Appendix A.

The First 25 Flights [A-1]

[A-1] Courtesy Dennis Jenkins, pp. 268-269.

THE FIRST TWENTY-FIVE FLIGHTS

Prior to the STS-33/51-L stand-down, there were 25 flights flown, and the popular way to list them is by these consecutive flight numbers (Flight 1 thru Flight 25). The original official numbering scheme was to use sequential numbers preceded by 'STS', hence Flight 1 was known as STS-1. Under this system, the numerically highest mission flown was STS-33; eight flights that were assigned numbers having been cancelled. After STS-9, NASA instituted a system where each flight carried a two number/one letter designation. The first digit indicated the fiscal year of the scheduled launch (4 for FY84); the second digit identified the launch site (1 = KSC, 2 = VLS); and the letter was the sequence for the fiscal year ('A' being the first mission of the year, 'B' being second, etc.).

Flight #	STS #	Manifest #	Orbiter Flight #	DATES Launch / Landing	TIME Launch / Landing	SITES Launch / Landing	Crew	ORBIT Altitude / Inclination	WEIGHTS Lift-Off / OV Launch / Payload / OV Landing	Payloads	Mission Duration	RE-ENTRY Velocity / Cross-Range / Touchdown / Roll-out	Notes
1	STS-1		OV-102 1	12 Apr 81 14 Apr 81	07:00:03 10:20:57	KSC, Pad A EAFB, 23	John W. Young (C) Robert L. Crippen (P)	166 40.30	4,457,111 219,440 10,823 195,472	DFI Pallet ACIP RMS = none	36 Orbits 54 hrs 20 mins 32 secs 1,074,567 miles	25,731 262 183 8,993	Lift-off at 07:00:0398.010 EST First orbital flight by a winged spacecraft Orbiter returned to KSC on 28 Apr 81
2	STS-2		OV-102 2	12 Nov 81 14 Nov 81	10:09:59 13:23:11	KSC, Pad A EAFB, 23	Joe H. Engle (C) Richard H. Truly (P)	157 38.00	4,470,308 230,938 18,778 204,262	OFT Pallet DFI Pallet ACIP HCM OSTA-1 RMS = s/n 201	36 Orbits 54 hrs 13 mins 13 secs 1,074,757 miles	25,726 73 197 7,711	First re-use of a manned spacecraft First test of Remote Manipulator System Flight shortened due to Fuel Cell #1 12 tiles damaged Orbiter returned to KSC on 25 Nov 81
3	STS-3		OV-102 3	22 Mar 82 30 Mar 82	11:00:00 09:04:46	KSC, Pad A WSMR, 17	Jack R. Lousma (C) Charles Gordon Fullerton (P)	147 38.00	4,468,755 235,556 22,710 207,072	OSS-1 Pallet DFI Pallet ACIP RMS = s/n 201	129 Orbits 192 hrs 04 mins 45 secs 3,334,904 miles	25,659 318 220 13,732	EAFB landing site flooded by heavy rains 36 tiles lost, 19 damaged Orbiter returned to KSC on 06 Apr 82
4	STS-4		OV-102 4	27 Jun 82 04 Jul 82	11:00:00 09:09:31	KSC, Pad A EAFB, 22	Thomas K. 'Ken' Mattingly II (C) Henry 'Hank' W. Hartsfield, Jr. (P)	197 28.45	4,481,935 241,772 11,644 208,946	HCM DFI Pallet DoD 82-1 RMS = s/n 201	112 Orbits 169 hrs 09 mins 40 secs ~2,900,000 miles	25,797 660 204 9,878	First DoD Mission (non-dedicated) SRBs not recovered due to chute failure First concrete runway landing Orbiter returned to KSC on 15 Jul 82
