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OFFICE OF INFORMATION

INDEX OF MISSILE LAUNCHINGS
BY MISSILE PROGRAM

JULY 1950 - JUNE 1960

FIRST TEN YEARS OF EFFORT BY
THE ATLANTIC MISSILE RANGE

The lessons of
history correctly
interpreted are
vital to the
national safety

- Jerome
Ellison

COPY NO.

AIR FORCE MISSILE TEST CENTER

AIR RESEARCH AND DEVELOPMENT COMMAND

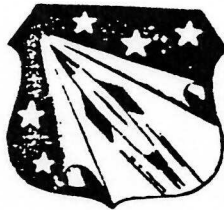
PATRICK AIR FORCE BASE, FLORIDA

MT 60-2544

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PUBLICATIONS SERIES
61 - 130



AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE

SUPPLEMENT I FY-61

**INDEX OF MISSILE LAUNCHINGS
BY MISSILE PROGRAM**

OCT 10 1961

JULY 1960 - JUNE 1961

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

Marven R. Whipple



PATRICK AIR FORCE BASE, FLA.

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THINK OF MISSILE LAUNCHING

BY MISSILE PROGRAM

DOWNGRADED AT 3 YEAR INTERVALS
DECLASSIFIED AFTER 12 YEARS
DOD D. 520010

JULY 1965 - JUNE 1967

FIRST TEN YEARS OF EFFORT BY
THE ATLANTIC MISSILE RANGE

Marven R. Whittle
Center Historian

Historical Branch
Office of Information
Air Force Missile Test Center
(Air Research and Development Command)
Patrick Air Force Base, Florida

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MT 60-2511

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REPORT OF MISSILE LAUNCHES

This document is classified "SECRET" because it reveals test results and missile performance.

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APPROVED

E. Thomson

J. E. THOMSON, JR., Lt Colonel, USAF
Director of Information

MT 60-2544-1

INDEX OF MISSILE LAUNCHINGS

ERRATA SHEET

The following pen and ink changes should be made to basic document dated 15 December 1960:

Page iv Change DRACO 1990 to DRACO 1995
Page 17-5 Change JUPITER C-17 to JUPITER C-20
Page 27-12 Change 6 July 59 to 16 July 59

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INDEX OF MISSILE LAUNCHINGS
July 1950 - June 1960

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APPROVED

[Signature]
SIR F. SPEER, Lt Colonel, USAF
Director of Information

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HT 60-2544

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LIST OF MISSILE LAUNCHES
BY MISSILE PROGRAM

SUPPLEMENT I

JULY 1960 - JUNE 1961

ATLANTIC MISSILE RANGE

OCT 10 1961

DOWNGRADED AT 5 YEAR INTERVALS
DECLASSIFIED AFTER 10 YEARS
DOO OR DRA 10

Marven R. Whipple
Center Historian

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

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IT 60-2544-1

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FOREWORD

The purpose of this brochure is to provide a ready reference index of missiles launched over the Atlantic Missile Range during its first ten years of operation. It contains a record of missiles launched during the period July 1950 through June 1961. Launch dates are in chronological order according to missile program. Missile numbers are also included. Highlights concerning various launchings are recorded in the remarks section. No attempt was made to give specific launch objectives or test results. The inclusion of such information would have required a classification different from the one assigned to some of the missile programs.

Meteorological rockets of the HUGO and ARCAS class and dead-weight slugs used in the POLARIS program are not included. Dummy missiles, scale models, and live missiles are all included, provided a launch was intended and was accomplished.

A launch is defined as a definite lift-off of the vehicle from its launch stand after a completed pre-launch countdown with intent to launch. Vehicles that exploded on the pad during the countdown operation prior to T-time, or that exploded and burned at the time of being ignited before accomplishing lift-off, are not considered to have been launched; consequently, they are not included in this brochure.

Annex A - Tab 27 - contains data on the space probes and passenger satellites launched from the Atlantic Missile Range.

The large number of requests from staff officers of the Air Force Missile Test Center and other agencies for the type information included in this brochure prompted the Historical Office to prepare it for distribution to interested agencies.

Marven R. Whipple
MARVEN R. WHIPPLE
Center Historian

FOREWORD

This brochure has been prepared as Supplement I to the Index of Missile Launchings by Missile Program, dated 15 December 1959, which covered the period July 1950 - June 1960. This supplement contains data on missile launchings accomplished by the Atlantic Fleet from 1 July 1960 through 30 June 1961, and serves to update the basic document through fiscal year 1961. The pages have been numbered in a manner that will permit their being combined with the basic document as desired. If the supplement and the basic document are combined, Tab A of the supplement should be substituted for Tab 27 of the basic document.

For the purposes of this document, a launch is defined as a definite lift-off of the test vehicle from its launch stand after a completed 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 lifted off before accomplishing lift-off, are not considered to have been launched; consequently, they are not included in this brochure as launches.

Missile test vehicles of the HUGO and ARCAS class, similar to the test vehicles used in the development of the POLARIS program, are not included as launch vehicles. Dummy missiles, scale models, and all live missiles are included, provided a launch was intended and was accomplished.

Harvey R. Phillips
Harvey R. Phillips
Chief, Operations

TABLE OF CONTENTS

<u>Program</u>	<u>Tab No.</u>	<u>Status as of 30 June 1961</u>
ATLAS	Tab 11	Active
BLUE SCOUT	Tab 27	Active
DELTA-THOR	Tab 15	Active
HOUND DOG (CAN-77)	Tab 26	Active
JUNO	Tab 18	Completed
JUPITER	Tab 17	Completed
KACE	Tab 4	Active
MATADOR	Tab 3	Completed
MINUTEMAN	Tab 28	Active
PERSHING	Tab 19	Active
POLARIS	Tab 20	Active
REDSTONE	Tab 16	Active with Mercury Program
SHARK	Tab 5	Completed
THOR-ABLE	Tab 14	Active
TITAN	Tab 12	Active

TABLE OF CONTENTS

ALB 50 1990	Tab 23	Completed
ATLAS	Tab 11	Active
BOLLE ORION 1993	Tab 22	Completed
BOMARC	Tab 6	Transferred
BULL GOOSE	Tab 9	Cancelled
BUMFER	Tab 1	Completed
DELTA THOR	Tab 15	Active
DRACO 1990	Tab 24	Completed
HOUND DOG GAM 77	Tab 10	Active
JASON	Tab 25	Cancelled
JUNO	Tab 18	Active
JUPITER	Tab 17	Completed
LARK	Tab 2	Completed
MACE	Tab 4	Active
MATADOR	Tab 3	Active for Tng
NAVAHO	Tab 8	Cancelled
PERSHENG	Tab 19	Active
POLARIS	Tab 20	Active
REDSTONE	Tab 16	Active for Tng
RVA 10	Tab 7	Completed
SHARK	Tab 5	Active
THOR	Tab 13	Completed
THOR-AHLE	Tab 14	Active
TITAN	Tab 12	Active
VANGUARD	Tab 21	Completed
X-17	Tab 10	Completed

ANNEX A

Tab 27

Space Flights and Passenger Satellites

ECFJ Program	27-2
EXPLORER Program	27-3
Lunar Probes and Orbits	27-4
MERCURY Program	27-5
MIDAS Program	27-6
PIONEER Program	27-7
Project SCORE	27-8
TIROS Program	27-9
TRANSIT Program	27-10
VANGUARD Program	27-11
Miscellaneous Satellite Attempts	27-12

