

UPDATE OF 9/7/94
THIOKOL CORPORATION, ELKTON DIVISION
HISTORY OF STAR MOTOR FLIGHTS

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STAR 5A

8/7/85 2 MOTORS FLOWN SUCCESSFULLY - SHUTTLE CLASSIFIED MISSION1 EXCEPTION
5/10/91 2 MOTORS FLOWN-CLASSIFIED MISSION-ONLY ONE MOTOR FIRED-CAUSE UNKNOWN

3 SUCCESSES
1 EXCEPTION

STAR 5C (TE-M-344)
647 MOTORS FLOWN PRIOR TO SEPT 1988

714 OPPORTUNITIES
714 SUCCESSES

9/3/88	3 MOTORS FLOWN SUCCESSFULLY - TITAN 34D	CLASSIFIED MISSION	
9/5/88	4 MOTORS FLOWN SUCCESSFULLY - TITAN 11	CLASSIFIED MISSION	
11/8/88	4 MOTORS FLOWN SUCCESSFULLY - TITAN 34D	CLASSIFIED MISSION	
5/10/89	4 MOTORS FLOWN SUCCESSFULLY - TITAN 34D	CLASSIFIED MISSION	
6/14/89	4 MOTORS FLOWN SUCCESSFULLY - TITAN 1V	CLASSIFIED MISSION	
9/4/89	4 MOTORS FLOWN SUCCESSFULLY - TITAN 34D	CLASSIFIED MISSION	
9/5/89	4 MOTORS FLOWN SUCCESSFULLY - TITAN 1V	CLASSIFIED MISSION	
6/8/90	4 MOTORS FLOWN SUCCESSFULLY - TITAN 1V	CLASSIFIED MISSION	CLEAN BURN
11/12/90	4 MOTORS FLOWN SUCCESSFULLY - TITAN 1V	CLASSIFIED MISSION	CLEAN BURN
3/8/91	4 MOTORS FLOWN SUCCESSFULLY - TITAN 1V	CLASSIFIED MISSION	CLEAN BURN
11/7/91	4 MOTORS FLOWN SUCCESSFULLY - TITAN 1V	CLASSIFIED MISSION	CLEAN BURN
4/25/91	4 MOTORS FLOWN SUCCESSFULLY - TITAN 11	CLASSIFIED MISSION	CLEAN BURN
11/28/92	4 MOTORS FLOWN SUCCESSFULLY - TITAN 1V	CLASSIFIED MISSION	CLEAN BURN
1/25/94	4 MOTORS FLOWN SUCCESSFULLY - TITAN 11	CLASSIFIED MISSION	CLEAN BURN
2/9/94	4 MOTORS FLOWN SUCCESSFULLY - TITAN 1V	CLASSIFIED MISSION	CLEAN BURN
3/4/94	4 MOTORS FLOWN SUCCESSFULLY - TITAN 1V	CLASSIFIED MISSION	CLEAN BURN
8/27/94	4 MOTORS FLOWN SUCCESSFULLY - TITAN 1V	CLASSIFIED MISSION	CLEAN BURN

STAR 6B (TE-M-790)

3 MOTORS FLOWN AT UNKNOWN TIME
3 MOTORS FLOWN SUCCESSFULLY - USED TO DEPLOY DECOYS AT WTR
3/20/86 4 MOTORS FLOWN SUCCESSFULLY - USED TO DEPLOY DECOYS AT THIS TIME
2/8/88 4 MOTORS FLOWN ON DELTA 81--SD1 CLASSIFIED PAYLOAD

19 OPPORTUNITIES
18 SUCCESSES
1 NO TEST

OLD, BUT
GOOD FOR
EARLY MISSIONS

8/25/90 1 MOTOR FLOWN ON SOUNDING ROCKET-NO TEST DUE TO VEHICLE FAILURE
4/17/91 1 MOTOR FLOWN ON A SOUNDING ROCKET
10/5/92 1 MOTOR FLOWN ON LONG MARCH 2C FROM JUJUAN LAUNCH SITE FOR FREJA
10/21/92 2 MOTORS FLOWN FROM WALLEPS ISLAND FOR SDIO CLASSIFIED PAYLOAD

STAR 13 (TE-M-458)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	REMARKS	TOTAL FLIGHTS
7/1/66		01	IMP-D		S	***		2 OPPORTUNITIES
7/19/67		01	IMP-E		S	***		2 SUCCESSES
								2 ATTEMPTS

STAR 13A (TE-M-516/444)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	REMARKS	TOTAL FLIGHTS
5/6/65	TITAN 111A	AKM	LES	***	S	***		8 OPPORTUNITIES
6/29/67	BURNER 11	AKM	SECOR	WTR	S	***		8 SUCCESSES
8/16/68	BURNER 11	AKM	SESP	WTR	NT	***	MISSION FAILED...	1 NO TEST
6/8/71	BURNER 11	AKM	SESP	WTR	S	***	...S/C DESTROYED	9 ATTEMPTS
8/6/71	ATLAS***	AKM***	STP-70-2	***	#	***		
1973	ATLAS	AKM	S-3	WTR	#	***		
***	***	***	***	***	#	***		
2/8/88	DELTA 181	KICK	SDI	ETR	S		FLIGHT DATA UNKNOWN	
10/5/92	LONG MARCH	KICK	FREJA	JUJUAN	S			

STAR 13B (TE-M-763-1)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	REMARKS	TOTAL FLIGHTS
8/16/84	DELTA 180	AKM	AMPT	ETR	S	001		2 SUCCESS
1/16/88	STRYP 11	KICK	SDIO	BARK SAND	S	002		2 SUCCESS

STAR 17 (TE-M-479)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	REMARKS	TOTAL FLIGHTS
7/4/68	DELTA 57	AKM	RAE-A	WTR	S	***		4 OPPORTUNITIES
6/10/73	DELTA 95	AKM	RAE-B	ETR	S	***		4 SUCCESSES
1973***	ATLAS***	AKM	S-3	WTR	S	***		4 ATTEMPTS
76-77**	ATLAS***	AKM	SOLRAD	WTR***	S	***		

STAR 17A (TE-M-521-5/-7)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N-DSH	REMARKS	TOTAL FLIGHTS
11/21/69	DELTA 74	AKM	SKYNET-A	ETR	S	***-*		8 OPPORTUNITIES
3/20/70	DELTA 77	AKM	NATO-A	ETR	S	***-*		7 SUCCESSES
8/19/70	DELTA 80	AKM	SKYNET-B	ETR	E	***-*	POSSIBLE MOTOR FAILURE...	1 NT
2/2/71	DELTA 82	AKM	NATO-B	ETR	S	***-*	...(PV32-222-47)	1 EXCEPTION
9/22/72	DELTA 90	AKM	IMP-H	ETR	S	***-*		9 ATTEMPTS
10/12/73	DELTA 97	AKM	IMP-J	ETR	S	***-*		
1973****	ATLAS****	***	STP-72-2	WTR	NT	***-*	LOWER STAGE FAILURE	
1973****	ATLAS****	AKM****	S-3	WTR	S	***-*	USED 13A AKM	
76-77****	ATLAS****	PKM****	SOLRAD	WTR	S	***-*		

