock P308/R165/F21  <b>M/S 3:</b> Peter J. K. (Jeff) Wisoff P309/R166/M145  <b>M/S 4:</b> Janice E. Voss P310/R167/F22  <b>EMU/TETHERED EVA:</b> EV 1: G. David Low EV 2: Jeff Wisoff  EVA 1 - 6/25/93 5:50 Duration	KSC 39B 172:13:07:21.95Z 9:07:00 AM EDT (P) 9:07:22 AM EDT (A) Monday 9 6/21/93 (6)  <b>LAUNCH WINDOW:</b> 71M48S PLANAR/ PHASE WINDOW  <b>EOM PLS:</b> KSC <b>TAL:</b> BYD <b>TAL WX:</b> BEN, MRN  <b>SELECTED:</b> <b>RTL:</b> KSC15/CI/N <b>TAL:</b> BEN36/N/N <b>AOA:</b> EDW22/CI/N <b>PLS:</b> EDW22/CI/N  <b>TDEL:</b> 0.00    0.722/0.76  <b>MAX Q NAV:</b> 695 PSF    722 PSF  <b>SRB STG:</b> 2:04                      2:06  <b>PERF:</b> NOMINAL  <b>2 ENG TAL (BEN):</b> 2:33                      2:37  <b>NEG RETURN:</b> 3:45                      4:07  <b>PTA (U/S 395):</b> 4:10                      4:12  <b>PTM (U/S 427):</b> 5:32                      5:31  <b>MECO CMD:</b> 8:32.47                      8:33  <b>VI:</b> 26028                      26025  <b>OMS-2:</b> 42:11.7                      42:13 318 FPS                      316 FPS	KSC 33 (KSC 16) 182:12:52:16Z 8:52:16 AM EDT  Thursday 7 7/1/93 (6)  <b>DEORBIT BURN:</b> 182:11:41:42Z  <b>XRANGE:</b> 587 NM  <b>ORBIT DIR:</b> DL 29  <b>AIM PT:</b> CLOSE IN  <b>MLGTD:</b> 2296 FT 182:12:52:16Z <b>VEL:</b> 202 KGS 207 KEAS <b>HDOT:</b> -1.0 FPS  <b>TD NORM 205:</b> 2461 FT  <b>DRAG CHUTE</b> <b>DEPLOY:</b> 175 KEAS 182:12:52:25Z  <b>NLGTD:</b> 7498 FT 182:12:52:34Z <b>VEL:</b> 135 KGS <b>HDOT:</b> -3.4 FPS  <b>BRK INIT:</b> 101 KGS  <b>DRAG CHUTE</b> <b>JETTISON:</b> 56 KGS 182:12:52:57Z  <b>AVE BRK DECEL:</b> 4.4 FPS/S  <b>WHEELS STOP:</b> 182:12:53:21Z 12251 FT  <b>ROLLOUT:</b> 9955 FT 65 SEC  Continued. . .	104/104/ 109%  <b>PREDICTED:</b> 100/100/100/ 67/104  <b>ACTUAL:</b> 100/100/100/ 72/104  1 = 2019 (12) 2 = 2034 (2) 3 = 2017 (8)  <b>M 3 EOM:</b>  <b>WEIGHT:</b> 224752 LBS  <b>X CG:</b> 1081.1  <b>LANDING:</b>  <b>WEIGHT:</b> 224468 LBS  <b>X CG:</b> 1082.5	BI-059  RSRM 32 KM  ET-58  LWT 51  ET RPT  ET BR/UP  ET IMPACT LAT: 16.09°N LONG: 142.90°W	28.45° (33)  DIRECT INSERTION  POST OMS-2: 252 X 212 NM  <b>NC3 BURN:</b> 56 FPS 2:04:00:35 MET 257/251 NM  <b>TI BURN:</b> 258 X 255 NM  <b>ORB ADJ 3:</b> 3:19:01 MET 256 X 209 NM	OI-22 (1)	<b>CARGO:</b> 29119 LBS  <b>PAYLOAD</b> <b>CHARGEABLE:</b> 19630 LBS  <b>DEPLOYED:</b> 132 LBS  <b>NON-DEPLOYED:</b> 18244 LBS  <b>MIDDECK:</b> 1254 LBS  <b>SHUTTLE</b> <b>ACCUMULATED</b> <b>WEIGHTS:</b> <b>DEPLOYED:</b> 737233 LBS <b>NON-DEPLOYED:</b> 715721 LBS <b>CARGO TOTAL:</b> 1670852 LBS  <b>PERFORMANCE</b> <b>MARGINS (LBS):</b> FPR: 3934 FUEL BIAS: 1055 FINAL TDDP: 2030 RECON: 2162  <b>PAYLOADS:</b> <b>PLB:</b> SPACEHAB-1 EURECA CAPTURE AND RETURN SHOOT, GBA, CONCAP-IV  <b>MIDDECK:</b> FARE AMOS SAREX-II  4 CRYO TK SETS  RMS 31 (S.N. 303) RMS used to grapple and berth EURECA and EVA DTO	KSC W/D: OPF 52, VAB 16, PAD 51 = 119 days total.  <b>LAUNCH POSTPONEMENTS:</b> - Launch date was 5/10/93 then postponed to 5/18/93. - Launch date was postponed from 5/18/93 to 6/3/93 because of STS-55 and STS-56 launch delays. - Launch date was postponed from 6/3/93 to 6/20/93 because SSME 3 HPOTP required changeout (QA electrochemical etch marking found in a high stress area of HPOTP turbine bearing preload spring).  <b>LAUNCH SCRUBS:</b> - 6/20/93 launch was scrubbed during hold at T-5 minutes when 71 minute 48 second launch window expired. All three TAL sites were NO-GO (Banjul for thunderstorms and Ben Guerir and Moron for crosswind exceedences.)  <b>LAUNCH DELAYS:</b> - Launch delayed 22 seconds because of an intruder aircraft. Countdown was at T-5 minutes awaiting a GO for RTLS weather when the aircraft entered KSC airspace (Launch danger area).  <b>TAL WX:</b> - Banjul was forecast and observed NO GO for ceiling and rain. Ben Guerir (selected) was forecast and observed GO. Moron was forecast NO GO for ceiling, rain, and crosswinds but was observed GO.  <b>DOLILU/I-LOADS:</b> - Nominal I-loads were GO and selected because of better Q-plane than DOLILU. No uplink required.  <b>FLIGHT DURATION CHANGES:</b> 3 days extension - Extended 1 day for additional science. - Extended 1 day because of forecast low ceiling on rev 124 and convective development and potential thunderstorms on rev 125. - Extended 1 day because of forecast thunderstorms on revs 139 and 140.  <b>FIRSTS/LASTS:</b> - Last flight of TAGS, next to last flight of teleprinter. - First flight of the improved APU controller (APU #2). - Last flight of drag chute without ribbons removed. (Was second flight with 90 percent reefed).  <b>EVENTS:</b> - Started EVA at 3:23:59:51 MET (planned 4 hours). David Low pushed on EURECA antenna and ESOC commanded latches. David had to move antennas in "z" to get them latched. Both antennas confirmed latched at EVA time of 2:25, when they started the scheduled EVA DTO 1210. (EURECA deployed on STS-46  Continued. . .	



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		TITLE, NAMES & EVA'S					INC	HA/HP			
STS-57 Continued		<p>Continued . . .</p> <p><u>SPACE SHUTTLE EVA #21</u> SCHEDULED EVA #17 REFINE EVA TRAINING CONCEPTS AND DEMONSTRATE EVA TECHNIQUES FOR FUTURE EVA'S.</p> <p>ADDED UNSCHEDULED MANUAL LATCHING OF EURECA ANTENNAS</p> <p>MCC FCR-1 (35)</p> <p><u>FLIGHT DIRECTORS:</u> A/E - J. W. Bantle LD/O 1 - G. W. Pennington O 2 - P. L. Engelauf PLNG - R. M. Kelso MOD - G. E. Coen</p>		<p>Continued . . .</p> <p><u>WINDS:</u> H6, L2 KTS OFFICIAL: H10, L2</p> <p><u>DENS ALT:</u> 1571 FT</p> <p><u>FLT DURATION:</u> 9:23:44:54 239:44:54</p> <p><u>S/T:</u> 375:23:12:22</p> <p><u>OV-105:</u> 32:19:11:12</p> <p><u>DISTANCE:</u> 4,118,037 sm</p>						<p>Continued . . .</p> <p><u>RENDEZVOUS #14:</u> - Rendezvous with EURECA for capture, retrieval, and return.</p> <p><u>SIGNIFICANT ANOMALIES:</u> - O2 manifold valve tank 1 failed to close. - Fuel cell 3 H2 reactant valve failed to close. - PPO2 sensor B is biased low. - MCA logic MCA power AC3 3-phase mid 4 CB anomaly. - AC3 phase-to-phase short/Spacehab PDU fuses blown and replaced (command error). - Mid starboard and aft port floodlights failure. - EVA waist tether small tether hook failure. - Leaking EMU 1200-series battery. - RMS grapple fixture/EURECA thermal control unit switch problem (installed reversed). - Jet R5D heater failed on. - EURECA antennas failed to latch (crew manually latched them during planned EVA). - S-band intermittent forward and return links on lower left quad antenna. - Ammonia boilers failed to cool post landing.</p>	