ATLANTIC MISSILE RANGE
RECORD OF MISSILES LAUNCHED
July 1950 through June 1960

	FY 51	FY 52	FY 53	FY 54	FY 55	FY 56	FY 57	FY 58	FY 59	FY 60	TOTAL										
BUMPER	2	-									2										
LARK	3	7	6	8	6	9	1				40										
MATADOR		2	7	9	12	13	13	50	9	25	10	19	12	4	9	4	6	11	11	21	260
MACE																			2	5	7
SNARK					5	2	2	4	5	5	6	3	10	11	8	7	7	6	5	5	91
BOMARC					1	2	2	0	3	4	5	5	3	4	8	8	12	7	4	2	70
RVA-10				4	-																4
NAVAHO X-10																					
NAVAHO SM-64											2	5	5				2	1	-		15
BULL GOOSE														3	3	2	2	-	-		11
X-17															3	4	4	9			20
ATLAS						5	4	4	16	8	1										36
TITAN													1	2	5	9	8	11	11		50
THOR																		4	2	11	17
THOR-AHLE													2	7	5	8	9	11	3		48
DELTA THOR															1	5	6	2	4		18
REDSTONE																			1		1
JUPITER																5	2	0	2	1	11
JUNO												2	8	8	11	5	7	6	9	2	56
PERSHING																		1	1	3	6
FOLARIS																				5	5
VANGUARD													2	10	5	3	7	13	20		60
BOLD												1	1	2	5	1	3	1	-		14
ORION 199B																	2	6	3	1	12
ALB 58 199C																		2	1	-	3
DRACO 199D																			3	-	3
JASON																		3	-		3
HOUSE DOG																	12	-			12
GAM 77																					
TOTAL	5	9	13	17	24	30	29	56	19	42	30	38	56	47	65	58	94	81	87	103	903
	CY 50	CY 51	CY 52	CY 53	CY 54	CY 55	CY 56	CY 57	CY 58	CY 59	CY 60										

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

PROGRAM	FY-61		FY-61 TOTAL	PRIOR YEARS	RAND TOTAL
MATADOR	15	11	26	260	286
MACE	6	7	13	7	20
SHARK	6		6	91	97
ATLAS	13	10	23	50	73
TITAN	0	0	17	17	34
THOR-AEOL	3	2	5	18	23
LTA-THOR	2	1	3	1	4
REDSTONE	4	7	11	21	32
JUPITER	1	1	2	58	60
JUNO	1	3	4	6	10
PRESIDENT	4	2	13	5	18
POLARIS	25	24	49	60	109
HOWL DOG GAM 77	7	12	19	17	36
ELITE 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			

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ANNEX A

Table A

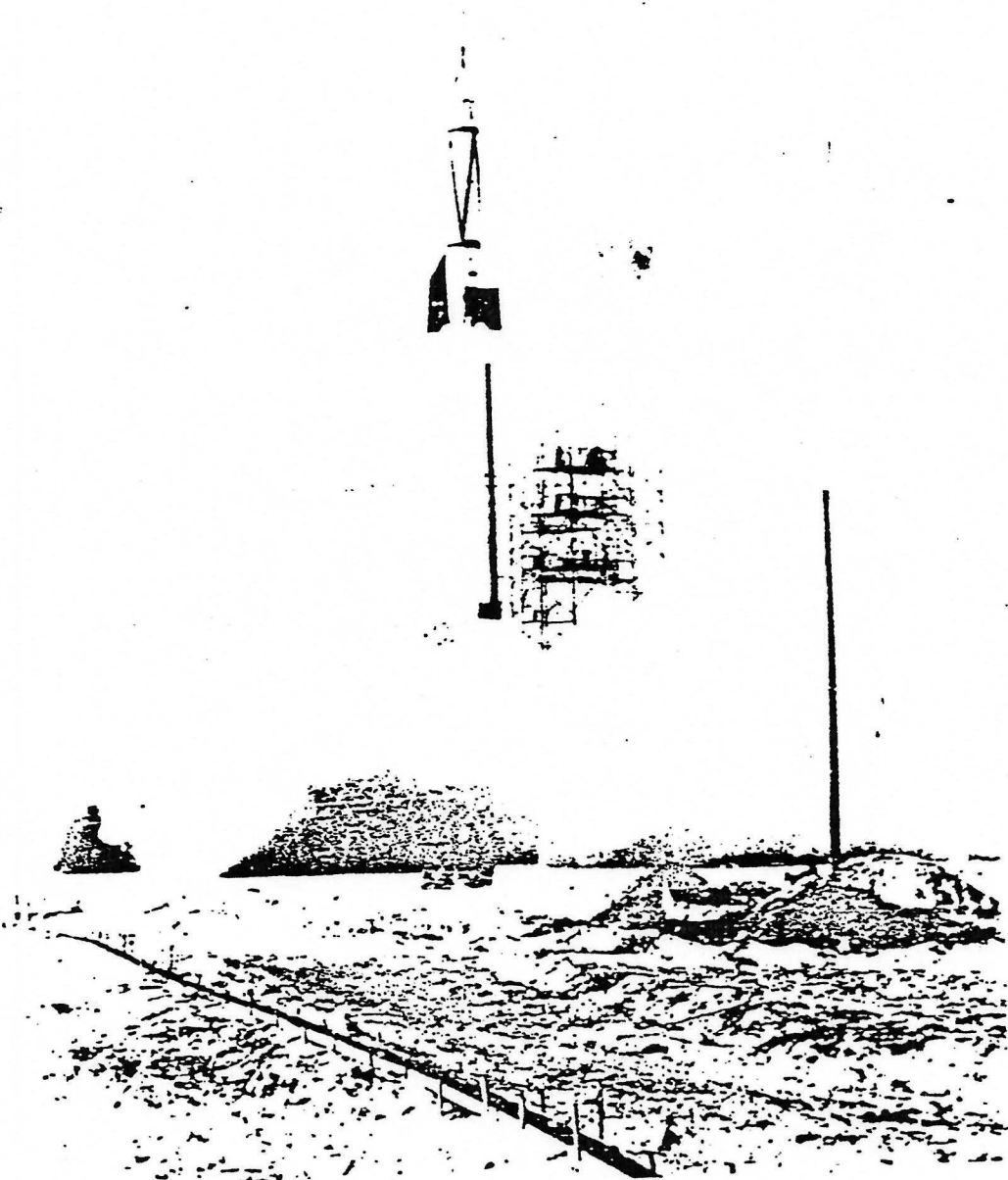
Personnel Satellite Test and Special Projects

ELACCA Program	A-6-1
COURIER Program	A-10-1
LINE Program	A-11-1
LEPACCA Program	A-1-1
HEMS (Hyperbaric Environmental Test System)	A-13-1
LEADER Program and Orbiter	A-3-1
MERCURY Program	A-7-1
NEDAS Program	A-9-1
PIONEER Program	A-1-1
Project SCORE	A-5-1
TERRA Program	A-10-1
TRANSIT Program	A-9-1
VANGUARD Program	A-2-1

Tab 1

MISSILE	BUMPER
SPONSOR	- Army
CONTRACTOR(S)	General Electric (Prime) Douglas (Associate)
First launch	24 Jul 50 - This was first missile launched from Cape Canaveral
Final launch	29 Jul 50
Total launchings at AMR	2