STAR 20 ALTAIR (TE-M-640-1)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	REMARKS	TOTAL FLIGHTS
8/30/74	S-189	89	ANS-A	WTR	S	E-14	PV32-344	32 OPPORTUNITIES
10/15/74	S-187	90	UK-5	SAN MARCO	S	E-13	PV32-344	32 SUCCESSES
5/7/75	S-194	91	SAS-C1	SAN MARCO	S	E-16	PV32-372	2 NT
10/11/75	S-195	92	TIP-11	WTR	S	E-15	PV32-344	34 ATTEMPTS
12/5/75	S-196	93	DAD	WTR	NT	E-18	PV32-372	
4/76	CLASSIFIED	4TH STG	CLASS.	CLASS.	S	E-22	PV32-372	3RD STG FAILED
5/22/76	S-179	94	P76-5	WTR	S	E-21	PV32-372	CLASSIF NAVY FLIGHT (NRL)
6/18/76	S-193	95	GP-A	WALLOPS	S	E-19	PV32-372	(INFORMATION RECONSTRUCTED
9/1/76	S-197	96	TIP-111	WTR	S	E-17	PV32-372	FROM 100 SCOUT LAUNCHES,
10/21/77	S-200	97	TRANSAT	WTR	S	E-20	PV32-372	...JULY 27, 1979)
4/26/78	S-201	98	HGM	WTR	S	E-23	PV32-425	
2/18/79	S-202	99	SAGE	WALLOPS	S	E-27	PV32-429	
6/2/79	S-198	100	UK-6	WALLOPS	S	E-29	PV32-429	
10/30/79	S-203	101	MAGSAT	WTR	S	E-26	PV32-429	
5/14/81	S-192	102	NOVA-1	WTR	S	E-25	PV32-425	
CLASS.	CLASSIFIED	UPPER STG	CLASS.	CLASSIFIED	S	E-24	PV32-425	(NRL)
CLASS.	CLASSIFIED	UPPER STG	CLASS.	CLASSIFIED	NT	E-30	PV32-429	LAUNCH VEHICLE FAILURE
6/27/83	S-205	103	HILAT	WTR	S	E-31	PV32-492	
10/11/84	S-208	104	NOVA-111	WTR	S	E-35	PV32-492	
8/2/85	S-209	***	SOOS	WTR	S	E-37	PV32-492	
12/12/85	S-207	4TH STG	AF-16	WTR	S	E-32	PV32-492	
11/13/86	S-199	4TH STG	POLAR BEAR	WTR	S	E-38	PV32-492	
9/16/87	S-204	4TH STG	SOOS-2	WTR	S	E-43	PV32-658	
3/25/88	S-206	4TH STG	SMD/L	SAN MARCO	S	E-43	PV32-658	
6/15/88	S-211	4TH STG	SOOS-3	WTR	S	E-39	PV32-658	
8/25/88	S-213	4TH STG	NOVA-11	WTR	S	E-41	PV32-658	
4/11/90	S-214	4TH STG	SOOS-4	WTR	S	E-40	PV32-658	
5/9/90	ATLAS	UPR STGE	STACKSAT	WTR	S	E-42	PV32-658	9 YEAR OLD MOTOR
6/29/91	SCOUT	4TH STG	MAGSAT	WTR	S	E-44	PV32-679	9 YEAR OLD MOTOR
		4TH STG	REX	WTR	S	E-47	PV32-	8 YEAR OLD MOTOR

7/3/92	SCOUT	4TH STG	SAMPEX	WTR	S	E-48	PV32-	9 YEAR OLD MOTOR
11/21/92	SCOUT	4TH STG	MSTI-1	WTR	S	E-47	PV32-	9 YEAR OLD MOTOR
6/25/93	SCOUT	4TH STG	RADCAL	WTR	S	E-55	PV32-	
5/8/94	SCOUT	4TH STG	MSTI-2	WTR	S	E-??	PV32-	LAST SCOUT LAUNCH

STAR 20B ASAT (TE-M-640-4)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	REMARKS	TOTAL FLIGHTS
1/21/84	F-15	2ND STG	CLASSIFIED		S	P-2	FTM-1 (PINS TEST)	5 OPPORTUNITIES
11/13/84	F-15	2ND STG	HOMING VEHICLE	CLASS.	S	P-1	TARGETED ON A STAR	5 SUCCESSES
9/13/85	F-15	2ND STG	HOMING VEHICLE	CLASS.	S	P-#	SUCCESSFULLY DESTROYED TARGET	5 ATTEMPTS
8/29/86	F-15	2ND STG	HOMING VEHICLE	CLASS.	S	P-5	SUCCESSFUL	
9/30/86	F-15	2ND STG	HOMING VEHICLE	CLASS.	S	P-6	SUCCESSFUL	

STAR 24/24C (TE-M-604-4)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	REMARKS	TOTAL FLIGHTS
1/18/74	DELTA 100	AKM	SKYNET-11	ETR	S	***	DELTA FAIL, SUCCESSFUL AKM	6 OPPORTUNITIES
7/13/74	ATLAS-CENT	AKM	STP-73-3	WTR	S	***	TIMATION !!	6 SUCCESSES
11/22/74	DELTA 105	AKM	SKYNET-11	ETR	S	***		6 ATTEMPTS
5/4/76	DELTA 123	AKM	LAGEOS	WTR	S	***	2130 S&A	
1/26/78	DELTA 138	AKM	IUE	ETR	S	***	2130 S&A	
12/4/78	ATLAS-CENT	AKM	PIONEER/VENUS	ETR	S	***	2130 S&A, ATLAS ON 5/20/78	

STAR 26/26C (TE-M-442-0/-2)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N-DSH	REMARKS	TOTAL FLIGHTS
***	***	3 OR 4	STG	STRYP1-IV	***	****-0		14 OPPORTUNITIES
***	***	3 OR 4	STG	STRYP1-IV	***	****-0		14 SUCCESSES
***	***	3 OR 4	STG	HALBERD	***	****-0		14 ATTEMPTS
***	***	3 OR 4	STG	BART	***	****-0		
***	***	3 OR 4	STG	SMERVE-11	***	****-0		
***	***	3 OR 4	STG	MTV-1	***	****-0		
***	***	3 OR 4	STG	MTV-1	***	****-0		
***	***	3 OR 4	STG	BOLERO	***	****-2		
***	***	3 OR 4	STG	SMERVE-1	***	****-2		
***	***	3 OR 4	STG	SMERVE-11	***	****-2		
***	***	3 OR 4	STG	DOT	***	****-2		
***	***	3 OR 4	STG	DOT	***	****-2		
6/12/81	ARIANE	AKM	SWEDISH VIKING	KOUROU	S	001-3		
2/21/86	ARIANE	AKM	SWEDISH VIKING	KOUROU	S	001-3		

SANDIA DELIVERIES TOTALLED 12. 10 FLOWN, 1 DAMAGED, 1 IN STORAGE AS OF 1/82. VERIFIED BY WALT SUITER.
FOUR DOT MOTORS DELIVERED. CONFIRMED 3 FLOWN. 1 WON'T BE USED. VERIFIED BY DICK ROLL (BOEING).

