

SPACE SHUTTLE MISSIONS SUMMARY

FLT NO.	ORBITER	CREW (5)	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 41-C (STS-13)	OV-099 Flight 5 Challenger	<p>CDR: Robert L. Crippen (Flt 3) (STS-1 & STS-7) P38/R2/V1/M2</p> <p>PLT: Francis R. Scobee P39/R34/M33</p> <p>M/S: Terry J. Hart P40/R35/M34</p> <p>M/S: James D. Van Hoften P41/R36/M35</p> <p>M/S: George D. Nelson P42/R37/M36</p> <p><u>UNTETHERED EVA'S (MMU):</u> EV1=Nelson EV2=Van Hoften</p> <p>EVA1=2:59/3:05 4/8/84 - SS EVA #4 SMM TPAD DOCK ATTEMPT</p> <p>EVA2=7:07/6:30 4/11/84- SS EVA #5 SMM REPAIR AND RELEASE</p> <p>FREE FLYER EVA'S #3 AND #4</p> <p>MCC FCR-2 (7)</p> <p><u>FLIGHT DIRECTORS</u> Asc/Ent - G. E. Coen Ld/O 1 - J. H. Greene Orbit 2 - J. T. Cox Planning - B. R. Stone MOD - E. F. Kranz</p>	<p>KSC 39A 097:13:57:59.999Z 8:58:00 AM EST (P) 8:58:00 AM EST (A) Friday 2 4/6/84 (3)</p> <p><u>LAUNCH WINDOW:</u> -3.5 MINUTES (PLANAR WINDOW/ET FOOTPRINT NEAR HAWAII)</p> <p>PLS - KSC SLS - EDW TAL - DAKAR TAL WX - ROTA AOA - EDW AOA WX - NOR</p> <p><u>MAX Q</u> = 635 M = 1.03</p> <p><u>SRB SEP:</u> 2:05.57 MET</p> <p><u>MECO:</u> 8:30.76 MET</p> <p><u>ET SEP:</u> 8:48.9 MET</p> <p><u>OMS-1:</u> NONE</p> <p><u>OMS-2:</u> 42:54 MET 95.1 Seconds</p>	<p>EDW 17, LAKEBED (EDW 9, LKBD 5)</p> <p>5:38:07 AM PST Friday 2 4/13/84 (3)</p> <p><u>XRANGE:</u> 381 NM</p> <p><u>ORB DIR:</u> DL 7</p> <p><u>AIM PT:</u> NOM</p> <p><u>MLGTD:</u> 1912 FT 104:13:38:07Z VEL: 218 KGS 213 KEAS HDOT: -1.5 FPS</p> <p><u>TD NORM 195:</u> 3505 FT</p> <p><u>NLGTD:</u> 7167 FT 104:13:38:23Z VEL: 144 KGS HDOT: -4.6 FPS</p> <p><u>BRK INIT:</u> 110 KGS</p> <p><u>AVE BRK DECEL:</u> 8.4 FPS/S</p> <p><u>WHEELS STOP:</u> 104:13:38:55Z 10628 FT</p> <p><u>ROLLOUT:</u> 8716 FT 48 SEC</p> <p><u>WINDS:</u> 2 H, 0 X KNOTS OFFICIAL: 0H, 0X</p> <p><u>DENS ALT:</u> 1000 FT</p> <p><u>FLT DURATION:</u> 6:23:40:07 167:40:07</p> <p><u>S/T:</u> 67:02:42:46</p> <p><u>OV-099:</u> 32:02:52:26</p> <p><u>DISTANCE:</u> 2,880,000 sm</p>	<p>104/104 (109)</p> <p>100/104/ 67/104/ 65</p> <p>1 = 2109 (2) 2 = 2020 (1) 3 = 2012 (5)</p> <p><u>MLGTD:</u> 1912 FT 104:13:38:07Z VEL: 218 KGS 213 KEAS HDOT: -1.5 FPS</p> <p><u>TD NORM 195:</u> 3505 FT</p> <p><u>NLGTD:</u> 7167 FT 104:13:38:23Z VEL: 144 KGS HDOT: -4.6 FPS</p> <p><u>BRK INIT:</u> 110 KGS</p> <p><u>AVE BRK DECEL:</u> 8.4 FPS/S</p> <p><u>WHEELS STOP:</u> 104:13:38:55Z 10628 FT</p> <p><u>ROLLOUT:</u> 8716 FT 48 SEC</p> <p><u>WINDS:</u> 2 H, 0 X KNOTS OFFICIAL: 0H, 0X</p> <p><u>DENS ALT:</u> 1000 FT</p> <p><u>FLT DURATION:</u> 6:23:40:07 167:40:07</p> <p><u>S/T:</u> 67:02:42:46</p> <p><u>OV-099:</u> 32:02:52:26</p> <p><u>DISTANCE:</u> 2,880,000 sm</p>	<p>BI-012</p> <p>MTR: HPM</p> <p>CASE: MWC</p> <p>ET-12</p> <p>LWT-5</p> <p>ET RPT 246K 1:22:15 MET</p> <p>ET BR/UP 228K 1:22:45 MET</p> <p>ET IMPACT LAT: 18.90°S LONG: 149.9°W</p> <p><u>M 3 EOM</u></p> <p>WEIGHT: 197170</p> <p>X CG: 1100.0</p> <p><u>LANDING</u></p> <p>WEIGHT: 196976</p> <p>X CG: 1101.6</p>	