Program completed



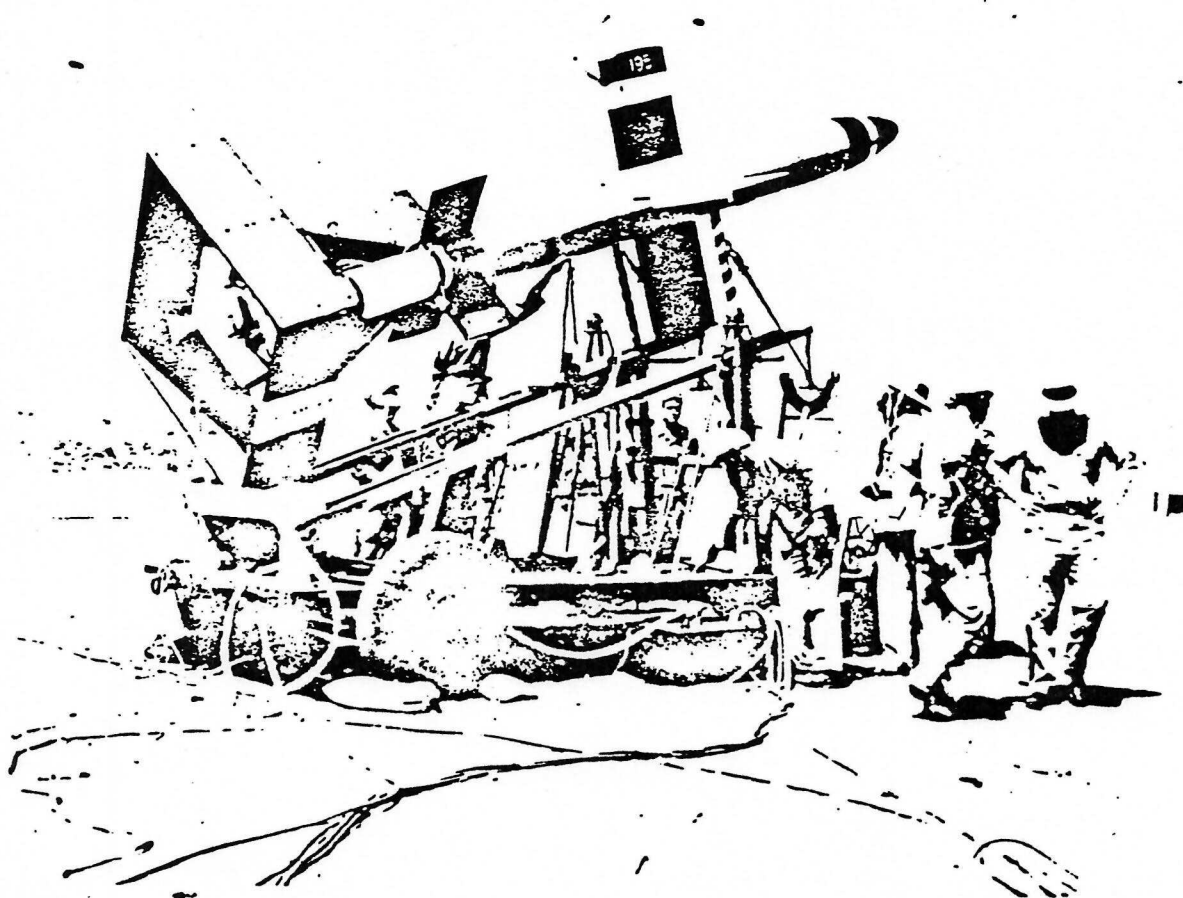
1. BUMPER, A GERMAN V-2 WITH WAC CORPORA IN NOSE. UNDERGOING LAUNCH AT CAPE CANAVERAL, LAUNCHING SITE OF THE AIR FORCE MISSILE TEST CENTER.

0 7 5 0 1 0 4 1

2 0 0 5 5

BUMPER LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JULY - DECEMBER 1950</u>				
1	1	#6	24 Jul 50	German V2 with WAC corporal as second stage. First missile launched from Cape Canaveral, Fla.
2	2	#7	29 Jul 50	Second and final BUMPER launching at APL.



THE LARA MISSILE TRAINING VEHICLE FOR MISSILE LAUNCH TEAMS BEING PREPARED FOR LAUNCH AT CAPE CANAVERAL, LAUNCHING SITE OF THE AIR FORCE MISSILE TEST CENTER.

Tab 2

MISSILE	LARK
SPONSOR	Air Force
CONTRACTOR	Fairchild Aircraft Company

First launch	25 Oct 52
--------------	-----------

Final launch	8 Jan 53
--------------	----------

Total launchings at AMR	40
-------------------------	----

Program completed

LARK LAUNCHES

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JULY - DECEMBER 1950</u>				
1	1	225	25 Oct 50	First LARK launch at AMR.
2	2	226	26 Oct 50	Command guidance ineffective.
3	3	227	21 Nov 50	Flight limited by range of Optical tracker to 15 min.
<u>JANUARY - JUNE 1951</u>				
4	1	231	11 Apr 51	Exploded 2 seconds after booster separation.
5	2	232	17 Apr 51	Last of command type LARK.
6	3	234	3 May 51	First mid-course LARK launch.
7	4	235	11 May 51	Traveled 28,000 yards.
8	5	242	29 May 51	Entered cloud bank at T+121 sec. and had to be destroyed.
9	6	236	7 Jun 51	First time two missiles were launched on same day at AMR.
10	7	238	7 Jun 51	Pitch control failed.
<u>JULY - DECEMBER 1951</u>				
11	1	240	3 Jul 51	All objectives accomplished.
12	2	239	20 Jul 51	Low order explosion at T+18 sec.
13	3	593	13 Sep 51	Structural failure at T+2 sec.
14	4	595	19 Sep 51	Passed within 35 yards of target.
15	5	597	4 Oct 51	Flight lasted only 12 sec.
16	6	598	11 Dec 51	Came within 35 yards of target.

LARK LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
---------------------	------------------	-------------------	------------------	---------

JANUARY - JUNE 1952

17	1	600	28 Jan 52	Poor response to control.
18	2	604	12 Feb 52	Explosion and destruct at T+1.5 min.
19	3	596	28 Feb 52	Loss of track brought destruct at T+5.4 sec.
20	4	594	21 Mar 52	Missile destroyed at T+1.4 min.
21	5	602	10 Apr 52	Lack of control required destruction.
22	6	601	17 Apr 52	Launch phase good. Loss of power and radar track required destruct.
23	7	603	16 May 52	Short flight of 46 seconds.
24	8	230	24 Jun 52	Test of Thompson Launcher successful.

JULY - DECEMBER 1952

25	1	592	7 Jul 52	Straight line flight to impact.
26	2	606	15 Jul 52	Exploded at T+7 seconds.
27	3	608	17 Sep 52	First gimbaled antenna configuration.
28	4	610	28 Nov 52	Failed to track target.
29	5	599	4 Dec 52	Teamed with MATADOR in first same-day launch under two missile programs.
30	6	605	16 Dec 52	Destroyed after 1 min. of flight.

LARK LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
---------------------	------------------	-------------------	------------------	---------

JANUARY - JUNE 1953

31	1	607	12 Feb 53	Successful training operation.
32	2	612	24 Feb 53	Passed within 1,000 ft. of target.
33	3	611	3 Mar 53	Emergency fired to prevent explosion on launcher.
34	4	621	16 Mar 53	Reached 27,000 ft. altitude and 16,050 yd. range.
35	5	622	8 Apr 53	Test objectives accomplished.
36	6	614	22 Apr 53	Motor malfunctioned.
37	7	623	28 Apr 53	Launch and boost phase normal.
38	8	624	12 May 53	Exceptionally good flight.
39	9	613	14 May 53	Satisfactory flight.