STAR 268 (TE-M-442-1)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	REMARKS	TOTAL FLIGHTS
3/24/72	BURNER 11A	3RD STG	SV-1	WTR	S	005		8 OPPORTUNITIES
10/2/72	BURNER 11A	3RD STG	STP-72-1	WTR	S	***		8 SUCCESSES
11/8/72	BURNER 11A	3RD STG	SV-3	WTR	S	003		8 ATTEMPTS
8/16/73	BURNER 11A	3RD STG	CLASSIF	WTR	S	***		
3/15/74	BURNER 11A	3RD STG	CLASSIF	WTR	S	006		
8/8/74	BURNER 11A	3RD STG	CLASSIF	WTR	S	007		
5/23/75	BURNER 11A	3RD STG	DMS	WTR	S	008		
2/19/76	BURNER 11A	3RD STG	CLASSIF	WTR	S	009		

STAR 27 (TE-M-616)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	DSH	REMARKS	TOTAL FLIGHTS
1/20/76	DELTA 119	AKM	CTS	ETR	S	UNK-1			30 OPPORTUNITIES
6/24/77	ATLAS F	AKM	GPS, NTS-2	WTR	S	0031-9		(ALL BUT GPS AND... NAVSTAR USED MODEL ...2130 S&A)	30 SUCCESSES
7/15/77	DELTA 132	AKM	GMS-1	ETR	S	0016-5			2 NO TEST
2/25/78	ATLAS F	AKM	NAVSTAR-1	WTR	S	0017-8			32 ATTEMPTS
4/8/78	DELTA 140	AKM	BSE	ETR	S	0012-4			
5/15/78	ATLAS F	AKM	NAVSTAR-2	WTR	S	0011-8			
10/8/78	ATLAS F	AKM	NAVSTAR-3	WTR	S	0018-8			
12/13/78	ATLAS F	AKM	NAVSTAR-4	WTR	S	0028-8			
7/9/79	***	AKM	P-78-1	WTR	S	0034-11			
2/9/80	ATLAS	AKM	NAVSTAR-5	WTR	S	0030-6			
4/27/80	ATLAS	AKM	NAVSTAR-6	WTR	S	0026-8			
9/9/80	DELTA 152	AKM	GOES-D	ETR	S	0020-5			
5/24/81	DELTA 154	AKM	GOES-E	ETR	S	0041-5			
8/12/81	N11-JAPAN	AKM	GMS-11	TANEGASHIMA	S	0038-5			
12/16/81	ATLAS F	AKM	NAVSTAR-7	WTR	NT	0032-6			
2/8/83	N11-JAPAN	AKM	CS-2A	TANEGASHIMA	S	0048-12		ATLAS FAILED	
4/30/83	DELTA 168	AKM	GOES-F	ETR	S	0035-5			
7/15/83	SGS 11	AKM	NAVSTAR-8	WTR	S	0043-8			
8/7/83	N11-JAPAN	AKM	CS-2B	TANEGASHIMA	S	0045-12			
1/25/84	N11-JAPAN	AKM	BS-2A	TANEGASHIMA	S	0055-4			
SPR 1984	ATLAS	KICK	GEOSAT	WTR	S	0056-13			
6/14/84	SGS 11	AKM	NAVSTAR-9	WTR	S	0044-8			
8/4/84	N11-JAPAN	AKM	GMS-111A	TANEGASHIMA	S	0062-5			
9/10/84	SGS 11	AKM	NAVSTAR-10	WTR	S	0033-8			
11/15/84	DELTA 177	AKM	NATO-111D	ETR	S	0049-12			
10/10/85	SGS 11	AKM	NAVSTAR-11	WTR	S	****-***			
2/15/86	N11-JAPAN	AKM	BS-2B	TANEGASHIMA	S				
5/3/86	DELTA	AKM	GOES-G	ETR	NT			DELTA 1ST STAGE FAILURE	

2/27/87	DELTA	AKM	GOES-H	ETR	S			
2/8/88	STRYP1 11	AKM	SDI	BARKING	S			
9/6/89	H1-JAPAN	AKM	GMS IV	TANEGASHIMA	S			
2/18/91	STRYP1 11	AKM	LACE	BARKING	S			

STAR 30B (TE-M-700-5,-8,-9)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N-DSH	REMARKS	TOTAL FLIGHTS
11/17/80	DELTA 153	AKM	SBS-1	ETR	S	010-5	(ALL USED 2130 S&A	29 OPPORTUNITIES
9/25/81	DELTA 156	AKM	SBS-2	ETR	S	015-5	EXCEPT AS NOTED)	29 SUCCESSES
11/22/81	DELTA 158	AKM	SATCOM-D	ETR	S	022-8		1 NO TEST
12/21/81	ARIANE-L4	AKM	MARECS-A	KOUROU	S	003-9		30 ATTEMPTS
1/20/82	DELTA 159	AKM	SATCOM-E	ETR	S	024-8		
3/1/82	DELTA 160	AKM	WESTAR-IV	ETR	S	006-5		
6/11/82	DELTA 162	AKM	WESTAR-V	ETR	S	009-5		
8/27/82	DELTA 163	AKM	ANIK D-1	ETR	S	013-5		
9/10/82	ARIANE-L5	AKM	MARECS-B	KOUROU	NT	004-9		
10/31/82	DELTA 165	AKM	SATCOM-F	ETR	S	038-8	ARIANE 3RD STG FAILURE	
11/13/82	STS-5	AKM	SBS-3	ETR	S	014-5		
11/16/82	STS-5	AKM	ANIK C-3	ETR	S	016-5		
4/15/83	DELTA 167	AKM	SATCOM-G	ETR	S	039-8		
6/21/83	STS-7	AKM	ANIK C-2	ETR	S	007-5		
7/2/83	DELTA 170	AKM	PALAPA B-1	ETR	S	008-5		
7/29/83	DELTA 171	AKM	GALAXY-A	ETR	S	026-5		
9/12/83	DELTA 172	AKM	TELESTAR-3A	ETR	S	030-5		
9/23/83	DELTA 173	AKM	SATCOM-H	ETR	S	040-8		
5/16/84	STS-41B/11	AKM	GALAXY-B	ETR	S	027-5		
5/12/84	STS-41B/11	AKM	WESTAR-VI	ETR	S	029A-5	FIRED AFTER 103 DAYS IN SPACE	
5/26/84	ARIANE	AKM	PALAPA B-2	ETR	S	031-5	FIRED AFTER 99 DAYS IN SPACE	
8/31/84	STS-41D/14	AKM	SPACENET	KOUROU	S	045-8	USED MODEL 2134 S&A	
9/3/84	STS-41D/14	AKM	SBS-D	ETR	S	034-5		
9/22/84	DELTA-176	AKM	TELESTAR-3C	ETR	S	036-5		
11/12/84	STS-51A	AKM	GALAXY-C	ETR	S	049-5		
2/9/85	ARIANE	AKM	ANIK D-2	ETR	S	046-5		
4/14/85	STS-51D	AKM	BRASILSAT-A	KOUROU	S	047-5		
2/18/88	JAP H-1	AKM	ANIK C-1	ETR	S	032-5		
9/17/88	JAP H-1	AKM	CS-3A	TANEGASHIMA	S	001-5		
			CS-3B	TANEGASHIMA	S	003-5		

