AFMTC HISTORICAL
PUBLICATIONS SERIES
61 - 130

AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE

SUPPLEMENT I FY-61

INDEX OF MISSILE LAUNCHINGS BY MISSILE PROGRAM

JULY 1960 - JUNE 1961

A proper understanding of the past provides a key to the future.

Marven R. Whipple

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MT 60 - 2544 - 1

COPY NO. 65

INDEX OF MISSILE LAUNCHINGS

BY MISSILE PROGRAM

SUPPLEMENT I

JULY 1960 - JUNE 1961

ATLANTIC MISSILE RANGE

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PUBLICATIONS SERIES

62-130

SUPPLEMENT II FY - 62

ATLANTIC MISSILE RANGE
INDEX OF MISSILE LAUNCHINGS

JULY 1961 - JUNE 1962

The mistakes of all mankind are recorded on the scoreboard of history...

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ATLANTIC MISSILE RANGE

INDEX OF MISSILE LAUNCHINGS

OCT 2 6 1962

SUPPLEMENT II FY-62

JULY 1961 - JUNE 1962

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COPY NO. 9

MT 62-13721

AFMTC HISTORICAL

PUBLICATIONS SERIES

62-130

SUPPLEMENT II FY - 62

ATLANTIC MISSILE RANGE
INDEX OF MISSILE LAUNCHINGS

JULY 1961 - JUNE 1962

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ATLANTIC MISSILE RANGE

INDEX OF MISSILE LAUNCHINGS

OCT 2 6 1962

SUPPLEMENT II FY-62

JULY 1961 - JUNE 1962

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Office of Information
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COPY NO. 9

MT 62-13721

AFMTC HISTORICAL
PUBLICATIONS SERIES
63-131

FISCAL YEAR 1963

ATLANTIC MISSILE RANGE
INDEX OF MISSILE LAUNCHINGS

JULY 1962 - JUNE 1963

From the web of
the past we fashion
the fabric of our
future.

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MT 63-13732

COPY No.

ATLANTIC MISSILE RANGE

INDEX OF MISSILE LAUNCHINGS

FISCAL YEAR 1963

JULY 1962 - JUNE 1963

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COPY NO. 10

MT63-13732

AFMTC HISTORICAL

PUBLICATIONS SERIES

63-131

AIR FORCE SYSTEMS COMMAND

FISCAL YEAR 1963

ATLANTIC MISSILE RANGE
INDEX OF MISSILE LAUNCHINGS

JULY 1962 - JUNE 1963

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PATRICK AIR FORCE BASE, FL

MT 63-13732

COPY No.

ATLANTIC MISSILE RANGE

INDEX OF MISSILE LAUNCHINGS

FISCAL YEAR 1963

JULY 1962 - JUNE 1963

Marven R. Whipple
Center Historian

Historical Division
Office of Information
Air Force Missile Test Center
(Air Force Systems Command)
Patrick Air Force Base, Florida

COPY NO. 10

MT63-13732

AFETR HISTORICAL
PUBLICATIONS SERIES
- 64-132

FISCAL YEAR 1964

ATLANTIC MISSILE RANGE
EASTERN TEST RANGE
INDEX OF MISSILE LAUNCHINGS

JULY 1963 - JUNE 1964 -

THE ULTIMATE WEAPON OF ANY NATION IS THE WILL OF ITS PEOPLE TO RESIST AGGRESSION WITH EVERY MEANS AT THEIR DISPOSAL.

Marven R. Whipple

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ATLANTIC MISSILE RANGE
EASTERN TEST RANGE
INDEX OF MISSILE LAUNCHINGS

FISCAL YEAR 1964

JULY 1963 - JUNE 1964

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Chief, Historical Division

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ET64-15759

AFETR HISTORICAL
PUBLICATIONS SERIES
65-132

FISCAL YEAR 1965

EASTERN TEST RANGE
INDEX OF MISSILE LAUNCHINGS

JULY 1964 - JUNE 1965

Wars of the
future
cannot be won
with weapons
of the past.
Marven R. Whipple

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ATLANTIC MISSILE RANGE
RECORD OF MISSILES LAUNCHED
July 1960 through June 1961

PROGRAM	FY-61		FY-61 TOTAL	PRIOR YEARS	GRAND TOTAL
MATADOR	15	11	26	260	286
MACE	6	7	13	7	20
SNARK	6		6	91	97
ATLAS	13	10	23	50	73
TITAN	9	8	17	17	34
THOR-ABLE	3	2	5	18	23
DELTA-THOR	2	1	3	1	4
REDSTONE	4	7	11	21	32
JUPITER	1	1	2	58	60
JUNO	1	3	4	6	10
PERSHING	4	9	13	5	18
POLARIS	25	24	49	60	109
HOUND DOG GAM 77	7	12	19	17	36
BLUE SCOUT	2	4	6	0	6
MINUTEMAN		2	2	0	2
OTHERS	0	0	0	292	292
TOTAL	98	101	199	903	1102
	2nd Half CY-60	1st Half CY-61			

ATLANTIC MISSILE RANGE
RECORD OF MISSILES LAUNCHED
July 1961 through June 1962

PROGRAM	PRIOR YEARS	FY-62 1st Half	FY-62 2nd Half	FY-62 TOTAL	GRAND TOTAL
ATLAS	73	16	6	22	95
BLUE SCOUT	6	2	1	3	9
CENTAUR	0	0	1	1	1
DELTA-THOR	4	2	5	7	11
HOUND DOG GAM-77	36	8	11	19	55
JUPITER	60	2	1	3	63
MACE	20	6	10	16	36
MINUTEMAN	2	4	10	14	16
PERSHING	18	10	10	20	38
POLARIS	109	20	13	33	142
REDSTONE	32	1	0	1	33
SATURN	0	1	1	2	2
SKYBOLT	0	0	2	2	2
THOR-ABLE	23	1	2	3	26
TITAN	34	12	3	15	49
OTHERS	685	0	0	0	685
TOTAL	1102	85	76	161	1263
		Jul-Dec 1961	Jan-Jun 1962		

MT 62-13721

ATLANTIC MISSILE RANGE
RECORD OF MISSILES LAUNCHED
July 1961 through June 1962

PROGRAM	PRIOR YEARS	FY-62 1st Half	FY-62 2nd Half	FY-62 TOTAL	GRAND TOTAL
ATLAS	73	16	6	22	95
BLUE SCOUT	6	2	1	3	9
CENTAUR	0	0	1	1	1
DELTA-THOR	4	2	5	7	11
HOUND DOG GAM-77	36	8	11	19	55
JUPITER	60	2	1	3	63
MACE	20	6	10	16	36
MINUTEMAN	2	4	10	14	16
PERSHING	18	10	10	20	38
POLARIS	109	20	13	33	142
REDSTONE	32	1	0	1	33
SATURN	0	1	1	2	2
SKYBOLT	0	0	2	2	2
THOR-ABLE	23	1	2	3	26
TITAN	34	12	3	15	49
OTHERS	685	0	0	0	685
TOTAL	1102	85	76	161	1263
		Jul-Dec 1961	Jan-Jun 1962		

MT 62-13721

PART II
SATELLITE LAUNCHINGS AND SPACE PROBES

PROGRAMS	PRIOR YEARS		FY-1963		TOTAL		
	Launches	Orbited	Launches	Orbited	Launches	Orbited	
ARIEL	1	1	0	0	1	1	PASSENGER SATELLITE LAUNCHINGS
ANNA	1	0	1	1	2	1	
BEACON	2	0	-	-	2	0	
COMPOSITE	1	0	-	-	1	0	
COURIER	2	1	-	-	2	1	
ECHO	3	1	1	Sub-Orbit	4	1	
EXPLORER	15	9	3	3	18	12	
MIDAS	2	1	-	-	2	1	
O-S-O	1	1	-	-	1	1	
RELAY	-	-	1	1	1	1	
SCORE	1	1	-	-	1	1	
SYNCOM	-	-	1	1	1	1	
TELSTAR	-	-	2	2	2	2	
TIROS	5	5	2	2	7	7	
TRANSIT	7	5	-	-	7	5	
VANGUARD	11	3	-	-	11	3	
METS	7	-	-	-	7	-	SPACE FLIGHT PROBES
LUNAR PROBES	4	-	-	-	4	-	
MARINER	-	-	2	-	2	-	
MERCURY	14	4	2	2	16	6*	
PIONEER	5	2	-	-	5	2	
RANGER	4	4	1	1	5	5#	
TOTAL	86	38	16	13	102	51	

Payload orbit was not always the objective of space flights and probes.