JULY - DECEMBER 1953

40	1	626	6 Jul 53	Final LARK launch at AFMTC.
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End of Program

Tab 3

MISSILE	MATADOR (TM-61)
SPONSOR	Air Force
CONTRACTOR	Glenn L. Martin Company

First R&D launch	20 Jun 51
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R&D testing completed	30 Nov 56
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Subsequent launchings were for unit training of tactical missile squadrons.

Training launchings still being conducted.

MISSILE

PLANS (1-2)

SPONSOR

AM-1-1

CONTRACTOR

General Electric Company

PLANS (1-2)

AM-1-1

PLANS (1-2)

AM-1-1

PLANS (1-2)

AM-1-1

PLANS (1-2)

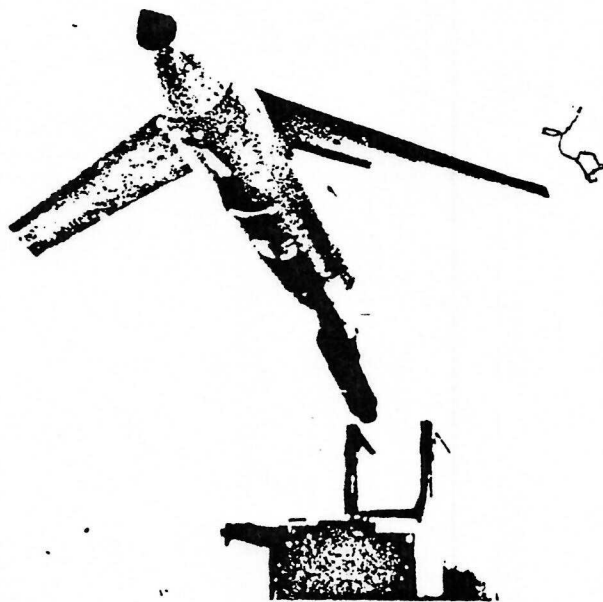
AM-1-1

PLANS (1-2)

KT 6-2511-1

MATADOR LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1951</u>				
1	1	GM-544	20 Jun 51	First MATADOR test at AMR. First to use GBI instrumentation.
2	2	GM-545	29 Jun 51	Reached altitude of 41,000 ft. and range of 205 mi.
<u>JULY - DECEMBER 1951</u>				
3	1	GM-546	18 Jul 51	Launch and flight response good.
4	2	GM-548	10 Aug 51	Completely trouble-free operation.
5	3	GM-549	31 Aug 51	Dump signal not received by missile.
6	4	GM-550	6 Sep 51	Stalled and landed 50 yds off-shore.
7	5	GM-551	26 Oct 51	Utilized new control gear.
8	6	GM-547	7 Dec 51	First all military launch of MATADOR by 6555th GM Sq.
9	7	GM-552	13 Dec 51	Dump was on course but short of target.
<u>JANUARY - JUNE 1952</u>				
10	1	GM-554	15 Jan 52	Only 12 min. of flight time.
11	2	GM-555	13 Feb 52	Attained 40,000 ft. alt.: 291.5 mph speed, and 207 mi. range.
12	3	GM-556	10 Mar 52	Received automatic dump signal.
13	4	GM-558	20 Mar 52	Only 3 min. flight time.
14	5	GM-561	4 Apr 52	First to use MARC guidance control.
15	6	GM-559	9 Apr 52	Automatic dump ineffective.
16	7	GM-560	2 May 52	Last to use Long Base Leg guidance.
17	8	GM-563	15 May 52	Hydraulic failure caused impact at T+8 min.
18	9	GM-562	22 May 52	First flight participated in by 1st Pilotless Bomber Sq (Light).



THE GL-1000, THE MATADOR, A TACTICAL CRUISE MISSILE BY GLENN L. MARTIN
THE GL-1000, THE MATADOR, A TACTICAL CRUISE MISSILE BY GLENN L. MARTIN

MATADOR LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JULY - DECEMBER 1952</u>				
19	1	GM-565	9 Jul 52	First test of new configuration.
20	2	GM-566	19 Jul 52	Impact on course, range 205.6 mi.
21	3	GM-568	10 Sep 52	Premature dump signal caused impact on south shore of GHI.
22	4	GM-569	16 Sep 52	Missile refused dump signals.
23	5	GM-570	9 Oct 52	Satisfactory flight performance.
24	6	GM-2353	4 Nov 52	First test of new tail configuration.
25	7	GM-567	7 Nov 52	Most successful flight to date.
26	8	GM-2354	17 Nov 52	First time 2 MATADORS launched on same day.
27	9	GM-11042	17 Nov 52	First "S" or production model MATADOR.
28	10	GM-553	4 Dec 52	Launched by 69th Pilotless Bomber Sq.
29	11	GM-2356	15 Dec 52	First SHANICLE Guidance flight.
30	12	GM-11043	19 Dec 52	Camera and radar coverage 100%.

MATADOR LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1953</u>				
31	1	GM-557	12 Jan 53	Impact 800 yds from launcher.
32	2	GM-11046	24 Jan 53	First special warhead test.
33	3	GM-11050	30 Jan 53	Failure of command control caused missile destruct.
34	4	GM-2357	5 Feb 53	Shanicle guided. Entered dive and broke up at T+5 min.
35	5	GM-11048	17 Feb 53	First rise of directional gyro heading.
36	6	GM-2358	4 Mar 53	Shanicle guidance system failed.
37	7	GM-11062	18 Mar 53	New cathedral wing configuration.
38	8	GM-11045	31 Mar 53	First all-military launch by 1st Pilotless Bomber Sq.
39	9	GM-11044	1 Apr 53	Terminal dive break-up as in previous flights.
40	10	GM-11049	24 Apr 53	Broke-up during terminal dive.
41	11	GM-2369	29 Apr 53	Shanicle guidance fair. Broke-up during terminal dive.
42	12	GM-11053	4 May 53	Shanicle guidance flight poor. Broke-up during terminal dive.
43	13	GM-11056	12 Jun 53	Used drag chute during terminal dive to solve break-up problem.

MATADOR LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JULY - DECEMBER 1953</u>				
44	1	GM-11059	2 Jul 53	Use of drag chute did not prevent terminal dive break-up.
45	2	GM-11057	9 Jul 53	Tried full power dive in terminal dive problem without success.
46	3	GM-11081	4 Aug 53	Use of beefed-up tail to solve terminal dive break-up successful. Warhead test OK.
47	4	GM-11083	24 Aug 53	Beefed-up tail permitted impact intact.
48	5	GM-11082	23 Sep 53	Confirmed solution of terminal dive break-up problem. Warhead test.
49	6	GM-2368	21 Oct 53	1st Low level test of YB-61.
50	7	GM-11072	22 Oct 53	1st night launching of B-61A.
51	8	GM-11097	2 Nov 53	Test of special warhead.
52	9	GM-11100	17 Nov 53	Excellent flight results.
53	10	GM-11107	18 Nov 53	Terminal dive break-up occurred.
54	11	GM-11104	18 Nov 53	Broke-up during terminal dive.
55	12	GM-11098	19 Nov 53	Special warhead test.
56	13	GM-2359	19 Nov 53	2nd Low-level test of YB-61.
57	14	GM-11101	27 Nov 53	Structural integrity test.
58	15	GM-11099	2 Dec 53	Structural integrity test.
59	16	GM-11080	11 Dec 53	Shanicle guidance test
60	17	GM-11105	15 Dec 53	Five launched in sustained 22 hour operation to test operational readiness of 1st PB Sq (Light).
61	18	GM-11106	15 Dec 53	
62	19	GM-11110	15 Dec 53	
63	20	GM-12418	15 Dec 53	
64	21	GM-12419	16 Dec 53	
65	22	GM-11103	16 Dec 53	To determine final warhead configuration.
66	23	GM-11102	17 Dec 53	Special warhead design test.