5	STS-5		OV-102 5	11 Nov 82 16 Nov 82	07:19:00 06:33:26	KSC, Pad A EAFB, 22	Vance D. Brand (C) Robert F. Overmeyer (P) Joseph P. Allen (MS) William B. Lenoir (MS)	184 28.45	4,487,268 247,112 20,830 202,480	ANIK-C3/PAM-D SBS-C/PAM-D DFI Pallet GAS (test) RMS = none	81 Orbits 122 hrs 14 mins 26 secs 2,110,849 miles	25,758 667 198 9,553	First operational flight Largest US crew flown to date Orbiter returned to KSC on 22 Nov 82
6	STS-6		OV-099 1	04 Apr 83 09 Apr 83	13:30:00 10:53:42	KSC, Pad A EAFB, 22	Paul J. Weitz (C) Karol J. Bobko (P) Donald H. Peterson (MS) F. Story Musgrave (MS)	178 28.45	4,487,255 256,928 46,662 190,330	TDRS-A/IUS CRSA GAS (3) RMS = none	80 Orbits 122 hrs 14 mins 26 secs 2,094,293 miles	25,755 435 190 7,244	First *Challenger* flight First Shuttle EVA First use of lightweight SRBs First use of lightweight ET Orbiter returned to KSC on 16 Apr 83
7	STS-7		OV-099 2	18 Jun 83 24 Jun 83	07:33:00 06:56:59	KSC, Pad A EAFB, 15	Robert L. Crippen (C) Frederick H. Hauck (P) Sally K. Ride (MS) John M. Fabian (MS) Norman E. Thadard (MS)	195 28.45	4,482,241 249,362 31,893 204,043	ANIK-C2/PAM-D PALAPA-B1/PAM-D SPAS-01 OSTA-2 CRSA GAS (7) RMS = s/n 201	97 Orbits 146 hrs 23 mins 59 secs 2,530,567 miles	25,771 849 202 10,450	First U.S. woman in space First Shuttle rendezvous Orbiter returned to KSC on 29 Jun 83
8	STS-8		OV-099 3	30 Aug 83 05 Sep 83	02:32:00 00:40:43	KSC, Pad A EAFB, 22	Richard H. Truly (C) Daniel C. Brandenstein (P) Dale A. Gardner (MS) Guion S. Bluford, Jr. (MS) William E. Thorton (MS)	191 28.45	4,492,074 242,912 25,790 203,945	INSAT-1B/PPAM-D PFTA DFI Pallet CRSA SPAS-01 GAS (5) RMS = s/n 201	97 Orbits 145 hrs 08 mins 43 secs 2,514,478 miles	25,649 597 195 9,371	First night launch Night night landing Orbiter returned to KSC on 09 Sep 83
9	STS-9	(41-A)	OV-102 6	28 Nov 83 08 Dec 83	11:00:00 15:47:24	KSC, Pad A EAFB, 17L	John W. Young (C) Brewster H. Shaw, Jr. (P) Owen K. Garriot (MS) Robert A. Parker (MS) Bryan K. Lichtenberg (PS) Ulf D. Merbold (PS)	155 57.00	4,503,361 247,807 33,131 220,027	Spacelab-1 Cryo Sets 4 & 5 RMS = none	166 Orbits 247 hrs 47 mins 24 secs 4,295,853 miles	25,696 79 185 8,456	First *Spacelab* mission Flight delayed one month by SRB problem Orbiter returned to KSC on 15 Dec 83
10	STS-11	41-B	OV-099 4	03 Feb 84 11 Feb 84	08:00:00 07:15:55	KSC, Pad A KSC, 15	Vance D. Brand (C) Robert L. 'Hoot' Gibson (P) Bruce McCandless II (MS) Robert L. Stewart (MS) Ronald E. McNair (MS)	202 28.45	4,498,443 250,482 28,252 201,238	PALAPA-B2/PAM-D WESTAR-6/PAM-D SPAS-01 IMAX Camera GAS (5) MMU RMS = s/n 201	127 Orbits 191 hrs 15 mins 55 secs 3,311,380 miles	25,752 603 196 10,907	First MMU test First KSC landing
11	STS-13	41-C	OV-099 5	06 Apr 84 13 Apr 84	08:58:00 05:38:07	KSC, Pad A EAFB, 17L	Robert L. Crippen (C) Francis R. 'Dick' Scobee (P) George D. Nelson (MS) James D. van Hoften (MS) Terry J. Hart (MS)	313 28.45	4,508,234 254,554 33,831 196,975	LDEF-1 SMM SMRM IMAX Camera MMU (2) RMS = s/n 302	107 Orbits 167 hrs 40 mins 07 secs ~2,870,000 miles	25,998 438 213 8,716	First satellite repair (*Solar Maximum*) First operational use of MMUs First 'Direct Ascent Trajectory' Orbiter returned to KSC on 18 Apr 84