* Orbited and recovered one unmanned, one chimp occupied, and four manned space capsules.

\# Two low earth orbits, two solar orbits, one landed on the moon.

MT63-13732

PART II
SATELLITE LAUNCHINGS AND SPACE PROBES

PROGRAMS	PRIOR YEARS		FY-1963		TOTAL		
	Launches	Orbited	Launches	Orbited	Launches	Orbited	
ARIEL	1	1	0	0	1	1	PASSENGER SATELLITE LAUNCHINGS
ANNA	1	0	1	1	2	1	
BEACON	2	0	-	-	2	0	
COMPOSITE	1	0	-	-	1	0	
COURIER	2	1	-	-	2	1	
ECHO	3	1	1	Sub-Orbit	4	1	
EXPLORER	15	9	3	3	18	12	
MIDAS	2	1	-	-	2	1	
O-S-O	1	1	-	-	1	1	
RELAY	-	-	1	1	1	1	
SCORE	1	1	-	-	1	1	
SYNCOM	-	-	1	1	1	1	
TELSTAR	-	-	2	2	2	2	
TIROS	5	5	2	2	7	7	
TRANSIT	7	5	-	-	7	5	
VANGUARD	11	3	-	-	11	3	
HETS	7	-	-	-	7	-	SPACE FLIGHT PROBES
LUNAR PROBES	4	-	-	-	4	-	
MARINER	-	-	2	-	2	-	
MERCURY	14	4	2	2	16	6*	
PIONEER	5	2	-	-	5	2	
RANGER	4	4	1	1	5	5#	
TOTAL	86	38	16	13	102	51	

Payload orbit was not always the objective of space flights and probes.

* Orbited and recovered one unmanned, one chimp occupied, and four manned space capsules.

\# Two low earth orbits, two solar orbits, one landed on the moon.

MT63-13732

ATLANTIC MISSILE RANGE/EASTERN TEST RANGE
RECORD OF MISSILES LAUNCHED
July 1963 through June 1964

PROGRAM	Prior Years	Jul-Dec 1963	Jan-Jun 1964	FY-64 Total	GRAND TOTAL
ATLAS (ABRES) (AGENA)	107	2*	4*	6	113
BLUE SCOUT	9	1	1	2	11
CENTAUR	1	1	1	2	3
DELTA-THOR	21	3	2	5	26
HOUND DOG	64	1	0	1	65
MACE	43	1	0	1	44
MINUTEMAN	35	8	10	18	53
POLARIS	208	40	22	62	270
SATURN	4	0	2	2	6
THOR-ASSET	---	1	1	2	2
TITAN	63	3	5	8	71
OTHER MISSILES	872	0	0	0	872
TOTAL	1427	61	48	109	1536

* One was Atlas-Agena

PART II

SATELLITE LAUNCHINGS AND SPACE PROBES

PROGRAMS	PRIOR YEARS		FY-1964		TOTAL		
	Launches	Orbited	Launches	Orbited	Launches	Orbited	
APOLLO	-	-	1	1	1	1	PASSENGER SATELLITES
CENTAUR	-	-	1	1	1	1	
EXPLORER	18	12	2	1	20	13	
GEMINI	-	-	1	1	1	1	
RELAY	1	1	1	1	2	2	
SATURN	-	-	1	1	1	1	
SYNCOM	1	1	1	1	2	2	
TIROS	7	7	1	1	8	8	
VELA	-	-	1	1	1	1	
ABRES	2	-	3	-	5	-	SPACE PROBES
ASSET	-	-	2	-	2	-	
FIRE	-	-	1	-	1	-	
OAR PROBES	-	-	2	-	2	-	
RANGER	5	4	1	-	6	4*	
TOTAL	34	25	19	9	53	34	

* Two low earth orbits, two solar orbits, and two moon landings. Orbit of payload was not always the objective of space flights and probes.

ET64-15759

DORMANT OR COMPLETED
SATELLITE AND SPACE FLIGHT PROGRAMS

PROGRAMS	PRIOR YEARS		
	Launched	Orbited	
ARIEL	1	1	PASSENGER SATELLITE LAUNCHINGS
ANNA	2	1	
BEACON	2	0	
COMPOSITE	1	0	
COURIER	2	1	
ECHO	4	1	
MIDAS	2	1	
O-S-O	1	1	
SCORE	1	1	
TELESTAR	2	2	
TRANSIT	7	5	
VANGUARD	11	3	
HETS	7	-	SPACE FLIGHTS & PROBES
Lunar Probes	4	-	
MARINER	2	-	
MERCURY	16	6	
PIONEER	5	2	
TOTAL	70	25	

ET64-15759

EASTERN TEST RANGE
INDEX OF MISSILE LAUNCHINGS

FISCAL YEAR 1965

JULY 1964 - JUNE 1965

Marven R. Whipple
Chief, Historical Division

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Patrick Air Force Base, Florida

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ET65-9858

EASTERN TEST RANGE
TABLE OF MISSILES LAUNCHED

PROGRAM	Prior Years	Jul-Dec 1964	Jan-Jun 1965	FY-65 Total	GRAND TOTAL
ATLAS	113	5	3	8	121
BLUE SCOUT	11	0	5	5	16
CENTAUR	3	1	1	2	5
DELTA-THOR	26	3	4	7	33
HOUND DOG	65	10	0	10	75
MINUTEMAN	53	5	3	8	61
POLARIS	270	23	19	42	312
SATURN	6	1	2	3	9
TITAN II III	71	2	6	8*	79
THOR-ASSET	2	3	1	4	6
OTHER MISSILES	916	0	0	0	916
TOTAL	1536	53	44	97	1633

* 3 Titan II, 4 Titan IIIA, and 1 Titan IVC.

Tab 1

MISSILE	ATLAS (SM-65)
SPONSOR	Air Force
CONTRACTOR	Prime: Convair Division/General Dynamics - Airframe
	Associate: North American Aviation - Propulsion General Electric - Nose Cone General Electric - Guidance (RI) AVCO - Nose Cone ARMA - Guidance (AI) Sandia Corporation - Warhead
First R&D Launch	11 Jun 57
Declared Operational	Sep 60
R&D Tests Completed	5 Dec 62

Program active as space booster SLV-3 as of 30 June 1965.

ET65-9858

Tab 2

MISSILE	BLUE SCOUT JR.
SPONSOR	Air Force
CONTRACTOR	Aeronutronic
First Launch	21 Sep 60

Program active as space booster SLV-1B as of 30 June 1965.

Tab 5

MISSILE	HOUND DOG (GAM-77)
SPONSOR	Air Force
CONTRACTOR	North American Aviation
First R&D Launch	23 Apr 59
Last R&D Launch	11 Oct 63

(Used B-52 carrier for air launch.)

Program dormant as of 30 June 1965.

USS George Washington

Polaris A1 declared operationally ready 15 Nov 60

Tab 5

MISSILE	HOUND DOG (GAM-77)
SPONSOR	Air Force
CONTRACTOR	North American Aviation
First R&D Launch	23 Apr 59
Last R&D Launch	11 Oct 63

(Used B-52 carrier for air launch.)

Program dormant as of 30 June 1965.