MATADOR LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1954</u>				
67	1	GM-12427	7 Jan 54	Missile broke-up. Warhead test.
68	2	GM-12421	8 Jan 54	First simultaneous check-out of missiles on two separate pads. To provide tactical training under night black-out conditions to 69th Pilotless Bomber Sq (Light)
69	3	GM-12420	8 Jan 54	
70	4	GM 11109	8 Jan 54	
71	5	GM-12422 12423	21 Jan 54	Warhead design test.
72	6	GM-12424	29 Jan 54	Group II Terminal Dive tests. Three tests to prove airframe modifications for terminal dive.
73	7	GM-12425	4 Feb 54	
74	8	GM-12424	19 Feb 54	
75	9	GM-12427	25 Feb 54	First use of smoke signal to aid tracking. Warhead test.
76	10	GM-2360	5 Mar 54	Low level test.
77	11	GM-12437	5 Mar 54	Group III terminal dive test.
78	12	GM-12445	23 Mar 54	First time two warhead missiles launched on same day.
79	13	GM-12444	23 Mar 54	
80	14	GM 12446	26 Mar 54	Training for 69th PB Sq (Light).
81	15	GM-12436	30 Mar 54	Group III terminal dive test.
82	16	GM-12432	30 Mar 54	To provide tactical training for 69th PB Sq (light).
83	17	GM-12458	9 Apr 54	
84	18	GM-12429	9 Apr 54	
85	19	GM-12436	9 Apr 54	
86	20	GM-12426	9 Apr 54	
87	21	GM-12452	9 Apr 54	
88	22	GM-12453	13 Apr 54	Warhead configuration test.

MATADOR LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1954</u> (Cont'd)				
89	23	GM-12439	13 Apr 54	Group IV terminal dive test.
90	24	GM-12428	15 Apr 54	Warhead configuration test.
91	25	GM-12470	23 Apr 54	Determine assembly and launch capability of 69th PB Sq (L)
92	26	GM-12469	23 Apr 54	
93	27	GM-12462	23 Apr 54	
94	28	GM-12474	23 Apr 54	
95	29	GM-12440	27 Apr 54	Demonstrate successful terminal dive.
96	30	GM-12477	30 Apr 54	Four tests to collect OST data. Last two destroyed by In-Flight Safety Officer.
97	31	GM-12476	30 Apr 54	
98	32	GM-12482	30 Apr 54	
99	33	GM-12480	30 Apr 54	
100	34	GM-12481	11 May 54	Three tests to determine assembly capabilities.
101	35	GM-12478	11 May 54	
102	36	GM-12487	11 May 54	
103	37	GM-12441	18 May 54	Group V terminal dive test.
104	38	GM-12473	19 May 54	Training flights for 69th PB Sq (L)
105	39	GM-12484	19 May 54	
106	40	GM-12458	20 May 54	First extended flight, race track pattern.
107	41	GM-12472	3 Jun 54	Maximum range attempt failed by defective RATO.
108	42	GM-12454	4 Jun 54	Reliability system test.

MATADOR LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1954</u> (Cont'd)				
109	43	GM-12471	4 Jan 54	Destroyed by In-Flight Safety after loss of engine power.
110	44	GM-12431	9 Jan 54	First race track pattern flown with warhead.
111	45	GM-12460	10 Jan 54	Only 11 min. flight time.
112	46	GM-12489	10 Jan 54	Broke-up during terminal dive.
113	47	GM-52-1524	18 Jan 54	Flew race track pattern and dived intact.
114	48	GM-52-1326	24 Jan 54	Last fired by 69th PB Sq.
115	49	GM-12442	29 Jan 54	Group V terminal dive test. First extended hold test after completion of pre-launch check.
116	50	GM-12435	30 Jan 54	Special warhead design test. Terminal dive without break-up.

MATADOR LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JULY - DECEMBER 1954</u>				
117	1	GM-11067	7 Jul 54	First B-61A specially modified for low-level flight test.
118	2	GM-12459	20 Jul 54	Flew long race track pattern with special warhead.
119	3	GM-11070	22 Jul 54	Low-level flight test series.
120	4	GM-11074	10 Sep 54	Last low-level flight test series.
121	5	GM-12443	29 Sep 54	Premature dump caused impact on GBI.
122	6	GM-12467	20 Oct 54	First redeveloped Shanicle test. First YB 61-C tested at AFMTC.
123	7	GM-12455	20 Oct 54	Special warhead test.
124	8	GM-12456	20 Oct 54	Special warhead test. Erratic behavior required early destruct.
125	9	GM-12430	16 Dec 54	Special warhead test. Failure of MARC control system made command control necessary.
<u>JANUARY - JUNE 1955</u>				
126	1	GM-12434	14 Jan 55	MARC guidance test showed marginal control.
127	2	GM-52-1849	18 Jan 55	YB 61C MATADOR, Shanicle test.
128	3	GM 52-1865	18 Jan 55	YB-61C MATADOR, Shanicle test.
129	4	GM 12450	16 Feb 55	1st B-61A to be controlled and dumped automatically by MARC guidance. Extended flight.
130	5	GM-12486	21 Feb 55	1st launching by 11th TMS.

MATADOR LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1955</u> (Cont'd)				
131	6	GM-12449	24 Feb 55)	
132	7	GM-12461	2 Mar 55)	
133	8	GM-12448	2 Mar 55)	(ADMAT) Series of three Air Defense MATADOR tests.
134	9	GM-52-1889	9 Mar 55	YB-61C. Shanicle guidance test.
135	10	GM-12433	17 Mar 55	11th TMS training flight.
136	11	GM-12451	17 Mar 55	MARC guidance control test.
137	12	GM-52-1900	1 Apr 55	First launch of YTM-61C by 6555th GM Sq. Shanicle test.
138	13	GM-11075	20 Apr 55	1st launch from Goodyear trans-launcher. (Dummy missile #1)
139	14	GM-53-92	21 Apr 55	YB-61C Shanicle test. Premature automatic dump ended flight at T+10.7 min.
140	15	GM-53-205	28 Apr 55	11th Tactical Missile Sq. trg.
141	16	Dummy #2	29 Apr 55	2nd test of Goodyear translauncher.
142	17	GM-52-1895	6 May 55	YB-61C Shanicle test satisfactory.
143	18	GM-53-203	10 May 55	11th Tactical Missile Sq. trg.
144	19	GM-52-1902	17 May 55	Shanicle test of YB-61C.
145	20	GM-53-98	19 May 55	Shanicle test of YB-61C.
146	21	GM-12463	1 Jun 55	YB-61C Shanicle test. Used Goodyear translauncher.
147	22	GM-52-1857	1 Jun 55	YB-61C Shanicle test. Used Goodyear translauncher.
148	23	GM 54-1	9 Jun 55	11th TM Sq. training.
149	24	GM 54-3	10 Jun 55	11th TM Sq. training.
150	25	GM 54-2	10 Jun 55	11th TM Sq. training.

MATADOR LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JULY - DECEMBER 1955</u>				
151	1	GM 54-8	8 Jul 55	Warhead test and tactical training for 11th TM Sq.
152	2	GM 54-5	8 Jul 55	Warhead test and tactical training for 11th TM Sq.
153	3	GM 54-6	18 Jul 55	Tactical training for 11th TM Sq.
154	4	GM 54-7	18 Jul 55	Warhead test and tactical training. 11th TM Sq.
155	5	GM 54-1	22 Jul 55	First detonation of HE warhead during dive. Tactical training.
156	6	GM 54-9	29 Jul 55	Second detonation of HE warhead during dive. Tactical training.
157	7	GM 54-10	29 Jul 55	Last TM-61A/W-5 warhead OST series. Tactical training.
158	8	GM-11089	1 Sep 55	"Two-min. Alert" test by 6555th GMS.
159	9	GM-11051	27 Oct 55	"Two-min. Alert" test by 6555th GMS.
160	10	GM-11055	10 Nov 55	"Two-min. Alert" test by 6555th GMS.