STAR 30BP (TE-M-700-17)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	REMARKS	TOTAL FLIGHTS
11/13/84	ARIANE	AKM	SPACENET	KOUROU	S	056-17	2130A S&A	22 ATTEMPTS
5/11/85	ARIANE	AKM	G-STAR	KOUROU	S	061-17		21 OPPORTUNITIES
6/18/85	STS-51G	AKM	MORELOS	ETR	S	***-***		21 SUCCESS
6/20/85	STS-51G	AKM	TELSTAR-3D	ETR	S	***-***		1 NO TEST

STAR 31 ANTARES III (TE-M-762)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	REMARKS	TOTAL FLIGHTS
10/30/79	S-203	3RD STG	MAGSAT	WTR	S	E-1		17 OPPORTUNITIES
5/14/81	S-192	3RD STG	NOVA-1	WTR	S	E-2		17 SUCCESSES
10/11/84	S-208	3RD STG	NOVA-111	WTR	S	E-3		17 ATTEMPTS
8/2/85	S-209	3RD STG	SOOS	WTR	S	E-4		
12/12/85	S-207	3RD STG	AF-16	WTR	S	E-8		
11/13/86	S-199	3RD STG	POLAR BEAR	WTR	S	E-5		
9/16/87	S-204	3RD STG	SOOS-2	WTR	S	E-6		
3/25/88	S-206	3RD STG	SMD/L	SAN	S	E-7		
4/25/88	S-211	3RD STG	SOOS-3	WTR	S	E-12		
6/15/88	S-213	3RD STG	NOVA-11	WTR	S	E-9		
8/25/88	S-214	3RD STG	SOOS-4	WTR	S	E-13		
5/9/90	S-212	3RD STG	MAGSAT	WTR	S	E-11		
6/29/91	SCOUT	3RD STG	REX	WTR	S	E-10	TEN YEAR OLD MOTOR	
7/3/92	SCOUT	3RD STG	SAMPEX	WTR	S	E-14	TEN YEAR OLD MOTOR	
11/21/92	SCOUT	3RD STG	MSTI-1	WTR	S	E-15	11 YEAR OLD MOTOR	
6/26/93	SCOUT	3RD STG	RADCAL	WTR	S	E-16	11 YEAR OLD MOTOR	
5/8/94	SCOUT	3RD STG	MSTI-2	WTR	S	E-??	LAST SCOUT LAUNCH	

STAR 37 (TE-M-364-1)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	REMARKS	TOTAL FLIGHTS
5/30/66	ATLAS-CENT.	RETRO	SURVEYOR SC-1		S	A21-26	(ALL USED 2129 S&A)	7 OPPORTUNITIES
9/22/66	ATLAS-CENT.	RETRO	SURVEYOR SC-2		S	A21-27	SPACECRAFT LOST	6 SUCCESSES
4/16/67	ATLAS-CENT.	RETRO	SURVEYOR SC-3		S	A22-8		1 EXCEPTION
7/14/67	ATLAS-CENT.	RETRO	SURVEYOR SC-4		E	A22-9	SHORT BURN TIME	7 ATTEMPTS
9/8/67	ATLAS-CENT.	RETRO	SURVEYOR SC-5		S	A21-28		
10/7/67	ATLAS-CENT.	RETRO	SURVEYOR SC-6		S	A21-29		
1/6/68	ATLAS-CENT.	RETRO	SURVEYOR SC-7		S	A22-14		

STAR 37B (TE-M-364-2)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	REMARKS	TOTAL FLIGHTS
9/15/66	BURNER II	2ND STG	FTV-3	WTR	S	001	(CLASSIFIED LAUNCHES,...	21 OPPORTUNITIES
2/18/67	BURNER II	2ND STG	FTV-2	WTR	S	002	...ALL USED 2129 S&A)	21 SUCCESSES
6/29/67	BURNER II	2ND STG	SECOR	WTR	S	003		1 NO TEST
8/22/67	BURNER II	2ND STG	FTV-4	WTR	S	004		22 ATTEMPTS
10/11/67	BURNER II	2ND STG	FTV-5	WTR	S	005		
5/21/68	BURNER II	2ND STG	FTV-8	WTR	S	006		

8/16/68	BURNER 11	2ND STG	SESP-11	WTR	NT	014	MISSION FAILED/SYSTEM NOSE CONE FAILURE
10/22/68	BURNER 11	2ND STG	FTV-7	WTR	S	008	
7/22/69	BURNER 11	2ND STG	FTV-6	WTR	S	007	
2/11/70	BURNER 11	2ND STG	FTV-11	WTR	S	009	
9/2/70	BURNER 11	2ND STG	FTV-12	WTR	S	013	
2/16/71	BURNER 11	2ND STG	FTV-10	WTR	S	011	
6/8/71	BURNER 11	2ND STG	SESP	WTR	S	012	SPACECRAFT DESTROYED WHEN HEAT SHIELD ...
10/13/71	BURNER 11	2ND STG	SV	WTR	S	010	DID NOT DEPLOY.
3/24/72	BURNER 11	2ND STG	SV-1	WTR	S	015	
10/2/72	BURNER 11	2ND STG	STP-72-1	WTR	S	023	
11/8/72	BURNER 11	2ND STG	SV-3	WTR	S	016	
8/16/73	BURNER 11	2ND STG	CLASS	WTR	S	021	
3/15/74	BURNER 11	2ND STG	CLASS	WTR	S	019	
8/8/74	BURNER 11	2ND STG	CLASS	WTR	S	022	
5/23/75	BURNER 11	2ND STG	CLASS	WTR	S	024	
2/19/76	BURNER 11	2ND STG	CLASS	WTR	S	025	

STAR 37C (TE-M-364-18)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	REMARKS	TOTAL FLIGHTS
9/22/72	DELTA 90	3RD STG	IMP-H	ETR	S	40018	(ALL USED 2129 S&A)	8 OPPORTUNITIES
11/9/72	DELTA 92	3RD STG	TELESAT-A	ETR	S	40019		8 SUCCESSES
4/20/73	DELTA 94	3RD STG	TELESAT-B	ETR	S	40021		8 ATTEMPTS
10/12/73	DELTA 97	3RD STG	IMP-J	ETR	S	40022		
4/13/74	DELTA 101	3RD STG	WESTAR-A	ETR	S	40025		
10/26/74	DELTA 103	3RD STG	WESTAR-B	ETR	S	40026		
5/1/75	DELTA 110	3RD STG	TELESAT-C	ETR	S	40033		
7/8/76	DELTA 125	3RD STG	PALAPA-A	ETR	S	40035	100TH SUCCESSFUL DELTA FLIGHT	