Tab 6

MISSILE	MINUTEMAN
SPONSOR	Air Force
CONTRACTOR	Prime: Boeing Aircraft
	Associate: Aerojet-General Thiokol AVCO Hercules Autonetics
First Launch	1 Feb 61
Last Minuteman I R&D launch	29 Sep 64
First improved Minuteman II launch	24 Sep 64

Program underway as of 30 June 1965.

Tab 7

MISSILE	POLARIS
SPONSOR	Navy
CONTRACTOR	Prime: Lockheed Aircraft - Airframe Associate: Aerojet-General Corp. and Allegany Ballistic Lab - Propulsion General Electric - Guidance Westinghouse Electric - Launching Equipment
First R&D Launch	13 Apr 57
First launch from submerged submarine USS George Washington	20 Jul 60
Polaris A1 declared operationally ready and deployed to sea patrol duty aboard USS George Washington	15 Nov 60
First Launch of Polaris A-2	10 Nov 60
First submerged Launch of A-2	23 Oct 61
First Launch of Polaris A-3	7 Aug 62
First submerged launch of Polaris A-3	26 Oct 63

Program underway as of 30 June, 1965.

PART II

SATELLITE LAUNCHINGS
and
SPACE PROBES

PART II
SATELLITE LAUNCHINGS AND SPACE PROBES

PROGRAMS	PRIOR YEARS Launches	PRIOR YEARS Orbited	FY-65 Launches	FY-65 Orbited	GRAND TOTAL Launches	GRAND TOTAL Orbited	
APOLLO	1	1	1	1	2	2	PASSENGER SATELLITES
COMSAT	-	-	1	1	1	1	
EXPLORER	20	13	3	3	23	16	
LES	-	-	2	2	2	2	
OGO	--	-	1	1	1	1	
OSO	1	1	1	1	2	2	
PEGASUS	-	-	2	2	2	2	
SURVEYOR	-	-	1	1	1	1	
SYNCOM	2	2	1	1	3	3	
TIROS	8	8	1	1	9	9	
VELA	1	1	2	2	3	3	
Dummy Payloads	-	-	3	2	3	2	
Inactive Programs	39	20	-	-	39	20	
TOTALS	72	46	19	18	91	64	

ASSET	2		4		6		SPACE PROBES
FIRE	1		1		2		
GEMINI	1		3*		4		
MARINER	2		2		4		
OAR PROBES	2		5		7		
RANGER	6		3		9		
Inactive Programs	37				37		
TOTALS	51		18		69		

* Two were manned flights.

ET65-9858

SATELLITE PROGRAMS
FISCAL YEARS 1958 THROUGH 1964

SATELLITES	FY-58	FY-59	FY-60	FY-61	FY-62	FY-63	FY-64	TOTAL
Anna					1(0)	1(1)		2(1)
Apollo							1(1)	1(1)
Ariel					1(1)			1(1)
Beacon		1(0)	1(0)					2(0)
Centaur							1(1)	1(1)
Composite					1(0)			1(0)
Courier				2(1)				2(1)
Echo			1(0)	1(1)	1(0)	1(*)		4(1)
Explorer	3(2)	2(1)	4(2)	5(3)	1(1)	3(3)	2(1)	20(13)
Midas			2(1)					2(1)
O-S-O					1(1)			1(1)
Relay						1(1)	1(1)	2(2)
Saturn							1(1)	1(1)
Score		1(1)						1(1)
Syncom						1(1)	1(1)	2(2)
Tiros			1(1)	1(1)	3(3)	2(2)	1(1)	8(8)
Transit			3(2)	3(2)	1(1)			7(5)
Telestar						2(2)		2(2)
Vanguard	6(1)	** 4(1)	1(1)					11(3)
Vela							2(2) 1(1)	2(2) ~~1(1)~~
TOTAL	9(3)	8(3)	13(7)	12(8)	10(7)	11(10)	10(9) 9(8)	73(47) 72(46)

NOTE: Numbers in parentheses indicate successful orbits achieved.

* Planned suborbital flight.
** One other flight circled earth 3 or 4 times before decay.

ET65-9858

SPACE FLIGHTS AND PROBES
FISCAL YEARS 1958 THROUGH 1964

SPACE PROBES	FY-58	FY-59	FY-60	FY-61	FY-62	FY-63	FY-64	TOTAL
Abres						2	3	5
Asset							2	2
Fire							1	1
Gemini							1	1
HETS				6	1			7
Lunar Probes		1	1	2				4
Mariner						2		2
Mercury			1	7	6	2		16
OAR							2	2
Pioneer		4	1					5
Ranger					4	1	1	6
TOTAL		5	3	15	11	7	10	51

AFETR HISTORICAL
PUBLICATIONS SERIES
66-132

FISCAL YEAR 1966

EASTERN TEST RANGE
INDEX OF MISSILE LAUNCHINGS

JULY 1965-JUNE 1966

AIR FORCE EASTERN TEST R
PATRICK AIR FORCE BASE, FLORIDA

EASTERN TEST RANGE
INDEX OF MISSILE LAUNCHINGS

FISCAL YEAR 1966

JULY 1965 - JUNE 1966

Marven R. Whipple
Chief, Historical Division

Historical Division
Office of Information
Air Force Eastern Test Range
(Air Force Systems Command)
Patrick Air Force Base, Florida

EASTERN TEST RANGE
INDEX OF MISSILE LAUNCHINGS
FISCAL YEAR 1966

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APPROVED _____

WILLIAM T. COLEMAN, JR., Lt Colonel, USAF
Director of Information

FOREWORD

This document provides basic information concerning missile and space booster launchings on the Eastern Test Range during Fiscal Year 1966. The first publication in this series covered a ten year period, July 1950 through June 1960. Subsequent issues have been published on a fiscal year basis. Part I of this document provides data on missiles launched as R&D development tests, for training purposes, for operational evaluation, and as boosters for satellites and space probes. Part II covers briefly the satellite and space probe payloads launched on the Eastern Test Range during Fiscal Year 1966.

Definition of Launch: For the purpose of this document, a launch is defined as a definite lift-off of the test vehicle or space booster from its launch platform after a complete prelaunch countdown with intent to launch. Vehicles that exploded on the pad during countdown operations prior to T-time, or that exploded and burned at the time of being ignited but before accomplishing lift-off are not considered to have been launched; consequently, they are not included in the count of missiles launched.

Meteorological rockets of the HUGO and ARCAS class, similar research rockets, and deadweight slugs used in the POLARIS program are not included as vehicles launched. Dummy missiles, scale models, and live missiles launched as part of a weapons system test program are counted, provided they meet the criteria for a launch established by paragraph two above.

All launch dates given in this document are based on Eastern Standard Time. In view of this fact, the launch day is frequently a day earlier than given in works that report launch dates according to Zulu Time. Zulu Time is five hours ahead of Eastern Standard Time.

Marven R. Whipple

MARVEN R. WHIPPLE
Chief, Historical Division

TABLE OF CONTENTS

PART I - MISSILE PROGRAMS

PART II

SATELLITE LAUNCHINGS, SPACE PROBES, AND MANNED SPACE FLIGHTS

TABLE OF MISSILES LAUNCHED
AIR FORCE EASTERN TEST RANGE

PROGRAM	Prior Years	Jul-Dec 1965	Jan-Jun 1966	Total FY-66	GRAND TOTAL
ATLAS	121	2	5	7	128
CENTAUR	5	1	2	3	8
DELTA-THOR	33	4	3	7	40
HOUND DOG	75	2	-	2	77
MINUTEMAN	61	4	3	7	68
SATURN	9	1	1	2	11
TITAN I & II	74	3	2	5	79
TITAN III	5	2	1	3	8
Other Missiles	938	-	-	-	938

2

Tab 1

MISSILE	ATLAS
DEVELOPMENT	Sponsored by Air Force as weapon system. Converted to Space booster.
CONTRACTOR	Convair Division/General Dynamics - Airframe
CHARACTERISTICS	Height - 82 feet Diameter - 10 feet across tank section Thrust - 360,000 to 389,000 pounds Range - over 8,000 miles Speed - 16,000 mph
First R&D Launch	11 Jun 1957
Declared Operational	9 Sep 1960 ~~60~~ 59
R&D Tests Completed	5 Dec 1962
First used as space booster	18 Dec 1958

Program active as space booster SLV-3 as of 30 June 1966.