12	STS-16	41-D	OV-103 1	30 Aug 84 05 Sep 84	08:41:50 06:37:54	KSC, Pad A EAFB, 17L	Henry 'Hank' W. Hartsfield, Jr. (C) Michael L. Coats (P) Judith A. Resnik (MS) Steven A. Hawley (MS) Richard M. Mullane (MS) Charles D. Walker (PS)	205 28.45	4,517,534 263,477 41,382 201,674	SBS-D/PAM-D TELSTAR-3C/PAM-D Leasat-2 OAST-1 SSIP IMAX Camera RMS = s/n 301	96 Orbits 144 hrs 56 mins 04 secs ~2,490,000 miles	25,776 545 200 10,275	First *Discovery* flight First on-pad abort of program First 3-satellite deployment Orbiter returned to KSC on 10 Sep 84
13	STS-17	41-G	OV-099 6	05 Oct 84 13 Oct 84	07:03:00 12:26:38	KSC, Pad A KSC, 33	Robert L. Crippen (C) Jon A. McBride (P) Kathryn D. Sullivan (MS) Sally K. Ride (MS) David C. Leestma (MS) Marc Garneau (PS) Paul D. Scully-Power (PS)	218 57.00	4,493,317 242,790 17,592 202,266	ERBS ASTA-3 LFC/ORS APE CANEX SASSE GAS (8) Galley RMS = s/n 302	132 Orbits 197 hrs 23 mins 33 secs 3,434,444 miles	25,684 707 208 10,565	EVA refueling simulation
14	STS-19	51-A	OV-103 2	08 Nov 84 16 Nov 84	07:15:00 06:59:56	KSC, Pad A KSC, 15	Frederick H. Hauck (C) David M. Walker (P) Anna L. Fisher (MS) Dale A. Gardner (MS) Joseph P. Allen (MS)	224 28.45	4,519,901 263,324 38,003 207,505	ANIK-D2/PAM-D Leasat-1 DMOS RME MMU (2) RMS = s/n 301	126 Orbits 191 hrs 44 mins 56 secs 3,289,406 miles	25,869 559 186 9,454	First satellite retrieval (WESTAR-6 and PALAPA-B2)
15	STS-20	51-C	OV-103 3	24 Jan 85 27 Jan 85	14:50:00 16:23:23	KSC, Pad A KSC, 15	Thomas K. 'Ken' Mattingly II (C) Loren J. Shriver (P) Ellison S. Onizuka (MS) James F. Buchli (MS) Gary E. Payton (PS)	220 28.45	— — — —	DoD RMS = s/n 301	48 Orbits 73 hrs 33 mins 23 sec ~1,250,000 miles	25,855 437 185 7,352	First dedicated DoD mission
16	STS-23	51-D	OV-103 4	12 Apr 85 19 Apr 85	08:59:05 08:54:28	KSC, Pad A KSC, 33	Karol J. Bobko (C) Donald E. Williams (P) Margaret Rhea Seddon (MS) Jeffrey A. Hoffman (MS) S. David Griggs (MS) Charles D. Walker (PS) Senator E. J. 'Jake' Garn (PS)	289 28.45	4,505,245 250,891 28,747 198,014	Leasat-3 ANIK-C1/PAM-D CFES-III APE PPE SSIP GAS (2) RMS = s/n 301	109 Orbits 167 hrs 55 mins 23 secs 2,889,785 miles	25,955 596 200 10,298	Mission extended two days
17	STS-24	51-B	OV-099 7	29 Apr 85 06 May 85	12:02:18 09:11:04	KSC, Pad A EAFB, 17L	Robert F. Overmeyer (C) Frederick D. Gregory (P) Don Leslie Lind (MS) Norman E. Thagard (MS) William E. Thorton (MS) Lodewijk van den Berg (PS) Taylor G. Wang (PS)	222 57.00	4,512,009 247,291 30,748 213,499	Spacelab-3 GAS (1) Airlock Long Tunnel Galley RMS = none	110 Orbits 168 hrs 08 mins 46 secs 2,890,383 miles	25,857 315 204 8,317	First crosswind landing Orbiter returned to KSC on 11 May 85