STAR 37D (TE-M-364-3)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	REMARKS	TOTAL FLIGHTS
7/14/68	DELTA 57	3RD STG	RAE-A	WTR	S	009		19 OPPORTUNITIES
9/18/68	DELTA 59	3RD STG	INTLST-3A	ETR	NT	007	1ST STAGE CONTROL...	18 SUCCESSES
12/18/68	DELTA 63	3RD STG	INTLST-3C	ETR	S	011	...SYSTEM FAILURE.	1 EXCEPTION
2/5/69	DELTA 66	3RD STG	INTLST-3B	ETR	S	012		1 NO TEST
5/21/69	DELTA 68	3RD STG	INTLST-3D	ETR	S	013		20 ATTEMPTS
7/25/69	DELTA 71	3RD STG	INTLST-3E	ETR	E	008	DID NOT REACH TRANSFER ORBIT	
11/21/69	DELTA 74	3RD STG	SKYNET-A	ETR	S	017		
1/14/70	DELTA 75	3RD STG	INTLST-3F	ETR	S	016		
3/20/70	DELTA 77	3RD STG	NAIO-A	ETR	S	015		
4/22/70	DELTA 78	3RD STG	INTLST-3G	ETR	S	014		
7/23/70	DELTA 79	3RD STG	INTLST-3H	ETR	S	019	DID NOT ORBIT, SPACECRAFT LOST	
8/19/70	DELTA 80	3RD STG	SKYNET-B	ETR	S	018	TELEMETRY LOST	
2/2/71	DELTA 82	3RD STG	NAIO-B	ETR	S	022		

3/13/71	DELTA 83	3RD STG	IMP-1	ETR	S	023			
6/10/73	DELTA 95	3RD STG	RAE-B	ETR	S	024			
1/18/74	DELTA 100	3RD STG	SKYNET-2A	ETR	S	027	MODEL 2129 S&A;	DELTA DID'T REACH ORBIT	
11/22/74	DELTA 105	3RD STG	SKYNET-2B	ETR	S	026	MODEL 2129 S&A		
8/8/75	DELTA 113	3RD ST	COS-B	WTR	S	025	MODEL 2129 S&A;	AGE WHEN FIRED: 3YR, 8MO	
5/4/76	DELTA 123	3RD ST	LAGEOS	WTR	S	028	MODEL 2129 S&A		
8/25/77	DELTA 133	3RD ST	SIROS	ETR	S	029	MODEL 2129 S&A		

STAR 37E (TE-M-364-4)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	REMARKS	TOTAL FLIGHTS
3/2/72	ATLAS-CENT.	UP STG	PIONEER-10	ETR	S	40016	(EXCEPT AS NOTED...	75 OPPORTUNITIES
4/20/73	ATLAS-CENT.	UP STG	PIONEER-11	ETR	S	40017	THE 37E USED THE	75 SUCCESSES
5/16/74	DELTA 102	3RD STG	SMS-A	ETR	S	40020	... 2129 S&A)	4 NO TEST
7/13/74	ATLAS-CENT.	PKM	STP-73-3	WTR	S	40027	TIMATION !!	78 ATTEMPTS
12/11/74	TITAN-CENT.	UP STG	HELIOS-A	ETR	S	40026		
12/18/74	DELTA 106	3RD STG	SYMPHONIE-A	ETR	S	40029		
2/6/75	DELTA 105	3RD STG	SMS-B	ETR	S	40023		
8/26/75	DELTA 114	3RD STG	SYMPHONIE-B	ETR	S	40038		
10/16/75	DELTA 116	3RD STG	GOES-A	ETR	S	40024		
12/12/75	DELTA 118	3RD STG	SATCOM-A	ETR	S	40039		
1/15/76	TITAN-CENT.	UP STG	HELIOS-B	ETR	S	40040		
2/19/76	DELTA 119	3RD STG	CTS	ETR	S	40032		
3/26/76	DELTA 120	3RD STG	MARISAT-A	ETR	S	40041		
4/22/76	DELTA 121	3RD STG	SATCOM-B	ETR	S	40043		
6/9/76	DELTA 124	3RD STG	MARISAT-B	ETR	S	40042		
9/11/75	THOR	2ND STG	BLOCK 5D-1,1	WTR	S	40030		
10/14/76	DELTA 127	3RD STG	MARISAT-C	ETR	S	40046		
1/27/77	DELTA 128	3RD STG	NATO-3B	ETR	S	40045		
3/10/77	DELTA 129	3RD STG	PALAPA-B	ETR	S	40044		
4/20/77	DELTA 130	3RD STG	ESRO-GOES	ETR	S	40048		
6/5/77	THOR	2ND STG	BLOCK 5D-1,2	WTR	S	40031	SPACECRAFT NOT PROPERLY SPUN, ACHEIVED	
6/16/77	DELTA 131	3RD STG	GOES-B	ETR	S	40047	... INCORRECT ORBIT	
6/23/77	ATLAS F	2,3 STG	GPS, NTS-2	WTR	S	40054/40055	USED MODEL 2130 S&A	
7/14/77	DELTA 132	3RD STG	GMS	ETR	S	40049		
8/20/77	TITAN-CENT.	UP STG	VOYAGER77-2	ETR	S	40065	JUPITER-SUMMER 79, SATURN-SUMMER 80	
9/5/77	TITAN-CENT.	UP STG	VOYAGER77-1	ETR	S	40066	SATURN-SUMMER 81, URANUS-SPRING 86	
9/13/77	DELTA 134	3RD STG	OTS-1	ETR	NT	40059,	1ST STAGE FAILURE	
10/22/77	DELTA 135	3RD STG	ISEE-A/B	ETR	S	40051		
11/22/77	DELTA 136	3RD STG	METEOSAT	ETR	S	40050		
12/14/77	DELTA 137	3RD STG	CS	KSC	S	40052		
1/26/78	DELTA 138	3RD STG	IUE	ETR	S	40062		
2/22/78	ATLAS	2,3 STG	NAVSTAR-1	WTR	S	40053/40056	USED MODEL 2130 S&A	
4/7/78	DELTA 140	3RD STG	BSE	ETR	S	40057		
4/30/78	THOR	2ND STG	BLOCK 5D-1,3	WTR	S	40034		
5/11/78	DELTA 141	3RD STG	OTS-2	ETR	S	40058		
5/13/78	ATLAS F	2,3 STG	NAVSTAR-2	WTR	S	40063/40064	USED MODEL 2130 S&A	
6/16/78	DELTA 142	3RD STG	GOES-C	ETR	S	40079		
7/14/78	DELTA 143	3RD STG	ESRO-GOES-2	ETR	S	40061		