MATADOR LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1956</u>				
161	1	54-17 (TM-61C)	19 Jan 56	11th TM Sq. tng. Shanicle guided. Destroyed as Range Safety measure.
162	2	54-18 (TM-61C)	25 Jan 56	11th TM Sq. tng. Shanicle guided.
163	3	54-26 (TM-61C)	27 Jan 56	11th TM Sq. tng. Shanicle failed. MSQ1 guided.
164	4	54-12 (TM-61C)	6 Feb 56	11th TM Sq. tng. Shanicle.
165	5	54-11 (TM-61C)	6 Feb 56	11th TM Sq. tng. Shanicle. Dumped prematurely at T+7 min.
166	6	54-22 (TM-61C)	23 Mar 56	11th TM Sq. tng. and CEP Shanicle.
167	7	54-26 (TM-61C)	23 Mar 56	11th TM Sq. tng. and CEP Shanicle.
168	8	54-31 (TM-61C)	26 Mar 56	11th TM Sq. tng. and CEP Shanicle. Destroyed by Range Safety.
169	9	54-19 (TM-61C)	26 Mar 56	11th TM Sq. tng. and CEP Shanicle.
170	10	54-35 (TM-61C)	26 Mar 56	11th TM Sq. tng. and CEP Shanicle. Destroyed by Range Safety.
171	11	54-21 (TM-61C)	28 Mar 56	11th TM Sq. tng. and CEP Shanicle.
172	12	54-30 (TM-61C)	28 Mar 56	11th TM Sq. tng. and CEP Shanicle. Premature dump.
173	13	54-25 (TM-61C)	28 Mar 56	11th TM Sq. tng. MSQ-1.
174	14	54-36 (TM-61C)	26 Mar 56	11th TM Sq. tng. Shanicle.
175	15	54-28 (TM-61C)	4 Apr 56	11th TM Sq. tng. Shanicle.

MATADOR LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1956</u> (CONT'd)				
176	16	54-34 (TM-61C)	6 Apr 56	11th TM Sq. Tng. Shanicle. Premature dump.
177	17	54-23 (TM-61C)	6 Apr 56	11th TM Sq. tng. completed.
178	18	11065 (TM-61C)	2 May 56	Evaluate ASTRAL launcher. Missile destroyed by Range Safety.
179	19	11091 (TM-61C)	20 Ma 56	1st public launching as Armed Forces Day demonstration.
<u>JULY - DECEMBER 1956</u>				
180	1	55-528 (TM-61C)	29 Aug 56	First tng. launch by 17th TM Sq. MARC guidance.
181	2	55-529 (TM-61C)	30 Aug 56	17th TM Sq. tng. MARC guidance.
182	3	55-527 (TM-61C)	12 Sep 56	17th TM Sq. tng. Destroyed by Range Safety.
183	4	54-132 (TM-61C)	12 Sep 56	17th TM Sq. tng. MARC guidance.
184	5	54-13 (TM-61C)	20 Sep 56	6555th GM Sq. Shanicle test.
185	6	54-133 (TM-61C)	26 Sep 56	17th TM Sq. tng. MARC guidance.
186	7	54-230 (TM-61C)	26 Sep 56	17th TM Sq. tng. Destroyed by Range Safety.
187	8	54-14 (TM-61C)	4 Oct 56	6555th GM Sq. Shanicle test. Destroyed by fail-safe system in target area.
188	9	54-15 (TM-61C)	12 Oct 56	6555th GMS. Shanicle test.
189	10	54-127 (TM-61C)	9 Nov 56	6555th GMS. Shanicle test.
190	11	54-128 (TM-61C)	21 Nov 56	6555th GMS. Shanicle test.
191	12	54-129 (TM-61C)	30 Nov 56	6555th GMS. Completed MATADOR R&D tests. Shanicle redevelop- ment program concluded.

MATADOR LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1957</u>				
192	1		10 Apr 57	17th TM Sq. tng. Radar track lost. Destruct ordered.
193	2		11 Apr 57	17th TM Sq. tng. Missile stalled. Destruct ordered at T+27 sec.
194	3		16 May 57	17th TM Sq. tng. Premature dump signal made destruct necessary.
195	4		17 May 57	17th TM Sq. tng. Training halted to calibrate range guidance equipment.
<u>JULY - DECEMBER 1957</u>				
196	1	54-137	29 Aug 57	588th TM Op. tng. Flight normal.
197	2	54-20	3 Sep 57	588th TM Op. tng. Crashed 4 mi off shore.
198	3	64-139	5 Sep 57	588th TM Op. tng. Flight normal.
199	4	64-32	5 Sep 57	588th TM Op. tng. Results not available.
200	5	54-177	25 Sep 57	588th TM Op. tng. Flight normal.
201	6	54-27	26 Sep 57	588th TM Op. tng. Flight normal.
202	7	54-140	1 Oct 57	588th TM Op. tng. Dump difficulty.
203	8	54-38	1 Oct 57	588th TM Op. tng. Guidance difficulty.
204	9	54-138	14 Nov 57	588th TM Op. tng. Flight normal.
<u>JANUARY - JUNE 1958</u>				
205	1	56-1963	13 Mar 58	Training flights. Three flights were uneventful. One would not respond to commands and destruct was ordered at T+4 min.
206	2	54-24	13 Mar 58	
207	3	54-142	13 Mar 58	
208	4	56-1962	13 Mar 58	

MATADOR LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JULY - DECEMBER 1958</u>				
209	1	Tng. No. 1	12 Nov 58)	
210	2	Tng. No. 2	13 Nov 58)	
211	3	Tng. No. 3	2 Dec 58)	All routine training flights.
212	4	Tng. No. 4	3 Dec 58)	
213	5	Tng. No. 5	4 Dec 58)	
214	6	Tng. No. 6	4 Dec 58)	
<u>JANUARY - JUNE 1959</u>				
215	1	Tng. No. 7	7 Jan 59)	One January flight required Range Safety destruct at T+25.7 min.
216	2	Tng. No. 8	8 Jan 59)	
217	3	Tng. No. 9	25 Feb 59)	Track lost on one April flight and destruct ordered at 105 mi. point.
218	4	Tng. No. 10	25 Feb 59)	
219	5	Tng. No. 11	25 Feb 59)	One June flight crashed into sea at T+22 min.
220	6	Tng. No. 12	26 Feb 59)	
221	7	Tng. No. 13	22 Apr 59)	All others routine training flights.
222	8	Tng. No. 14	22 Apr 59)	
223	9	Tng. No. 15	23 Apr 59)	
224	10	Tng. No. 16	23 Apr 59)	
225	11	Tng. No. 17	10 Jun 59)	
226	12	Tng. No. 18	10 Jun 59)	
227	13	Tng. No. 19	11 Jun 59)	
228	14	Tng. No. 20	11 Jun 59)	