<p>28.45° (7)</p> <p><u>START:</u> -18.1°</p> <p><u>END:</u> +12.0°</p> <p><u>MAX:</u></p> <p>DIRECT INSERTION</p> <p>252 NM DIRECT INSERTION</p> <p>251.6 X 115.4 NM</p> <p>DEORBIT 268 X 265 NM</p> <p>VELOCITY 25998 FPS</p> <p>RANGE 4090 NM</p>	<p>OI-2 (3)</p> <p>CARGO: 38266 lbs</p> <p><u>CHARGEABLE:</u> 33831 lbs</p> <p><u>DEPLOYED:</u> 21396 lbs</p> <p><u>NON-DEPLOYED:</u> 12394 lbs</p> <p><u>MIDDECK:</u> 41 lbs</p> <p><u>RETURNED:</u> 16870 lbs</p> <p><u>SHUTTLE ACCUMULATED WEIGHTS:</u> <u>DEPLOYED:</u> 110994 lbs <u>NON-DEPLOYED:</u> 173350 lbs <u>CARGO TOTAL:</u> 328452 lbs</p> <p><u>PERFORMANCE MARGINS (LBS):</u> FPR: 5052 FUEL BIAS: 1038 FINAL TDDP: 995 RECON: -3322</p> <p><u>PRIMARY:</u> LONG DURATION EXPOSURE FACILITY (LDEF) (DEPLOYED)</p> <p>SMRM/FSS (RETRIEVED, REPAIRED & RELEASED)</p> <p>MMU (2) MMU/EMU MFR PLATFORM BAY 10 CINEMA 360 I-MAX CAMERA RME EXPERIMENT</p> <p><u>ANCILLARY:</u> STUDENT EXPERIMENTS ACIP</p> <p>4 CRYO TANK SETS</p> <p>RMS 7 (S.N. 302) Used for LDEF de- ploy, SMRM capture, berth, and deploy and water nozzle and OMS pod survey</p>	<p>KSC W/D: OPF 31, VAB 4, PAD 18 = 53</p> <p><u>LAUNCH POSTPONEMENT:</u> - 4/4/84 launch postponed 2 days to 4/6/84 to upgrade OMS pod TPS (STS 41-B problem during entry). 2-day slip.</p> <p><u>LAUNCH SCRUBS:</u> None.</p> <p><u>LAUNCH DELAYS:</u> None.</p> <p><u>TAL WX:</u> Dakar no go - low clouds.</p> <p><u>FLIGHT DURATION & LANDING SITE CHANGES:</u> - Extended flight 1 day to replan use of RMS to grapple SMM after TPAD docking failure. - Extended flight 1 rev to land at EDW because of unacceptable weather (overcast) at KSC. - Total extension: 1 day+ 1 rev.</p> <p><u>FIRSTS:</u> - First flight to use direct insertion. - First rendezvous/satellite repair flight. - First use of TPAD. Nelson used MMU to translate to SMM and attempted to dock using TPAD. TPAD failed to fire because a thermal insulation button prevented it from firing. - First grapple of satellite using RMS. - First direct insertion (no OMS-1 burn).</p> <p><u>RENDEZVOUS 1 & 2:</u> - To capture, repair, and release SMM.</p> <p><u>EVENTS:</u> - Nelson held onto solar panel during MMU ops to attempt to slow SMM rotation. - Re-rendezvous with SMM on 5th day & RMS grapple of SMM. Repair and redeploy of SMM on 6th day by Van Hoften & Nelson. - RMS used to survey OMS pods and monitor water dumps to ensure no ice chunks on nozzles.</p> <p><u>ET TRACKING DTO 331/318 NEAR HAWAII</u> - ET Reentry (tumble)-KPTC RADAR poor coverage, MOTIF unusable, CAST GLANCE - LH2 rupture 264-254 Kft debris large DV, "violent rupture."</p> <p><u>SIGNIFICANT ANOMALIES:</u> - RH SRB main parachute failure. - WCS fan SEP 1 low air flow. - WCS fan SEP 2 failed. - Brake damage similar to STS- 7 on left & right sides. - Ku-band Rndz Radar failed self test & lost lock. - RH SRB one chute failed to inflate. - RH SRM gas leak and erosion to primary O-ring (blowby) nozzle-to-case joint.</p> <p>RADIATORS DEPLOYED #8 (for one sleep period)</p>		