8/12/78	DELTA 144	3RD STG	ISEE-C	ETR	S	40069	
10/6/78	ATLAS F	2,3 STG	NAVSTAR-3	WTR	S	40060/40067	USED MODEL 2130 S&A
11/18/78	DELTA 146	3RD STG	NATO-3	ETR	S	40078	
12/11/78	ATLAS F	2,3 STG	NAVSTAR-4	WTR	S	40068/40071	USED MODEL 2130 S&A
12/15/78	DELTA 147	3RD STG	ANIK-B	ETR	S	40070	
1/30/79	DELTA 148	3RD STG	SCATHA	ETR	S	40076	
6/6/79	THOR	2ND STG	BLOCK 5D-1	WTR	S	40036	
8/9/79	DELTA 149	3RD STG	WESTAR-C	ETR	S	40083	
12/6/79	DELTA 150	3RD STG	SATCOM-C	ETR	S	40080	
2/9/80	ATLAS	2,3 STG	NAVSTAR-5	WTR	S	40072/40073	FAILED APOGEE MOTOR USED MODEL 2130 S&A
4/26/80	ATLAS	2,3 STG	NAVSTAR-6	WTR	S	40074/40075	USED MODEL 2130 S&A
7/14/80	THOR	2ND STG	BLOCK 5D	WTR	S	40081	
9/9/80	DELTA 152	3RD STG	GOES-D	ETR	S	40084	
2/11/81	NII-JAPAN	3RD STG	ETS-4	TANEGASHIMA	S	40089	
5/22/81	DELTA 154	3RD STG	GOES-E	ETR	S	40091	
8/10/81	NII-JAPAN	3RD STG	GMS-2	TANEGASHIMA	S	40090	
12/16/81	ATLAS F	2,3 STG	GPS	WTR	NT	40082/40085	USED MODEL 2130 S&A, ATLAS FAILED
10/27/82	DELTA 165	3RD STG	SATCOM-E	ETR	S	40093	
2/6/83	NII-JAPAN	3RD STG	CS-2A	TANEGASHIMA	S	40092	
4/11/83	DELTA 167	3RD STG	SATCOM-G	ETR	S	40095	
4/29/83	DELTA 168	3RD STG	GOES-F	ETR	S	40096	
5/26/83	DELTA 169	3RD STG	EXOSAT	WTR	S	40086	
8/6/83	NII-JAPAN	3RD STG	CS-2B	TANEGASHIMA	S	40094	
9/8/83	DELTA 172	3RD STG	SATCOM-H	ETR	S	40098	
1/23/84	NII-JAPAN	PKM	BS-2A	TANEGASHIMA	S	40097	
8/2/84	NII-JAPAN	3RD STG	GMS-3A	TANEGASHIMA	S	40100	
8/16/84	DELTA 180	3RD STG	AMTE	ETR	S	40099	
11/13/84	DELTA 177	3RD STG	NATO-111D	ETR	S	40102	
2/12/86	NII-JAPAN	PKM	BS-2B	TANEGASHIMA	NT	40104	
5/3/86	DELTA	PKM	GOES-G	ETR	S	40103	
2/26/87	DELTA	PKM	GOES-H	ETR	S	40105	DELTA 1ST STAGE FAILURE

STAR 37F (TE-M-364-19)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N-DSH	REMARKS	TOTAL FLIGHTS
2/11/78	ATLAS-CENT.	AKM	FLTSATCOM-A	ETR	S	19004-4		
5/6/79	ATLAS-CENT.	AKM	FLTSATCOM-B	ETR	S	19005-4	(ALL USED 2129 S&A)	10 OPPORTUNITIES
1/19/80	ATLAS-CENT.	AKM	FLTSATCOM-C	ETR	S	19007-4	(-4=26722-04)	10 SUCCESSES
11/1/80	ATLAS-CENT.	AKM	FLTSATCOM-D	ETR	S	19017-4	(-1=29600-01)	11 ATTEMPTS
12/8/80	ATLAS-CENT.	AKM	INTELSATV-1	ETR	S	19011-1		
5/25/81	ATLAS-CENT.	AKM	INTELSATV-2	ETR	S	19010-1		
8/9/81	ATLAS-CENT.	AKM	FLTSATCOM-E	ETR	S	19018-4		
12/18/81	ATLAS-CENT.	AKM	INTELSATV-3	ETR	S	19016-1		
3/7/82	ATLAS-CENT.	AKM	INTELSATV-4	ETR	S	19014-1		
10/1/82	ATLAS-CENT.	AKM	INTELSATV-5	ETR	S	19013-1		
3/26/87	ATLAS-CENT.	AKM	FLTSATCOM	ETR	NT		LIGHTNING STRIKE-ATLAS FAILURE	

STAR 37N (TE-M-364-14)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	REMARKS	TOTAL FLIGHTS
9/9/75	NI-JAPAN	3RD STG	ETS-1	TANEGASHIMA	S	14002	KIKO-1	8 OPPORTUNITIES 8 SUCCESSES 8 ATTEMPTS
2/29/76	NI-JAPAN	3RD STG	ISS (UME)	TANEGASHIMA	S	14003	(ALL USED 2129 S&A)	
2/23/77	NI-JAPAN	3RD STG	ETS-2	TANEGASHIMA	S	14004	KIKO-2	
2/16/78	NI-JAPAN	3RD STG	ISS-B	TANEGASHIMA	S	14005	SPACECRAFT/VEHICLE COLLISION APOGEE MOTOR FAILURE	
2/6/79	NI-JAPAN	3RD STG	ECS-A	TANEGASHIMA	S	14006		
2/22/80	NI-JAPAN	3RD STG	ECS-B	TANEGASHIMA	S	14007		
8/1/81	DELTA 155	3RD STG	DYN EXPLR	WTR	S	14009		
9/13/82	NI-JAPAN	3RD STG	ETS-3	TANEGASHIMA	S	14008		

STAR 37S (TE-M-364-15)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	REMARKS	TOTAL FLIGHTS
9/11/76	THOR	01	BLOCK 5D-1,1	WTR	S	15002	(ALL USED 2129 S&A)	22 OPPORTUNITIES 21 SUCCESSES 0 NO TEST 22 ATTEMPTS 1 FAILURE
6/5/77	THOR	01	BLOCK 5D-1,3	WTR	S	15003		
4/30/78	THOR	01	BLOCK 5D	WTR	S	15004		
10/13/78	ATLAS	01	TIROB N-1	WTR	S	15009	SPACECRAFT OFF COURSE, MOTOR SUCCESSFUL	
6/6/79	THOR	01	BLOCK 5D-1,4	WTR	S	15005		
6/27/79	ATLAS	01	TIROB N-2	WTR	S	15010		
5/29/80	ATLAS	01	TIROB N-3	WTR	S	15006		
7/14/80	THOR	01	BLOCK 5D-1,5	WTR	S	15011	NOAA-E	
6/23/81	ATLAS	01	TIROB N-4	WTR	S	15017		
12/20/82	ATLAS	01	BLOCK 5D-1,6	WTR	S	15013		
3/28/83	ATLAS	01	TIROB N-5	WTR	S	15015	PROBABLE NOZZLE COLLAPASE AT TAILOFF	
11/23/83	ATLAS	01	BLOCK 5D-1,7	WTR	S	15018		
12/12/84	ATLAS	01	TIROB N-6	WTR	S	15020		
9/17/86	ATLAS	01	TIROB	WTR	S	15019		
6/19/87	ATLAS	01	DMSP	WTR	S	15021		
2/2/88	ATLAS	01	DMSP	WTR	S	15023		
9/24/88	ATLAS	01	TIROB	WTR	S	15027		
12/1/90	ATLAS	01	DMSP	WTR	S	15026B		
5/14/91	ATLAS	01	TIROB	WTR	S	15029		
11/28/91	ATLAS	01	DMSP	WTR	S	15028C		
8/9/93	ATLAS	01	NOAA-1	WTR	S	15030		
8/28/94	ATLAS	01	DMSP-1	WTR	S	15030		