MATAZOR LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JULY - DECEMBER 1959</u>				
229	1	5L-46	25 Aug 59)	
230	2	5L-47	25 Aug 59)	
231	3	5L-48	22 Sep 59)	
232	4	5L-43	22 Sep 59)	
233	5	5L-45	27 Oct 59)	One November flight lost
234	6	5L-49	27 Oct 59)	altitude and required Range
235	7	5L-52	10 Nov 59)	Safety destruct at T+28 min.
236	8	5L-50	24 Nov 59)	All others were routine
237	9	5L-51	24 Nov 59)	training flights.
238	10	5L-44	24 Nov 59)	
239	11	5L-53	9 Dec 59)	

MATADOR LAUNCHINGS

TOTAL TC DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1960</u>				
240	1	54-005L	13 Jan 60)	Training. 4504th Missile Test Wing.
241	2	54-0055	13 Jan 60)	
242	3	54-0056	10 Feb 60	Training. Failed to dump properly. Destruct ordered.
243	4	54-0058	9 Mar 60	Training. Crashed at T+11 min 61 nm down range.
244	5	54-57	13 Apr 60)	Training. One landed long be- cause of dump malfunction.
245	6	56-1925	13 Apr 60)	
246	7	54-62	12 May 60)	Training. One lost booster at launch. Crashed 100 ft. from pad. One exceeded safety limits at Station #3 and was destructed.
247	8	54-60	12 May 60)	
248	9	56-1928	24 May 60)	
249	10	54-67	24 May 60)	
250	11	56-1927	8 Jun 60)	Training. 4504th Missile Test Wing. One would not make right turn. Was placed on target by 270° left turn.
251	12	55-127	8 Jun 60)	
252	13	54-63	8 Jun 60)	
253	14	55-126	9 Jun 60)	
254	15	54-124	10 Jun 60)	
255	16	54-125	10 Jun 60)	
256	17	54-61	13 Jun 60)	
257	18	56-1918	13 Jun 60)	
258	19	56-1919	15 Jun 60)	
259	20	56-1914	28 Jun 60)	
260	21	56-1915	28 Jun 60)	

KATADCR LAUNCHINGS

TOTAL TO DATE	TEST NUMBER	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JULY - DECEMBER 1960</u>				
261	2808	5L-88	13 Jul 60	All launchings during the period were tactical training launchings conducted by the Tactical Air Command's 450th Missile Training Wing, Orlando AFB, Florida.
262	2809	5L-85	14 Jul 60	
263	3093	5L-0090	10 Aug 60	
264	2810	5L-0064	23 Aug 60	
265	2814	5L-0066	23 Aug 60	
266	3519	56-1929	7 Sep 60	
267	3520	56-1937	28 Sep 60	
268	3615	56-1932	28 Sep 60	
269	3616	56-1940	12 Oct 60	
270	3617	56-1935	26 Oct 60	
271	4221	56-1939	26 Oct 60	
272	4355	56-0010	2 Nov 60	
273	4356	56-1938	9 Nov 60	
274	4801	56-1930	7 Dec 60	
275	4802	5L-0089	7 Dec 60	

MT 60-2544-1

MATADOR LAUNCHINGS

TOTAL TO DATE	TEST NUMBER	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1961</u>				
276	190	56-1936	18 Jan 61	
277	191	56-1943	18 Jan 61	
278	526	56-1941	8 Feb 61	
279	1127	56-1945	8 Mar 61	All launchings during the period were tactical training launchings conducted by the Tactical Air Command's 504th Missile Training Wing, Orlando AFB, Florida.
280	1826	56-1931	13 Apr 61	
281	2614	56-1942	11 May 61	
282	2615	56-1946	11 May 61	
283	3000	56-1949	1 Jun 61	
284	3001	56-1948	1 Jun 61	
285	3002	56-1947	1 Jun 61	
286	3003	56-1944	1 Jun 61	This launch ended MATADOR launchings at AMR.

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Tac L

MISSILE	MACE (TM-76)
SPONSOR	Air Force
CONTRACTOR	Glenn L. Martin Company

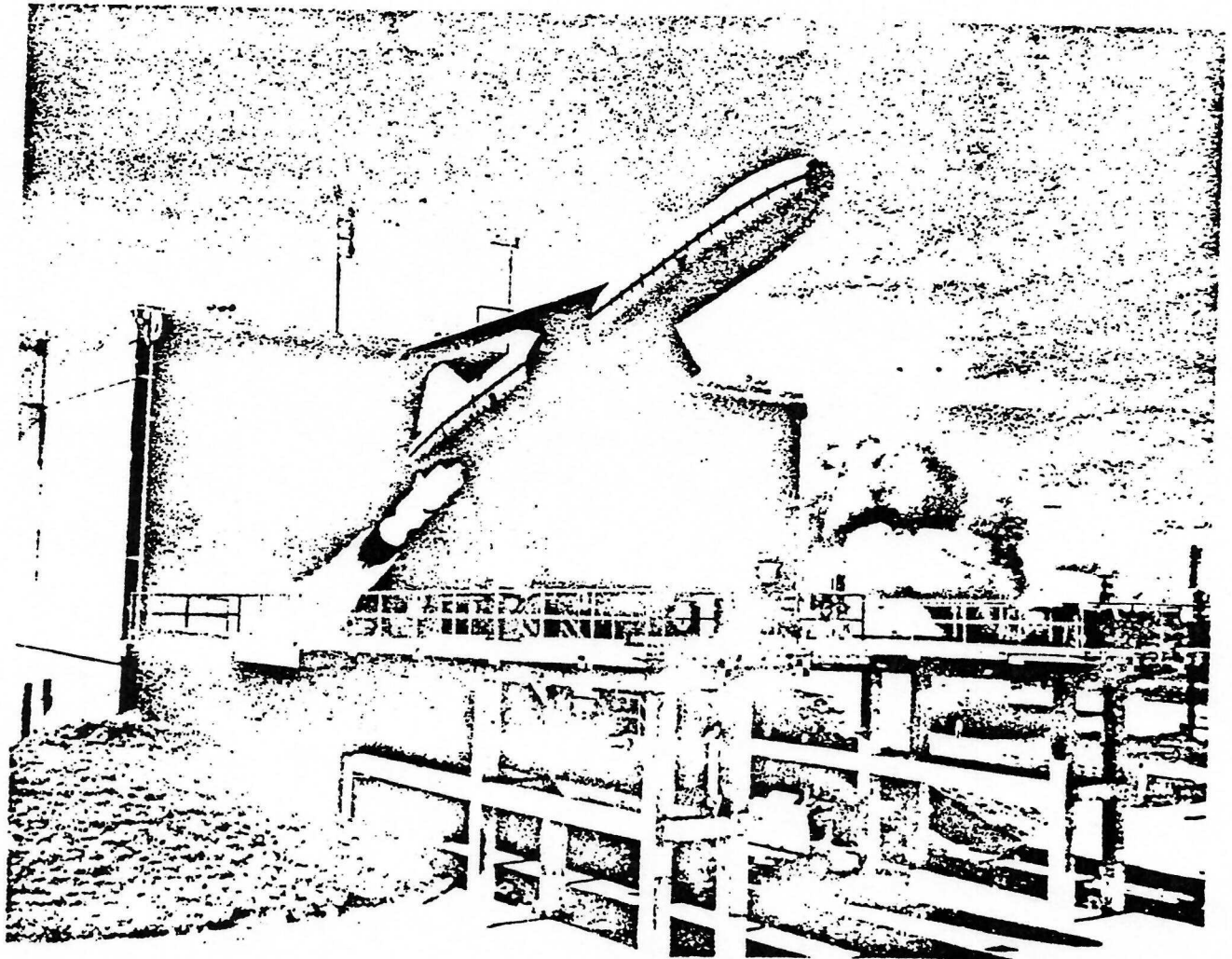
First R&D launch	29 OCT 59
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Program currently underway.