Tab 8

MISSILE		TITAN
DEVELOPMENT		Sponsored by Air Force as a weapon system. Titan II converted to space booster primarily for Gemini program. Titan III developed as Air Force space booster.
CONTRACTOR	Prime	Glenn L. Martin - Airframe
	Associates	Aerojet - Propulsion Bell Telephone Lab - Guidance, Radio Inertial AC Spark Plug - Guidance, All Inertial AVCO - Nose Cone General Electric - Nose Cone Sandia Corp. - Warhead
CHARACTERISTICS		
	Titan II	Two Stage Height 102 feet Diameter 10 feet Thrust 1st Stage - 430,000 lbs 2nd Stage - 100,000 lbs Range Over 6,300 SMI Speed 15,000 mph
	Titan IIIC	Three Stage Height 124 feet Diameter 10 feet Thrust 1st Stage - 430,000 lbs 2nd Stage - 100,000 lbs Transtage - 16,000 lbs Two strap-on booster 1,000,000 lbs each.
First R&D Launch		6 Feb 1959
Last Titan I Launch		29 Jan 1962
First Titan II Launch		16 Mar 1962
Titan II R&D Tests Completed		9 Apr 1964
First Titan III Launch		1 Sep 1964
First Titan IIIC Launch		18 Jun 1965

Program underway as space booster: Titan II - GLV, Titan III - SLV-5.

ET66-14757

PART II

SATELLITE LAUNCHINGS
SPACE PROBES
and
MANNED SPACE FLIGHTS

PART II

SATELLITE LAUNCHINGS

	PRIOR YEARS		FY-66		GRAND TOTAL	
	Launches	Orbits	Launches	Orbits	Launches	Orbits
AGENA GT TARGET			3	1	3	1
ATDA			1	1	1	1
CENTAUR	1	1	1	1	2	2
EXPLORER	23	16	2	2	25	18
GRAVITY-GRADIENT			1	1	1	1
IDCSP			7	7	7	7
LCS	1	1	1	1*	2	2
LES	2	2	2	2	4	4
OAO			1	1	1	1
OAR (OV)			2	2*	2	2
OGO	1	1	1	1	2	2
ORS (ERS)			1	1	1	1
OSO	2	2	1	0	3	2
OSCAR			1	1	1	1
PEGASUS	2	2	1	1	3	3
TIROS	9	9	3	3	12	12
VELA	4	4	2	2	6	6
Inactive Programs	45	25			45	25
TOTALS	90	63	31	28	121	91

* Achieved orbit but the transtage of the booster vehicle failed to eject them for independent flight.

SPACE PROBES

	PRIOR YEARS		FY-66		GRAND TOTAL	
	Launches	Orbits	Launches	Orbits	Launches	Orbits
PIONEER	5	2	1	1	6	3
SURVEYOR	1	1	3	2*	4	3
Others	44				44	
TOTAL	50	3	4	3	54	6

* Purpose of one flight was to accomplish a soft landing on the moon. It was not an orbital flight. The other was a dummy model Surveyor vehicle.

MANNED SPACE FLIGHTS

	PRIOR YEARS		FY-66		GRAND TOTAL	
	Launches	Orbits	Launches	Orbits	Launches	Orbits
APOLLO	2	2	1	0*	3	2
GEMINI	4	2	5	5	9	7
MERCURY	16	6			16	6
TOTAL	22	10	6	5	28	15

* This was an unmanned suborbital flight.

SATELLITE PROGRAMS
FISCAL YEARS 1958 THROUGH 1965

SATELLITES	FY-58	FY-59	FY-60	FY-61	FY-62	FY-63	FY-64	FY-65	TOTAL
Anna					1(0)	1(1)			2(1)
Ariel					1(1)				1(1)
Beacon		1(0)	1(0)						2(0)
Centaur							1(1)		1(1)
Composite					1(0)				1(0)
Comsat								1(1)	1(1)
Courier				2(1)					2(1)
Echo			1(0)	1(1)	1(0)	1(*)			4(1)
Explorer	3(2)	2(1)	4(2)	5(3)	1(1)	3(3)	2(1)	3(3)	23(16)
LCS								1(1)	1(1)
LES								2(2)	2(2)
Midas			2(1)						2(1)
OGO								1(1)	1(1)
OSO					1(1)			1(1)	2(2)
Pegasus								2(2)	2(2)
Relay						1(1)	1(1)		2(2)
Saturn							1(1)		1(1)
Score		1(1)							1(1)
Syncom						1(1)	1(1)	1(1)	3(3)
Tiros			1(1)	1(1)	3(3)	2(2)	1(1)	1(1)	9(9)
Transit			3(2)	3(2)	1(1)				7(5)
Telstar						2(2)			2(2)
Vanguard	6(1)	4(1)**	1(1)						11(3)
Vela							2(2)	2(2)	4(4)
Dummy Payloads								3(2)	3(2)
TOTAL	9(3)	8(3)	13(7)	12(8)	10(7)	11(10)	9(8)	18(17)	90(63)

NOTE: Numbers in parentheses indicate successful orbits achieved. The following booster stages went into orbit during FY-65 in conjunction with their payloads, but were not considered spacecraft and were not reported and counted separately: 2nd stage Saturn I with Apollo boilerplate model; Centaur stage with mass model Surveyor; and Transtages of Titan IIIA and IIIC with lead ballast payloads.

* Planned suborbital flight.
** One other flight circled earth 3 or 4 times before decay.

ET66-14757

SPACE FLIGHTS AND PROBES
FISCAL YEARS 1958 THROUGH 1965

SPACE PROBES	FY-58	FY-59	FY-60	FY-61	FY-62	FY-63	FY-64	FY-65	TOTAL
Abres						2	3		5
Asset							2	4	6
Fire							1	1	2
HETS				6	1				7
Lunar Probes		1	1	2					4
Mariner						2		2	4
OAR							2	5	7
Pioneer		4	1						5
Ranger					4	1	1	3	9
Surveyor								1	1
TOTAL		5	2	8	5	5	9	16	50

MANNED SPACE PROGRAMS
FISCAL YEARS 1960 THROUGH 1965

PROGRAM	FY-60	FY-61	FY-62	FY-63	FY-64	FY-65	TOTAL
APOLLO					1	1	2
GEMINI					1	3/	4
MERCURY	1	7*	6**	2***			16
TOTAL	1	7	6	2	2	4	22

* Included MR-3, manned, suborbital flight of Shepard.
** Included the MR-4 suborbital flight of Grissom, the orbital flights of MA-6 Glenn and MA-7 Carpenter.
*** Included the orbital flights of MA-8 Schirra and MA-9 Cooper.
/ Included the GT-3 Grissom/Young and the GT-4 McDivitt/White flights.

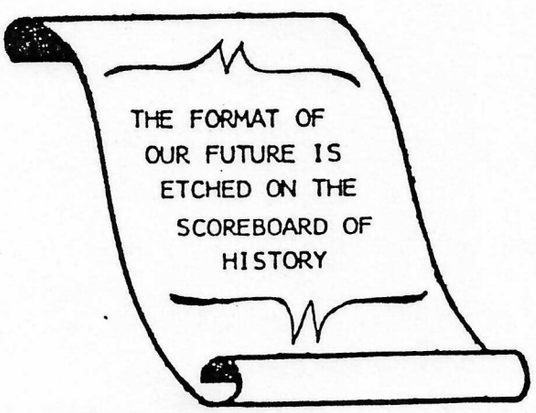
ET66-14757

AFETR HISTORICAL
PUBLICATIONS SERIES
67-133

FISCAL YEAR 1967

EASTERN TEST RANGE
INDEX OF MISSILE LAUNCHINGS

JULY 1966 - JUNE 1967



AIR FORCE EASTERN TEST RA
PATRICK AIR FORCE BASE, FLO

FOREWORD

This publication is designed to serve as a ready reference for basic information concerning missiles and space boosters launched on the Eastern Test Range during Fiscal Year 1967. It is the eighth in a series of similar publications. The first one covered a ten-year period, July 1950 through June 1960. Subsequent issues have been published on a fiscal year basis.