STAR 37XF (TE-M-714-6,7,8,9)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N-DSH	REMARKS	TOTAL FLIGHTS
5/22/83	ATLAS-CENT.	AKM	INTELSATV-6	ETR	S	19114-6	(ALL USED 2130B S&A)	9 OPPORTUNITIES 9 SUCCESSES 10 ATTEMPTS
10/21/83	ARIANE 1-L8	AKM	INTELSATV-7	KOUROU	S	19116-9		
3/7/84	ARIANE 1	AKM	INTELSATV-8	KOUROU	S	19118-9		

6/11/84	ATLAS-CENT.	AKM	INTELSATV-9	ETR	NT	19115-6	SEE # NOTE	1 NO TEST
3/24/85	ATLAS-CENT.	AKM	INTELSATV-10	ETR	S	19121A-6		
7/1/85	ATLAS-CENT.	AKM	INTELSATV-11	ETR	S	19117-6		
10/1/85	ATLAS-CENT.	AKM	INTELSATV-12	ETR	S	19122-6		
5/30/86	ARIANE	AKM	INTELSATV-14	KOUROU	NT	19125-11	ARIANE 3RD STAGE FAILURE	
5/19/88	ARIANE	AKM	INTELSATV-13	KOUROU	S	19128-11	4.8 YEAR OLD MOTOR	
1/29/89	ARIANE	AKM	INTELSATV-15	KOUROU	S	19126-11	5.5 YEAR OLD MOTOR	

*ATLAS FAILED-STAR 37XF FIRED TO DEORBIT SPACECRAFT
AFTER 138 DAYS IN SPACE

STAR 37XFP (TE-M-714-16,17)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N-DSH	REMARKS	TOTAL FLIGHTS
12/1/85	STS-61B	AKM	SATCOM KU-1	ETR	S	19131-17		28 OPPORTUNITIES
1/14/86	STS-61C	AKM	SATCOM KU-1	ETR	S	19132-17		28 SUCCESSES
12/15/88	ARIANE	AKM	ASTRA 1	KOUROU	S			28 ATTEMPTS
2/16/89	DELTA	AKM	NAVSTAR 1	ETR	S	19137		
6/12/89	DELTA	AKM	NAVSTAR 2	ETR	S	19138		
8/19/89	DELTA	AKM	NAVSTAR 3	ETR	S	19139		
10/23/89	DELTA	AKM	NAVSTAR 4	ETR	S	19140		
12/13/89	DELTA	AKM	NAVSTAR 5	ETR	S	19141		
1/26/90	DELTA	AKM	NAVSTAR 6	ETR	S	19142		
3/29/90	DELTA	AKM	NAVSTAR 7	ETR	S	19143		
8/3/90	DELTA	AKM	NAVSTAR 8	ETR	S	19135		
10/4/90	DELTA	AKM	NAVSTAR 9	ETR	S	19136		
11/28/90	DELTA	AKM	NAVSTAR 10	ETR	S	19147		
7/5/91	DELTA	AKM	NAVSTAR 11	ETR	S	19144		
2/25/92	DELTA	AKM	NAVSTAR 12	ETR	S	19145		
7/5/91	DELTA	AKM	NAVSTAR 13	ETR	S	19147		
7/10/92	DELTA	AKM	NAVSTAR 14	ETR	S	19148		
9/11/92	DELTA	AKM	NAVSTAR 15	ETR	S	19149		
11/24/92	DELTA	AKM	NAVSTAR 16	ETR	S	19150		
12/20/92	DELTA	AKM	NAVSTAR 17	ETR	S	19151		
2/5/93	DELTA	AKM	NAVSTAR 18	ETR	S	19152		
4/1/93	DELTA	AKM	GPS-1	ETR	S	19153		
5/14/93	DELTA	AKM	GPS-2	ETR	S	19154		
6/29/93	DELTA	AKM	GPS-3	ETR	S	19155		
9/2/93	DELTA	AKM	GPS-4	ETR	S	19156		
10/5/93	TITAN	AKM	LANDSAT	ETR	S	19202		
10/28/93	DELTA	AKM	GPS-5	ETR	S	19157		
3/12/94	DELTA	AKM	GPS-6	ETR	S	19158		

SPACECRAFT DID NOT REACH ORBIT

STAR 37FM (TE-M-783-1)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N-DSH	REMARKS	TOTAL FLIGHTS
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12/4/86	ATLAS-CENT.	AKM	FLISATCOM	ETR	S	FM-03	4 OPPORTUNITIES
9/26/89	ATLAS-CENT.	AKM	FLISATCOM	ETR	S	FM-02	4 SUCCESSES
9/15/93	SHUTTLE	AKM	ACTS	ETR	S		
2/3/94	TITAN II	KICK	CLEMENTINE	WTR	S0021		

STAR 48 (TE-M-711)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	REMARKS	TOTAL FLIGHTS
11/15/80	DELTA 153	PAM	SBS-1	ETR	S	10005-8	ASSUME MODEL 2130A S&A	31 OPPORTUNITIES
9/24/81	DELTA 156	PAM	SBS-2	ETR	S	10007-8	...EXCEPT WHERE OTHER-	29 SUCCESSES
11/19/81	DELTA 158	PAM	SATCOM-D	ETR	S	10008-8	...WISE NOTED.	2 FAILURES
1/15/82	DELTA 159	PAM	SATCOM-E	ETR	S	10009-8		31 ATTEMPTS
2/25/82	DELTA 160	PAM	WESTAR-IV	ETR	S	10010-8		
4/9/82	DELTA 161	PAM	INSAT 1-A	ETR	S	10011-8		
6/8/82	DELTA 162	PAM	WESTAR-V	ETR	S	10012-8	USED LIQUID APOGEE	
8/26/82	DELTA 163	PAM	ANIK D-1	ETR	S	10016-8	EXTRA NOZZLE PINS	
11/11/82	STS-5	PAM	SBS-3	ETR	S	10017-12		
11/12/82	STS-5	PAM	ANIK C-3	ETR	S	10018-3		
6/19/83	STS-7	PAM	ANIK C-2	ETR	S	10026-3		
6/19/83	STS-7	PAM	PALAPA B-1	ETR	S	10024-3		
6/28/83	DELTA 170	PAM	GALAXY-A	ETR	S	10019-8		
7/14/83	ATLAS	SGS	NAVSTAR-8	WTR	S	10003-8	NO S&A	
7/28/83	DELTA 171	PAM	TELESTAR-1	ETR	S	10027-8	NO S&A	
8/31/83	STS-8	PAM	INSAT 1-B	ETR	S	10025-3		
9/22/83	DELTA 173	PAM	GALAXY-B	ETR	S	10028-8		
2/3/84	STS-41B/11	PAM	WESTAR-VI	ETR	F	10029-3		
2/6/84	STS-41B/11	PAM	PALAPA B-2	ETR	F	10030-3		
6/13/84	ATLAS	SGS	NAVSTAR-9	WTR	S	10021-8	NO S&A	
6/13/84	ATLAS	SGS	NAVSTAR-9	WTR	S	10014-9	NO S&A	
8/30/84	STS-41D/14	PAM	SBS-D	ETR	S	10035-3		
9/1/84	STS-41D/14	PAM	TELESTAR-3C	ETR	S	10036-3		
9/8/84	ATLAS	SGS	NAVSTAR-10	WTR	S	10020-8	NO S&A	
9/8/84	ATLAS	SGS	NAVSTAR-10	WTR	S	10023-9	NO S&A	
9/21/84	DELTA-176	PAM	GALAXY-C	ETR	S	10032-8		
11/12/84	STS-51A	PAM	ANIK D-2	ETR	S	10038-3		
4/12/85	STS-51D	PAM	ANIK C-1	ETR	S	10040-3		
10/8/85	ATLAS	SGS	NAVSTAR-11	WTR	S	10013-8	NO S&A	
10/8/85	ATLAS	SGS	NAVSTAR-11	WTR	S	10022-9	NO S&A	