Flight #	STS #	Manifest #	Orbiter Flight #	DATES Launch / Landing	TIMES Launch / Landing	SITES Launch / Landing	Crew	ORBIT Altitude / Inclination	WEIGHTS Lift-Off / OV Launch Payload / OV Landing	Payloads	Mission Duration	RE-ENTRY Velocity / Cross-Range / Touchdown / Roll-out	Notes
18	STS-25	51-G	OV-103 5	17 Jun 85 24 Jun 85	07:33:00 06:11:52	KSC, Pad A EAFB, 23	Daniel C. Brandenstein (C) John O. Creighton (P) Shannon W. Lucid (MS) John M. Fabian (MS) Steven R. Nagel (MS) Patrick Baudry (PS) Salman Abdul'aziz Al-Saud (PS)	240 28.45	4,516,613 256,421 38,258 204,169	MORELOS-A/PAM-D ARABSAT-1B/PAM-D TELSTAR-3D/PAM-D SPARTAN-101 GAS (3) RMS = s/n 301	111 Orbits 169 hrs 38 mins 53 secs 2,916,127 miles	25,850 799 198 7,433	Orbiter returned to KSC on 28 Jun 85
19	STS-26	51-F	OV-099 8	29 Jul 85 06 Aug 85	17:00:00 12:45:26	KSC, Pad A EAFB, 23	Charles Gordon Fullerton (C) Roy D. Bridges, Jr. (P) F. Story Musgrave (MS) Anthony W. England (MS) Karl G. Henize (MS) Loren W. Acton (PS) John-David F. Bartoe (PS)	207 49.50	4,515,554 252,628 33,012 216,735	Spacelab-2 EPDP RMS = s/n 302	126 Orbits 190 hrs 45 mins 26 secs 3,283,543 miles	25,813 694 199 8,569	Second on-pad abort of program In-flight abort-to-orbit successful after one SSME shutdown Orbiter returned to KSC on 11 Aug 85
20	STS-27	51-I	OV-103 6	27 Aug 85 03 Sep 85	06:58:01 06:15:43	KSC, Pad A EAFB, 23	Joe H. Engle (C) Richard O. Covey (P) James D. van Hoften (MS) John M. Lounge (MS) William F. Fisher (MS)	278 28.45	4,512,130 262,309 38,884 196,856	ASC-1/PAM-D AUSSAT-1/PAM-D Leasat-4 PVTOS Galley RMS = s/n 301	111 Orbits 170 hrs 18 mins 29 secs 2,919,576 miles	25,829 796 191 6,100	In orbit repair of Leasat-2 Orbiter returned to KSC on 08 Sep 85
21	STS-28	51-J	OV-104 1	03 Oct 85 07 Oct 85	11:15:30 10:00:08	KSC, Pad A EAFB, 23	Karol J. Bobko (C) Ronald J. Grabe (P) David C. Hilmers (MS) Robert L. Stewart (MS) William A. Pailes (PS)	320 28.50	— — — —	DoD RMS = none	65 Orbits 97 hrs 44 mins 38 secs ~1,725,000 miles	— — — 8,056	First *Atlantis* flight Second dedicated DoD mission Orbiter returned to KSC on 11 Oct 85
22	STS-30	61-A	OV-099 9	30 Oct 85 06 Nov 85	12:00:00 09:44:53	KSC, Pad A EAFB, 17L	Henry 'Hank' W. Hartsfield, Jr. (C) Steven R. Nagel (P) James F. Buchli (MS) Guion S. Bluford, Jr. (MS) Bonnie J. Dunbar (MS) Reinhard Furrer (PS) Ernst Messerschmid (PS) Wubbo J. Ockels (PS)	207 57.00	4,508,496 243,762 30,519 214,171	Spacelab-D1 GLOMAR Airlock Long Tunnel Galley RMS = s/n 302	111 Orbits 168 hrs 44 mins 51 secs 2,909,352 miles	25,830 79 203 8,304	Largest flight crew in history Orbiter returned to KSC on 11 Nov 85