Part I of this document provides launch data on missiles undergoing R&D testing, training familiarization, and operational evaluation. It also includes data on space boosters used to inject satellites into orbit and space probes into proper trajectory. Part II covers briefly the satellite and space probe payloads launched from the Eastern Test Range during Fiscal Year 1967.

All launch dates given in this document are based on Eastern Standard Time. In view of this fact, the launch day is frequently a day earlier than those based on Zulu Time or Daylight Saving Time. Zulu Time is five hours ahead of Eastern Standard Time.

Definition of Launch: For the purpose of this document a launch is defined as a definite lift-off of the test vehicle or space booster from its launch platform after a complete pre-launch countdown with intent to launch. Vehicles that exploded on the pad during countdown operations prior to T-time, or that exploded and burned at the time of being ignited but before accomplishing lift-off are not considered to have been launched; consequently, they are not included in the count of missiles launched.

Meteorological rockets of the HUGO and ARCAS class, similar research rockets, and deadweight slugs used in the POLARIS program are not included as vehicles launched. Dummy missiles, scale models, and live missiles launched as part of a weapons system test program are counted, provided they meet the criteria for a launch established by paragraph four above.

MARVEN R. WHIPPLE
Chief, Historical Division

TABLE OF CONTENTS

PART I - MISSILES AND SPACE BOOSTERS

PART II - SATELLITE AND SPACE PROGRAMS

MISSILE AND SPACE BOOSTERS LAUNCHED FROM AIR FORCE EASTERN TEST RANGE

PROGRAM	Prior Years	Jul-Dec 1966	Jan-Jul 1967	Total FY-67	GRAND TOTAL
ATLAS	128	6	4	10	138
CENTAUR	8	2	1	3	11
DELTA-THOR	40	4	3	7	47
MINUTEMAN	68	1	2	3	71
SATURN	11	2	0	2	13
TITAN I & II	79	3	0	3	82
TITAN III	8	2	2	4	12
Other Missiles	1015				1015

PART I

MISSILE PROGRAMS

Tab 1

MISSILE	ATLAS
DEVELOPMENT	Sponsored by Air Force as weapon system. Converted to Space Booster.
CONTRACTOR	Convair Division/General Dynamics - Airframe
CHARACTERISTICS	Height - 82 feet Diameter - 10 feet across tank section Thrust - 360,000 to 389,000 pounds Range - over 8,000 miles Speed - 16,000 mph
First R&D Launch	11 Jun 1957
Declared Operational	9 Sep 1959
R&D Tests Completed	5 Dec 1962
First Used as Space Booster	18 Dec 1958

Program active as space booster SLV-3 as of 30 June 1967.

ET67-14767

Tab 4

MISSILE		MINUTEMAN
DEVELOPMENT		Sponsored by Air Force as first solid propellant ICBM.
CONTRACTOR	Prime:	The Boeing Companv
	Associates:	Aerojet-General Thiokol AVCO Hercules Autonetics
CHARACTERISTICS		Three Stage Height - About 59 feet Diameter - Approx. 5.5 feet Thrust - Over 280,000 pounds Range - Minuteman I 6,300 SMI Minuteman II 7,000 SMI Speed - 15,000 mph
First Launch		1 Feb 1961
Last Minuteman I R&D Launch		29 Sep 1964
First Improved Minuteman II Launch		24 Sep 1964

Program underway as of 30 June 1967.

Tab 5.

MISSILE		POLARIS
DEVELOPMENT		Sponsored by Navy as Long Range Fleet Ballistic Missile
CONTRACTOR	Prime:	Lockheed Aircraft - Airframe
	Associates:	Aerojet-General Corp., and Allegany Ballistic Lab - Propulsion
		General Electric - Guidance
		Westinghouse Electric - Launching Equipment
First R&R Launch		13 Apr 1957
First launch from submerged submarine USS Geo. Washington		20 Jul 1960
Polaris A1 declared operationally ready and deployed to sea patrol duty aboard USS Geo. Washington		15 Nov 1960
First Launch of Polaris A-2		10 Nov 1960
First Submerged Launch of A-2		23 Oct 1961
First Launch of Polaris A-3		7 Aug 1962
First Submerged Launch of A-3		26 Oct 1963

Program underway as of 30 June 1967.

Tab 7

MISSILE		TITAN
DEVELOPMENT		Sponsored by Air Force as a weapon system. Titan II converted to space booster primarily for Gemini Program.
CONTRACTOR	Prime:	Glenn L. Martin - Airframe
	Associates:	Aerojet - Propulsion Bell Telephone Lab - Guidance, Radio Inertial AC Spark Plug - Guidance, All Inertial AVCO - Nose Cone General Electric - Nose Cone Sandia Corporation - Warhead
CHARACTERISTICS		Two Stage Height - 102 feet Diameter - 10 feet Thrust - 1st Stage - 430,000 pounds 2nd Stage - 100,000 pounds Range - Over 6,300 SMI Speed - 15,000 mph
First R&D Titan I Launch		6 Feb 1959
Last Titan I Launch		29 Jan 1962
First Titan II Launch		16 Mar 1962
Titan II R&D Tests Completed		9 Apr 1964
Last Titan II boosted Gemini GT-12 capsule into orbit.		11 Nov 1966

ET67-14767

PART II

SATELLITE LAUNCHINGS
SPACE PROBES

and

MANNED SPACE FLIGHTS

PART II

SATELLITE LAUNCHINGS

	PRIOR YEARS	FY-67		GRAND TOTAL	
		LAUNCHED	ORBITED	LAUNCHED	TYPE
ATS		2	2	2	Geophysics
ATV (GT)	3	3	3	6	MLLP
Centaur Stage	2	1	1	3	Vehicle Development
Bio-Satellite		1	1	1	Biophysics
Explorer (IMP-4)	25	1	1	26	Geophysics
ERS-18 (SSD)		1	1	1	Geophysics
IDCSP	7	16	8	23	Communications
Intelsat	1	3	3	4	Communications
OAR-OV	2	6	6	8	Geophysics
OSO	3	1	1	4	Geophysics
Saturn	1	1	1	2	Vehicle Development
Vela	6	2	2	8	Geophysics
Inactive Programs	49			49	
TOTAL	99	38	30	137	

ATS Applications Technology Satellite

ATV Agena Target Vehicle for Gemini Program

ERS Environmental Research Satellite

IDCSP Initial Defense Communications Satellite Program

OV Orbiting Vehicle

OSO Orbiting Solar Observatory

ET67-14767

LUNAR AND SPACE PROBES

PROGRAM	PRIOR YEARS		FY-67		GRAND TOTAL	
	Launched	Orbited	Launched	Orbited	Launched	Orbited
Lunar Orbiter			4	4	4	4
Mariner	4		1		5	
Pioneer	10	3	1	1	11	4
Surveyor	4	3	3*	0	7	3
Others	36				36	
TOTAL	54	6	9	5	63	11

* Primary objective was to attain moon trajectory and landing rather than achieve orbit.

MANNED SPACE PROGRAMS

PROGRAM	PRIOR YEARS		FY-67		GRAND TOTAL	
	Launched	Orbited	Launched	Orbited	Launched	Orbited
APOLLO	3	2	1/		4	2
GEMINI	9	7	3	3	12	10
MERCURY	16	6			16	6
MOL			1	1	1	1
TOTAL	28	15	5	4	33	19

/ This was a suborbital flight of unmanned Apollo spacecraft.