STAR 48B (TE-M-711-9)

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	REMARKS	TOTAL FLIGHTS
6/17/85	STS-51G	PAM	MORELOS	ETR	S	10039-19	USED MODEL 2130A S&A	49 OPPORTUNITIES
6/18/85	STS-51G	PAM	ARABSAT	ETR	S	10033-17		49 SUCCESSES
6/19/85	STS-51G	PAM	TELSAT-3D	ETR	S	10034-19		49 ATTEMPTS
8/17/85	STS-51I	PAM	AUSSAT-1	ETR	S	10041-17		
8/18/85	STS-51I	PAM	ASC-1	ETR	S	10042-17		
11/27/85	STS-61B	PAM	AUSSAT-2	ETR	S	10043-17		
11/27/85	STS-61B	PAM	MORELOS-B	ETR	S	10031-17		
3/21/87	DELTA	PAM	PALAPA	ETR	S	10050-17		
2/14/89	DELTA	PAM	NAVSTAR 1	ETR	S	10051-18		
6/10/89	DELTA	PAM	NAVSTAR 2	ETR	S	10046-18		
8/17/89	DELTA	PAM	NAVSTAR 3	ETR	S	10052-18		
8/27/89	DELTA	PAM	BSB	ETR	S	10047-18		
10/21/89	DELTA	PAM	NAVSTAR 4	ETR	S	10053-18		
12/11/89	DELTA	PAM	NAVSTAR 5	ETR	S	10054-18		
1/24/90	DELTA	PAM	NAVSTAR 6	ETR	S	10055-18		
3/25/90	DELTA	PAM	NAVSTAR 7	ETR	S	10049-18		
4/13/90	DELTA	PAM	PALAPA B2-R	ETR	S	10048-18		
6/12/90	DELTA	PAM	INSAT	ETR	S	10056-18		
8/2/90	DELTA	PAM	NAVSTAR 8	ETR	S	10057-18		
8/10/90	STS	OIS	MAGELLAN	ETR	S	16001-16		
8/17/90	DELTA	PAM	BSB	ETR	S	10059-18		
10/2/90	DELTA	PAM	NAVSTAR 9	ETR	S	10060-18		
10/6/90	STS	KICK	ULYSSES	ETR	S	10058-24		
10/30/90	DELTA	PAM	INMARSAT	ETR	S	10062-18		
11/26/90	DELTA	PAM	NAVSTAR 10	ETR	S	10063-18		
1/7/91	DELTA	PAM	NATO IVA	ETR	S	10064-18		
3/8/91	DELTA	PAM	INMARSAT	ETR	S	10066-18		
4/12/91	DELTA	PAM	ASC/CONTEL	ETR	S	10067-18		
5/29/91	DELTA	PAM	AURORA	ETR	S	10045A-18		
7/3/91	DELTA	PAM	NAVSTAR 11	ETR	S	10065-18		
2/23/92	DELTA	PAM	NAVSTAR 12	ETR	S	10061-18		
4/9/92	DELTA	PAM	NAVSTAR 13	ETR	S	10068-18		
5/13/92	DELTA	PAM	PALAPA	ETR	S	10073-18		
7/7/92	DELTA	PAM	NAVSTAR 14	ETR	S	10069-18		
8/31/92	DELTA	PAM	GEOTAIL	ETR	S	10076-18		
9/9/92	DELTA	PAM	SATCOM C4	ETR	S	10071-18		
10/12/92	DELTA	PAM	NAVSTAR 15	ETR	S	10070-18		
11/22/92	DELTA	PAM	KOPERNIKUS 3	ETR	S	10078-18		
12/18/92	DELTA	PAM	NAVSTAR 16	ETR	S	10072-18		
2/2/93	DELTA	PAM	NAVSTAR 17	ETR	S	10074-18		
3/29/93	DELTA	PAM	NAVSTAR 18	ETR	S	10075-18		
5/12/93	DELTA	PAM	GPS-1	ETR	S	10077-18		
5/12/93	DELTA	PAM	GPS-2	ETR	S	10079-18		
6/26/93	DELTA	PAM	GPS-3	ETR	S	10081-18		
8/30/93	DELTA	PAM	GPS-4	ETR	S	10082-18		
10/26/93	DELTA	PAM	GPS-5	ETR	S	10083-18		
12/7/93	DELTA	PAM	NATO IVB	ETR	S	10084-18		
2/19/93	DELTA	PAM	GALAXY 1 RR	ETR	S	10086-18		
3/9/94	DELTA	PAM	GPS-6	ETR	S	10085-18		

15 MONTHS IN SPACE PRIOR TO FIRING

200TH DELTA FLIGHT

STAR 63D

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	REMARKS	TOTAL FLIGHTS
12/1/85	STS-61B	PAMD2	KU-BAND	ETR	S			3 OPPORTUNITIES
1/14/86	STS-61C	PAMD2	KU-BAND	ETR	S			3 SUCCESSES
12/31/89	TITAN	PAMD2	SKYNET-4	ETR	S			3 SUCCESSES

STAR 63F

DATE	VEHICLE	USE	PAYLOAD	RANGE	STATUS	S/N	REMARKS	TOTAL FLIGHTS
8/13/92	LONG MARCH	3RD STG	OPTUS B1	XICHANG	S			3 OPPORTUNITIES
12/21/92	LONG MARCH	3RD STG	OPTUS B2	XICHANG	NT			2 SUCCESSES
8/28/94	LONG MARCH	3RD STG	OPTUS B3	XICHANG	S	005	LONG MARCH FAILURE	1 NO TEST

ADDITIONAL INFORMATION CORRECTING OR COMPLETING ENTRIES IS DESIRED AND SHOULD BE PASSET ON TO
D. WALSTRUM