23	STS-31	61-B	OV-104 2	26 Nov 85 03 Dec 85	19:29:00 13:33:49	KSC, Pad A EAFB, 22	Brewster H. Shaw, Jr. (C) Byron D. O'Conner (P) Mary L. Cleve (MS) Sherwood C. Spring (MS) Jerry L. Ross (MS) Rudolfo Neri Vela (PS) Charles D. Walker (PS)	240 28.45	4,514,530 261,610 42,788 205,732	MORELOS-B/PAM-D SATCOM-Ku1/PAM-D2 AUSSAT-2/PAM-D EASE/ACCESS IMAX Camera GAS (1) RMS = s/n 303	108 Orbits 165 hrs 04 mins 49 secs 2,838,972 miles	25,882 613 189 10,759	First construction of structures in orbit Second night launch Orbiter returned to KSC on 07 Dec 85
24	STS-32	61-C	OV-102 7	12 Jan 86 18 Jan 86	06:55:00 05:58:51	KSC, Pad A EAFB, 22	Robert L. 'Hoot' Gibson (C) Charles F. Bolden, Jr. (P) Franklin R. Chang-Diaz (MS) Steven A. Hawley (MS) George D. Nelson (MS) Robert J. Cenker (PS) Congressman C. William Nelson (PS)	213 28.45	4,509,360 256,003 28,625 210,161	SATCOM-Ku2/PAM-D2 MSL-2 Hitchhiker G-1 IR-IE GAS (13) Galley RMS = none	97 Orbits 146 hrs 03 mins 51 secs 2,528,658 miles	25,815 761 217 10,202	First flight of OV-102 following mods First flight of SEADS, SILTs, and SUMS flight test package Orbiter returned to KSC on 23 Jan 86
25	STS-33	51-L 10	OV-099 ---	28 Jan 86 ---	11:38:00 ---	KSC, Pad B	Francis R. 'Dick' Scobee (C) Michael J. Smith (P) Judith A Resnik (MS) Ellison S. Onizuka (MS) Ronald E. McNair (MS) Gregory B. Jarvis (PS) Sharon Christa McAuliffe (SFP)	150 * 28.5 * * planned	4,526,583 268,829 48,633 n/a	TDRS-B/IUS SPARTAN-203/Halley FDE CHAMP Galley RMS = s/n 302	--- 01 min 13 secs ---	n/a n/a n/a n/a	First Shuttle launch from Pad 39B Vehicle exploded 73 seconds after launch due to O-ring failure in right SRB Crew, vehicle and payload lost

--- indicates classified data or data not available
n/a indicates not applicable

RMS = Remote Manipulator System serial number
Orbital altitude is highest apogee

Edwards AFB (EAFB) Runways 05R, 17L, 23L, and 33 are lakebed.
Edwards AFB (EAFB) Runways 04 and 22 are concrete.
White Sands Missile Range (WSMR) Runway 17 is lakebed.
Kennedy Space Center (Shuttle Landing Facility) Runways 15 and 33 are concrete.

Times are local to the event

(C) = Shuttle Commander
(P) = Shuttle Pilot
(PC) = Payload Commander
(MS) = Mission Specialist
(PS) = Payload Specialist

Weights in pounds
Altitude and cross-range in miles
Inclination in degrees from Equator
Velocity in feet per second
Touchdown in knots indicated airspeed
Roll-out in feet after main gear touchdown

Figure A-1 - The First 25 Flights