SATELLITE PROGRAMS
FISCAL YEARS 1958 THROUGH 1966

	FY-58	FY-59	FY-60	FY-61	FY-62	FY-63	FY-64	FY-65	FY-66	TOTAL
Anna					1(0)	1(1)				2(1)
Ariel					1(1)					1(1)
ATDA									1(1)	1(1)
Beacon		1(0)	1(0)							2(0)
Centaur							1(1)		1(1)	2(2)
Composite					1(0)					1(0)
Comsat								1(1)		1(1)
Courier				2(1)						2(1)
Echo			1(0)	1(1)	1(0)	1(*)				4(1)
Explorer	3(2)	2(1)	4(2)	5(3)	1(1)	3(3)	2(1)	3(3)	2(2)	25(18)
GGTS									1(1)	1(1)
LCS								1(1)	1(1)	2(2)
LES								2(2)	2(2)	4(4)
Midas			2(1)							2(1)
OAO									1(1)	1(1)
OGO								1(1)	1(1)	2(2)
ORS									1(1)	1(1)
OSO					1(1)			1(1)	1(0)	3(2)
Oscar									1(1)	1(1)
Pegasus								2(2)	1(1)	3(3)
Relay						1(1)	1(1)			2(2)
Saturn							1(1)			1(1)
Score		1(1)								1(1)
Syncom						1(1)	1(1)	1(1)		3(3)
Tiros			1(1)	1(1)	3(3)	2(2)	1(1)	1(1)	3(3)	12(12)
Transit			3(2)	3(2)	1(1)					7(5)
Telstar						2(2)				2(2)
Vanguard	6(1)	4(1)/	1(1)							11(3)
Vela							2(2)	2(2)	2(2)	6(6)
Dummy Payloads								3(2)		3(2)
TOTAL	9(3)	8(3)	13(7)	12(8)	10(7)	11(10)	9(8)	18(17)	19(18)	109(81)

NOTE: Numbers in parentheses indicate successful orbits achieved. The following booster stages went into orbit during FY-65 in conjunction with their payloads, but were not considered spacecraft and were not reported and counted separately: 2nd stage Saturn I with Apollo boilerplate model; Centaur stage with mass model Surveyor; and Transtages of Titan IIIA and IIIC with lead ballast payloads.

* Planned suborbital flight.
/ One other flight circled earth three or four times before decay.

ET67-14767

SPACE FLIGHTS AND PROBES
FISCAL YEARS 1959 THROUGH 1966

SPACE PROBES	FY-59	FY-60	FY-61	FY-62	FY-63	FY-64	FY-65	FY-66	TOTAL
Abres					2	3			5
Asset						2	4		6
Fire						1	1		2
HETS			6	1					7
Mariner					2		2		4
OAR						2	5		7
Pioneer	5	2	2					1	10
Ranger				4	1	1	3		9
Surveyor							1	3	4
TOTAL	5	2	8	5	5	9	16	4	54

MANNED SPACE PROGRAMS
FISCAL YEARS 1960 THROUGH 1966

PROGRAM	FY-60	FY-61	FY-62	FY-63	FY-64	FY-65	FY-66	TOTAL
APOLLO					1	1	1	3
GEMINI					1	3/	5//	9
MERCURY	1	7*	6**	2***				16
TOTAL	1	7	6	2	2	4	6	28

* Included MR-3, manned, suborbital flight of Shepard.
** Included the MR-4 suborbital flight of Grissom, the orbital flights of MA-6 Glenn and MA-7 Carpenter.
*** Included the orbital flights of MA-8 Schirra and MA-9 Cooper.
/ Included the GT-3 Grissom/Young and the GT-4 McDivitt/White flights.
// Included the GT-5 Cooper/Conrad, GT-6 Schirra/Stafford, GT-7 Borman/Lovell, GT-8 Armstrong/Scott, and GT-9 Stafford/Cernan flights.

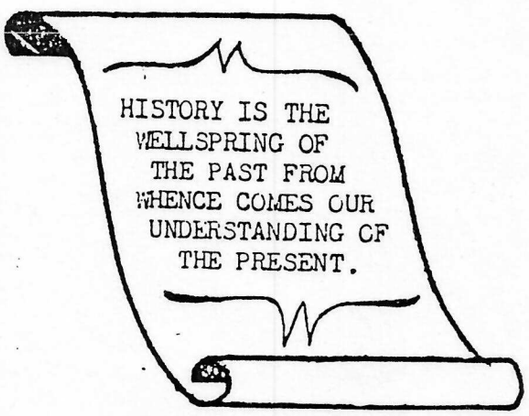
ET67-14767

AFETR HISTORICAL
PUBLICATIONS SERIES

FISCAL YEAR 1968

EASTERN TEST RANGE
INDEX OF MISSILE LAUNCHINGS

JULY 1967 - JUNE 1968



AIR FORCE EASTERN TEST RANGE
PATRICK AIR FORCE BASE, FLORIDA

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Meteorological rockets of the LOKI and ARCAS class, similar research rockets, and deadweight slugs used in the POLARIS program are not included as vehicles launched. Dummy missiles, scale models, and live missiles launched as part of a weapons system test program are counted, provided they meet the criteria for a launch established by paragraph four above.

Marven R. Whipple

MARVEN R. WHIPPLE
Chief, Historical Division

TABLE OF CONTENTS

PART I
MISSILES AND SPACE BOOSTERS

PART II
SATELLITE LAUNCHINGS, SPACE PROBES, & MANNED SPACE FLIGHTS

MISSILE AND SPACE BOOSTERS LAUNCHED FROM
AIR FORCE EASTERN TEST RANGE

PROGRAM	Prior Years	Jul-Dec 1967	Jan-Jun 1968	Total FY-68	GRAND TOTAL
ATLAS/AGENA	138	2	1	3	141
CENTAUR	11	3	1	4	15
DELTA-THOR	47	5	0	5	52
MINUTEMAN	71	2	1	3	74
SATURN	13	1	2	3	16
TITAN IIIC	12	1	1	2	14
Other Missiles	1097	0	0	0	1097
TOTAL	1764	30	22	52	1816

ET68-14761

PART I

MISSILE PROGRAMS

Tab 1

MISSILE	ATLAS
DEVELOPMENT	Sponsored by Air Force as weapon system. Converted to Space Booster.
CONTRACTOR	General Dynamics Convair - Airframe
CHARACTERISTICS	Height - 82 feet Diameter - 10 feet across tank section Thrust - 360,000 to 389,000 pounds Range - over 8,000 miles Speed - 16,000 mph
First R&D Launch	11 Jun 1957
Declared Operational	9 Sep 1959
R&D Tests Completed	5 Dec 1962
First Used as Space Booster	18 Dec 1958
First Stretched Atlas (117 inches longer than conventional) used as SLV-3A	4 Mar 1968

Program active as space booster SLV-3 as of 30 June 1968.

Tab 4

MISSILE		MINUTEMAN
DEVELOPMENT		Sponsored by Air Force as first solid propellant ICBM.
CONTRACTOR	Prime:	The Boeing Company
	Associates:	Aerojet-General Thiokol AVCO Hercules Autonetics
CHARACTERISTICS		Three Stage Height - About 59 feet Diameter - Approx 5.5 feet Thrust - Over 280,000 pounds Range - Minuteman I 6,300 SMI Minuteman II 7,000 SMI Speed - 15,000 mph
First Launch		1 Feb 1961
Last Minuteman I R&D Launch		29 Sep 1964
First Improved Minuteman II Launch		24 Sep 1964
Last Minuteman II R&D Launch		6 Feb 1968

Minuteman III Program scheduled for FY-69.

