

SPACE SHUTTLE MISSIONS SUMMARY

FLT NO.	ORBITER	CREW (5) 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-32 (STS-32R) SEQ FLT #33 KSC-33 PAD 39A-25 MLP-3	OV-102 (Flight 9) Columbia OMS PODS LPO3 - 9 RPO4 - 5 FRC2 - 9	CDR: Daniel C. Brandenstein (Flt 3 - STS-8 & STS 51-G) P168/R21/V16/M20 PLT: James D. Wetherbee P169/R108/M97 M/S 1: Bonnie J. Dunbar (Flt 2 - STS 61-A) P170/R79/V49/F7 M/S 2: Marsha S. Ivins P171/R109/F12 M/S 3: G. David Low P172/R110/M98	KSC 39A 09:12:35:00Z 7:35:00 AM EST (P) 7:35:00 AM EST (A) Tuesday 6 1/9/90 (4) LAUNCH WINDOW: 62 Minutes (PLANAR/PHASE/ ET IMPACT AREA) RUNWAY PRIORITIES: EDW (PLS) HEAVY WEIGHT/ FWD CG (LDEF RETURN) EOM: EDW 22/CONC NOR KSC EDW LAKEBED RTLS: KSC 33 TAL: Ben Guerir 36 AOA: EDW 22 X-WIND LIMIT > 9 DAYS, 12 KNOTS MAX Q = 641.1 M = 1.05 00:52 MET SRB SEP: 2:05 MET MECO: 8:33 MET ET SEP: 8:50 MET OMS-1: NONE OMS-2: 40:25.6 MET 140 Seconds 218 FPS	EDW 22, CONC (EDW 26, CONC 10) 20:09:35:36.2Z 1:35:36 AM PST Saturday 7 1/20/90 (3) DEORBIT BURN: 20:08:30:22Z 299.5 Seconds DV 489.7 FPS XRANGE:372 NM ORB DIR: AL10 AIM PT: NOM MLGTD: 2399 FT 20:09:35:36.2Z VEL: 209 KGS 207 KEAS HDOT: -1 FPS TD NORM 195: 3100 FT NLGTD: 6606 FT 20:09:35:51.5Z VEL:160 KGS HDOT: -2.7 FPS BRK INIT: 141 KGS AVE BRK DECEL: 6.3 FPS/S WHEELS STOP: 20:09:35:39.3Z 12495 FEET ROLLOUT: 10731 FEET 64 SECONDS WINDS: 1.9H, 3.5R KTS OFFICIAL: 1H, 4R DENS. ALT: 923 FT FLT DURATION: 10:21:00:36 261:00:36 S/T: 195:23:14:18 OV-102: 56:23:54:56 DISTANCE: 4,509,972 sm	104/104 109% 100/104/ 102/65/ 104/65 1 = 2024 (1) 2 = 2022 (4) 3 = 2028 (4) ET RPT 228K 1:18:32 MET ET BR/UP 189K 1:19:35 MET T/V OFF ET IMPACT LAT: 10.44°N LONG: 157.2°W	BI-035 RSRM 8 ET-32 LWT-25 ET 189K 1:19:35 MET T/V OFF ET IMPACT LAT: 10.44°N LONG: 157.2°W	28.5° (20)	DIRECT INSERTION POST OMS-2 193.48 X 155.76 NM SYNCOM DEPLOY 169.09 NM LDEF RETRIEVE 178.3NM	OI-8C (2)	CARGO: 26458 lbs PAYLOAD CHARGEABLE: 18317 lbs DEPLOYABLE: 15316 lbs NON-DEPLOYED: 1962 lbs MIDDECK: 1039 lbs RETRIEVED (LDEF) 21393 lbs RETURNED: 32565 lbs SHUTTLE ACCUMULATED WEIGHTS: DEPLOYED: 453472 lbs NON-DEPLOYED: 398517 lbs CARGO TOTAL: 963624 lbs PERFORMANCE MARGINS (LBS): FPR: 4698 FUEL BIAS: 968 FINAL TDDP: 1956 RECON: 992 PAYLOADS: PLB: LONG DURATION EXPOSURE FACILITY (LDEF) RETRIEVAL AND RETURN SYNCOM IV-5 (DEPLOYED) MIDDECK IOCM IMAX CNCR, PCG (2) FEA, AFE, MLE L3 (LLL) AMOS ACIP AADS 5 CRYO TK SETS RMS 20 (S.N. 201) Used for LDEF capture and berth, and PKM burn monitor	KSC W/D: OPF 86, VAB 10, PAD 33 = 129 LAUNCH POSTPONEMENTS: - 12/18/89 launch postponed 21 days to 1/8/90 due to delays in readiness of pad 39A after pad modification, holidays, and Orbiter aft PCA R&R. LAUNCH SCRUBS: - 1/8/90 launch scrubbed after holding at T-9 minutes, then counting down to T-5 minutes and holding until launch window expired when RTLS weather did not improve (low ceiling/fog). Rescheduled launch for 1/9/90. - 22-day total slip. LAUNCH DELAYS: None. TAL WX: - Ben Guerir 36 (prime) - selected - good weather. I-LOADS: - LSEAT selected yaw positive I-Load - alternate I-Load uplink 2. LAUNCH TARGETING COMMAND LOAD: - Uplinked load for inertial plane of LDEF. FLIGHT DURATION CHANGE: - Extended 1 day due to fog at PLS (EDW) and unacceptable weather at NOR and KSC. - Plus One rev to reload BFS into extended GPC2. NIGHT LANDING: Third Shuttle night landing. FIRSTS: - First flight from pad 39A since STS 61-A. EVENTS: - SYNCOM-IV-F5 deployed at 1:00:43:39 MET (rev 17). - Rendezvous with Long Duration Exposure Facility (LDEF) as planned, with grapple at 3:02:41:05 MET (rev 50). LDEF was deployed on STS 41-C. - No blackout during entry, comm via TDRS-W. - Deorbit burn O-O-P component of 51° with longest OMS burn time of 299.5 seconds. RENDEZVOUS 8: With LDEF for capture and return. Continued . . .



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STS-32											Continued . . .
Continued											<p><u>SIGNIFICANT ANOMALIES:</u></p> <ul style="list-style-type: none"> - GPC 5 (BFS) registered illegal engage input/output term B during final entry checks. BFS was loaded into GPC2. GPC set restrung and GPC5 powered off. (Landing was delayed one revolution.) - FM transmitter failed. - APU 3 lubrication oil outlet pressure high (90 psi) - TAGS paper jammed. - GOX FCV 2 open cycle sluggish. - Humidity separator water bypass anomalies (free water from SEP B and SEP A). - Waste water dump line blockage at 18:13:29:00Z, no dumps performed subsequently. - FES topping duct B string heater failure. - IMU 1 RM failed (transient 4-axis accel-bias. - Hydraulic systems 1 and 2 circ pump unloader valves excessive leakage. - BFS GPC errors. - At 17:23:46:51Z during sleep period, a bad state vector was uplinked just prior to LOS, Orbiter rotated 3°/sec. - WSB sys 2 and 3 excessive regulator pressure decay. - RMS was used to conduct external survey (TPS). - Multiple S-Band dropouts. - Smoke detector 3A transient alarm. - WBS 3 controller A over controlling. - Ku-Band antenna feed heater erratic. - MPS LH2 F&D (outboard) relief valve leak. - Pilot seat would not drive down. - CCTV camera problems. - Heaviest landing at 228,335 lbs.