PART II

SATELLITE LAUNCHINGS

SPACE PROBES

and

MANNED SPACE FLIGHTS

ET68-14761

EARTH SATELLITE PROGRAMS

	FY-58	FY-59	FY-60	FY-61	FY-62	FY-63	FY-64	FY-65	FY-66	FY-67	FY-68	TOTAL
Anna					1(0)	1(1)						2(1)
Ariel					1(1)							1(1)
ATS										2(2)	1(1)	3(3)
ATV									4(2)	3(3)		7(5)
Beacon		1(0)	1(0)									2(0)
Bio Satellite										1(1)	1(1)	2(2)
Centaur							2(1)	1(0)				3(1)
Composite					1(0)							1(0)
Courier				2(1)								2(1)
DATS											1(1)	1(1)
DODGE											1(1)	1(1)
Echo			1(0)	1(1)	1(#)	1(#)						4(1)
*ERS							1(1)	1(1)	1(1)	1(1)	1(1)	5(5)
Explorer	3(2)	2(1)	4(2)	5(3)	1(1)	3(3)	2(1)	3(3)	2(2)	1(1)	1(1)	27(20)
*GGTS									1(1)			1(1)
IDCSP									7(7)	16(8)	11(11)	34(26)
Intel Sat (Comsat)								1(1)		3(3)	1(1)	5(5)
*Injun				1(1)								1(1)
*LCS								1(1)	1(1)			2(2)
LES								2(2)	2(2)		1(1)	5(5)
*Lofti				1(1)								1(1)
Midas			2(1)									2(1)
OAO									1(1)			1(1)

ET68-14761

	FY-58	FY-59	FY-60	FY-61	FY-62	FY-63	FY-64	FY-65	FY-66	FY-67	FY-68	TOTAL
OGO								1(1)	1(1)		1(1)	3(3)
*Oscar									1(1)			1(1)
OSO					1(1)			1(1)	1(0)	1(1)	1(1)	5(4)
OV									2(2)	5(5)		7(7)
Pegasus								2(2)	1(1)			3(3)
Relay						1(1)	1(1)					2(2)
*REP									1(1)			1(1)
Saturn							1(1)			1(1)		2(2)
Score		1(1)										1(1)
*Solrad			1(1)	2(1)								3(2)
Syncom						1(1)	1(1)	1(1)				3(3)
Telstar						2(2)						2(2)
Tiros			1(1)	1(1)	3(3)	2(2)	1(1)	1(1)	3(3)			12(12)
*Traac					1(1)							1(1)
Transit			3(2)	3(2)	1(1)							7(5)
Transtage (Titan III)								3(2)				3(2)
Vanguard	6(1)	4(1)	1(1)									11(3)
Vela							2(2)	2(2)	2(2)	2(2)		8(8)
	9(3)	8(3)	14(8)	16(11)	11(8)	11(10)	11(9)	20(18)	31(28)	36(28)	21(21)	188(147)

* Auxiliary or secondary payloads.

\# Planned suborbital flights.

( ) Figures in ( ) indicate orbit achieved. Booster stages placed in orbit are listed separately only when they did not carry a payload.

FT68-14761

UNMANNED SPACE PROGRAMS

Program	FY-59	FY-60	FY-61	FY-62	FY-63	FY-64	FY-65	FY-66	FY-67	FY-68	TOTAL
Abres					2	3					5
Asset						2	4				6
Fire						1	1				2
HETS			6	1							7
Lunar Orbiter									4	1	5
Mariner					2		2		1		5
OAR Probes						2	5				7
Pioneer	5	2	2					1	1	1	12
Ranger				4	1	1	3				9
Surveyor							1	3	3	4	11
TOTALS	5	2	8	5	5	9	16	4	9	6	69

MANNED SPACE PROGRAMS

	Unmanned	Manned	Unmanned	Manned	Unmanned	Manned	Unmanned	Manned	Unmanned	Manned	Unmanned	Manned	Unmanned	Manned	Unmanned	Manned	Unmanned	Manned	Unmanned	Manned	Unmanned	Manned	Unmanned	Manned
Apollo											1		1		1		1		3				7	
Gemini											1		1	2		5		3					2	10
Mercury *			1		6	1	3	3		2													10	6
MOL																	1						1	
TOTALS			1		6	1	3	3		2	2		2	2	1	5	2	3	3				20	16

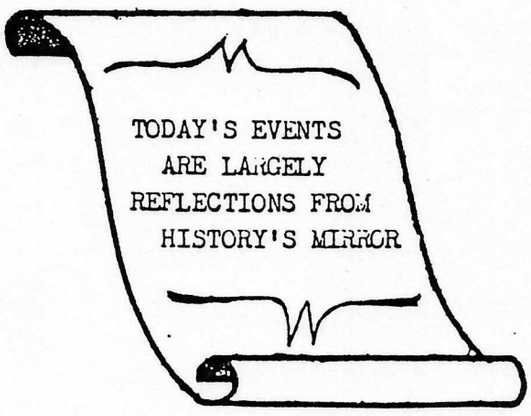
* The first two manned Mercury flights were suborbital. One suborbital and one orbital Mercury flight carried a primate as passenger.

AFETR
HISTORICAL
PUBLICATIONS

FISCAL YEAR 1969

EASTERN TEST RANGE
INDEX OF MISSILE LAUNCHINGS

JULY 1968-JUNE 1969



AIR FORCE EASTERN TEST RANGE
PATRICK AIR FORCE BASE, FLORIDA

FOREWORD

This publication is designed to serve as a ready reference for basic information concerning missiles and space boosters launched on the Eastern Test Range during Fiscal Year 1969. It is the tenth in a series of similar publications. The first one covered a ten-year period, July 1950 through June 1960. Subsequent issues have been published on a fiscal year basis.

Part I of this document provides launch data on missiles undergoing R&D testing, training familiarization, and operational evaluation. It also includes data on space boosters used to inject satellites into orbit and space vehicles into proper trajectory. Part II covers briefly the satellite and space vehicle payloads launched from the Eastern Test Range during Fiscal Year 1969.

All launch dates given in this document are based on Eastern Standard Time. In view of this fact, the launch day is frequently a day earlier than those based on Zulu Time or Daylight Saving Time. Zulu Time is five hours ahead of Eastern Standard Time.

Definition of Launch: For the purpose of this document a launch is defined as a definite liftoff of the test vehicle or space booster from its launch platform after a complete pre-launch countdown with intent to launch. Vehicles that exploded on the pad during countdown operations prior to T-time, or that exploded and burned at the time of being ignited but before accomplishing liftoff are not considered to have been launched; consequently, they are not included in the count of missiles launched.

Meteorological rockets of the LOKI and ARCAS class, similar research rockets, and deadweight slugs used in the POLARIS program are not included as vehicles launched. Dummy missiles, scale models, and live missiles launched as part of a weapons system test program are counted, provided they meet the criteria for a launch established by paragraph four above.

Marven R. Whipple

MARVEN R. WHIPPLE
Chief, Historical Division

TABLE OF CONTENTS

PART I
MISSILES AND SPACE BOOSTERS

PART II
SATELLITE LAUNCHINGS, SPACE VEHICLES, & MANNED SPACE FLIGHTS

MISSILES AND SPACE BOOSTERS LAUNCHED FROM
AIR FORCE EASTERN TEST RANGE

PROGRAM	Prior Years	Jul-Dec 1968	Jan-Jun 1969	Total FY-69	GRAND TOTAL
ATLAS/AGENA	141	1	1	2	143
CENTAUR	15	2	2	4	19
DELTA-THOR	52	4	5	9	61
MINUTEMAN III	0	2	4	6	6
SATURN	16	2	2	4	20
TITAN IIIC	14	1	2	3	17
Other Missiles	1171	0	0	0	1171

PART I

MISSILE PROGRAMS

Tab 1

MISSILE	ATLAS
DEVELOPMENT	Sponsored by Air Force as weapon system. Converted to Space Booster.
CONTRACTOR	General Dynamics Convair - Airframe
CHARACTERISTICS	Height - 82 feet Diameter - 10 feet across tank section Thrust - 360,000 to 389,000 pounds Range - over 8,000 miles Speed - 16,000 mph
First R&D Launch	11 Jun 1957
Declared Operational	9 Sep 1959
R&D Tests Completed	5 Dec 1962
First Used as Space Booster	18 Dec 1958
First Stretched Atlas (117 inches longer than conventional) used as SLV-3A	4 Mar 1968

Program active as space booster SLV-3 as of 30 June 1969.

MISSILE		MINUTEMAN III
DEVELOPMENT		Sponsored by Air Force as follow-on of the Minuteman II program.
CONTRACTOR	Prime:	Boeing Company
	Associate:	Aerojet General, Thiokol Chemical, and Hercules, Inc. - Propulsion. Autonetics Div of North American Aviation - Guidance. AVCO Corp. and General Electric - Reentry vehicle.
CHARACTERISTICS		Three-Stage, Multiple Warhead Length - 59.8 feet Diameter - about 6 feet Weight - 76,000 pounds Propellant - Solid Range - Intercontinental Speed - over 15,000 mph
First Launch		16 Aug 1968

Program underway as of 30 June 1969.

MISSILE		POLARIS
DEVELOPMENT		Sponsored by Navy as Long Range Fleet Ballistic Missile.
CONTRACTOR	Prime:	Lockheed Aircraft - Airframe
	Associates:	Aerojet-General Corporation and Allegany Ballistic Lab - Propulsion. General Electric - Guidance. Westinghouse Electric - Launching Equipment.
First R&D Launch		13 Apr 1957
First Launch from Submerged Submarine USS Geo. Washington		20 Jul 1960
Polaris A-1 declared operationally ready and deployed to sea patrol duty aboard USS George Washington.		15 Nov 1960
First Launch of Polaris A-2		10 Nov 1960
First Submerged Launch of A-2		23 Oct 1961
First Launch of Polaris A-3		7 Aug 1962
First Submerged Launch of A-3		26 Oct 1963

Tab 8

MISSILE		TITAN III
DEVELOPMENT		Sponsored by Air Force as a standard space launch vehicle system (SSLV) with two basic configurations Titan IIIA (SLV-5A) and Titan IIIC (SLV-5C).
CONTRACTOR	Prime:	Martin Marietta Corp. - Airframe
	Associate:	Aerojet - Propulsion core vehicle. United Technology Corp. - Solid Booster. AC Spark Plug - Guidance, All Inertial.
CHARACTERISTICS	TITAN IIIA:	Three-Stage and Control Module Height - 126 feet Diameter - 10 feet Thrust - 1st Stage - 430,000 lbs 2nd Stage - 100,000 lbs 3rd Stage - 16,000 lbs
	TITAN IIIC:	Same as IIIA with the addition of two strap-on boosters of 1,000,000 pounds thrust each.
First R&D Titan I Launch		6 Feb 1959
Last Titan I Launch		29 Jan 1962
First Titan II Launch		16 Mar 1962
Titan II R&D Test Completed		9 Apr 1964
Last Titan II boosted Gemini GT-12 capsule into orbit.		11 Nov 1966 ✓
First Titan III Launch		1 Sep 1964
First Titan IIIC Launch		18 Jun 1965
Titan IIIC R&D Tests Completed		23 May 1969

Program active as space booster as of 30 June 1969.

PART II

SATELLITE LAUNCHINGS

SPACE VEHICLES

and

MANNED SPACE FLIGHTS

EARTH SATELLITE PROGRAMS

	FY-58	FY-59	FY-60	FY-61	FY-62	FY-63	FY-64	FY-65	FY-66	FY-67	FY-68	FY-69	TOTAL
Anna					1(0)	1(1)							2(1)
Ariel					1(1)								1(1)
ATS										2(2)	1(1)	1(1)	4(4)
ATV									4(2)	3(3)			7(5)
Beacon		1(0)	1(0)										2(0)
Bio Satellite										1(1)	1(1)	1(1)	3(3)
Centaur							2(1)	1(0)					3(1)
Composite					1(0)								1(0)
Courier				2(1)									2(1)
DATS											1(1)		1(1)
DODGE											1(1)		1(1)
Echo			1(0)	1(1)	1(#)	1(#)							4(1)
*ERS							1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	6(6)
Explorer	3(2)	2(1)	4(2)	5(3)	1(1)	3(3)	2(1)	3(3)	2(2)	1(1)	1(1)		27(20)
HEOS												1(1)	1(1)
*GGTS									1(1)				1(1)
IDCSP									7(7)	16(8)	11(11)		34(26)
Intel Sat. (Comsat)								1(1)		3(3)	1(1)	4(3)	9(8)
*Injun				1(1)									1(1)
*LCS								1(1)	1(1)				2(2)
LES								2(2)	2(2)		1(1)	1(1)	6(6)
* Lofti				1(1)									1(1)
Midas			2(1)										2(1)
OAO									1(1)			1(1)	2(2)
OGO								1(1)	1(1)		1(1)		3(3)
*Oscar									1(1)				1(1)
OSO					1(1)			1(1)	1(0)	1(1)	1(1)	1(1)	6(5)
OV									2(2)	5(5)		6(6)	13(13)
Pegasus								2(2)	1(1)				3(3)

	FY-58	FY-59	FY-60	FY-61	FY-62	FY-63	FY-64	FY-65	FY-66	FY-67	FY-68	FY-69	TOTAL
Relay						1(1)	1(1)						2(2)
*REP									1(1)				1(1)
Saturn							1(1)			1(1)			2(2)
Score		1(1)											1(1)
*Solrad			1(1)	2(1)									3(2)
Syncom						1(1)	1(1)	1(1)					3(3)
TAC SAT												1(1)	1(1)
Telstar						2(2)							2(2)
Tiros			1(1)	1(1)	3(3)	2(2)	1(1)	1(1)	3(3)			1(1)	13(13)
*Traac					1(1)								1(1)
Transit			3(2)	3(2)	1(1)								7(5)
Transtage (Titan III)								3(2)					3(2)
Unnamed Classified												2(2)	2(2)
Vanguard	6(1)	4(1)	1(1)										11(3)
Vela							2(2)	2(2)	2(2)	2(2)		2(2)	10(10)
	9(3)	8(3)	14(8)	16(11)	11(8)	11(10)	11(9)	20(18)	31(28)	36(28)	21(21)	23(22)	211(169)

* Auxiliary or secondary payloads.

\# Planned suborbital flights.

( ) Figures in ( ) indicate orbit achieved. Booster stages placed in orbit are listed separately only when they did not carry a payload.

UNMANNED SPACE PROGRAMS

PROGRAM	FY-59	FY-60	FY-61	FY-62	FY-63	FY-64	FY-65	FY-66	FY-67	FY-68	FY-69	TOTAL
Abres					2	3						5
Asset						2	4					6
Fire						1	1					2
HETS			6	1								7
Lunar Orbiter									4	1		5
Mariner					2		2		1		2	7
OAR Probes						2	5					7
Pioneer	5	2	2					1	1	1	1	13
Ranger				4	1	1	3					9
Surveyor							1	3	3	4		11
TOTALS	5	2	8	5	5	9	16	4	9	6	3	72

MANNED SPACE PROGRAMS

	Unmanned	Manned	Unmanned	Manned	Unmanned	Manned	Unmanned	Manned	Unmanned	Manned	Unmanned	Manned	Unmanned	Manned	Unmanned	Manned	Unmanned	Manned	Unmanned	Manned	Unmanned	Manned	Unmanned	Manned
Apollo											1		1		1		1		3			4	7	4
Gemini											1		1	2		5		3					2	10
Mercury *			1		6	1	3	3		2													10	6
MOL																	1						1	
TOTALS			1		6	1	3	3		2	2		2	2	1	5	2	3	3		0	4	20	20

*The first two manned Mercury flights were suborbital. One suborbital and one orbital Mercury flight carried a primate as passenger.