UNCLASSIFIED

~~SECRET~~

MT 60-25144



THE AIR FORCE'S MACE, A TACTICAL CRUISE MISSILE BY GLENN L. MARTIN,
STARTING FLIGHT FROM CAPE CANAVERAL, LAUNCHING SITE OF THE AIR FORCE
MISSILE CENTER

h-1

Tab 1

MISSILE

PAGE (IM-76)

SPONSOR

Air Force

CONTRACTOR

Glenn L. Martin Company

First R&D launch

29 Oct 52

Program currently underway

MT 60-3544-1

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[REDACTED]

4-2

MACE LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JULY - DECEMBER 1959</u>				
1	1	Inertial #7 56-7854	29 Oct 59	First AFMTC launch of MACE. Objectives 97% accomplished.
2	2	Inertial #9 56-2893	4 Dec 59	Test objectives met.
<u>JANUARY - JUNE 1960</u>				
3	1	Inertial #14 57-2445	11 Feb 60	First MACE with programmed track deviations.
4	2	Inertial #15 57-2452	31 Mar 60	1st MACE with altitude programming.
5	3	Inertial #19 58-1409	27 Apr 60	Crashed during first pro- grammed dive.
6	4	Inertial #17 58-1391	3 Jun 60	Crashed during programmed dive.
7	5	Inertial #6 56-2896	24 Jun 60	Met test objectives.

41

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MT 60-2544

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PAGE LAUNCHINGS

TOTAL TO	TEST DATE	MISSILE NUMBER	DATE LAUNCHED	REMARKS
			JULY - DECEMBER 1960	
8	2810	58-1207	11 Jul 60	Stalled out at 190 ft D/H. RSC destruct ordered. Hardsite launch OK.
9	2816	58-1226	21 Sep 60	Hardsite launch. Impacted Sta 9 impact area with radial error of 1.12 NM.
10	2813	58-1227	7 Oct 60	Hardsite launch. Missile stalled out during climb about 230 ft D/H and im- pacted.
11	2811	58-1228	21 Oct 60	Hardsite launch. Impact in Sta 9 impact area with radial error of 0.5 NM.
12	2818	58-1229	15 Nov 60	Hardsite launch. Failed to follow target. Launching control destroyed. Phase of launch, forward and back then 1.5 NM. Path in target area. Impact above target area. Error of 2.1 NM.
13	2819	58-1230	16 Dec 60	Hardsite launch. Failed to follow target. Launching control destroyed. Phase of launch, forward and back then 1.5 NM. Path in target area. Impact above target area. Error of 2.1 NM.

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11

RACE LAUREATES

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NY 60-25

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DWL

RECAP - MACE CRUISE (AIR BREATHING) MISSILE -- BY YEAR
(Launched By Wing Personnel After Merger of
AFMTCs 6555th GM Sq/Gp w/AFBMDs PAFB Fld Off, Dec 59.)

<u>YEAR</u>		<u>TOTAL</u>	<u>GRAND TOTAL MACE LAUNCHES</u>
<u>1960</u>	First	11	
<u>1961</u>	Last	7	<u>18</u>

/ 16 Support of TAC Training Launch

Compiled By: M. A. Kingsley (As of 31 Dec 1968)

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*LIST OF MACE TM-76B (CRUISE/AIR BREATHING MISSILE) LAUNCHED (Total: 15)

Missile Number	Launch Date	Launched From	Summary
#14 57-2445	11 Feb 60	Cx 21	
#15 57-2452	31 Mar 60	Cx 21	
#19	27 Apr 60	Cx 21	
#17	3 Jun 60	Cx 21	
#6	24 Jun 60	Cx 21	
			Above 5 launches were by an integrated military-contractor crew; last launch from soft site complex.
#20 58-1417	11 Jul 60	Cx 21	
#21 58-1226	21 Sep 60	Cx 21	
#22 58-1427	7 Oct 60	Cx 21	
#23 59-4976	21 Oct 60	Cx 21	
#27 59-4980	15 Nov 60	Cx 21	
#8 56-2889	16 Dec 60	Cx 21	
#26 59-4979	7 Mar 61	Cx 21	
#24 59-4977	16 Mar 61	Cx 21	
#25 59-4978	28 Mar 61	Cx 21	
#46 59-4874	28 Apr 61	Cx 21	
#48 59-4876	2 Jun 61	Cx 21	
#51 59-4879	16 Jun 61	Cx 21	
#55 59-4883	21 Jun 61	Cx 21	
			Completed R & D testing Category II.

Support Only (evaluation and instrumentation) for TAC Wing Training Launches: (16)

60-5397	18 Jul 61	59-4885	24 Jan 62
60-5399	4 Aug 61	59-2468	26 Jan 62
60-5398	1 Sep 61	60-5403	1 Feb 62
60-5400	22 Sep 61	60-5406	8 Feb 62
60-5396	14 Nov 61	59-4886	15 Feb 62
59-4887	5 Dec 61	59-4889	21 Feb 62
60-5401	12 Jan 62	58-1425	1 Mar 62
5405	12 Jan 62	59-4888	2 Mar 62. Program Concluded.

*These launches were for the Aeronautical System Division, W-P AFB, O. Previous Mace missiles launched for ASD were under the technical direction of AFMTCs 6555 GM Sq/Gp.

PROGRAM COMPLETED

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MACE 1463

October 31 Cape, Tactical Air Command routine training, success.

December 11 Cape, test of system performance and crew reliability, success.

June 5 Cape, training launch by Tactical Air Command, success.

June 12 Cape, training launch by crew being graduated from the Tactical Air Command Training School at Orlando, Fla, success.

June 27 Cape, training launch by TAC Training School, success.

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5-1

Tac 5

MISSILE SMARK (SM-62)
SPONSOR Air Force
CONTRACTOR Northrop Aircraft Corporation

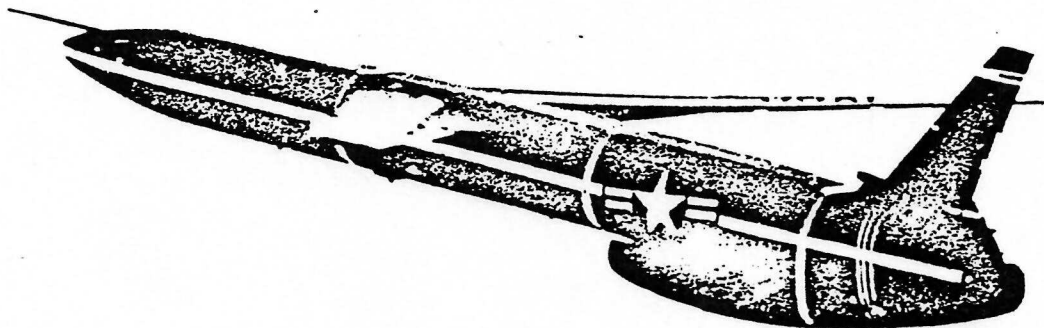
First R&D launch 29 Aug 52

Program currently underway

UNCLASSIFIED

~~CONFIDENTIAL~~

MT 60-2511



THE U.S. AIR FORCE'S SHARK INTERCONTINENTAL RANGE MISSILE IN FLIGHT
DOWNRANGE FROM CAPE CANAVERAL, LAUNCHING SITE OF THE AIR FORCE
MISSILE TEST CENTER.

ISSUE

SRAX

SPC 502

Alt. Title

CONTRACT

General Aircraft Corporation

Part 1 Summary

Part 1 Summary

Part 2 Summary

Part 2 Summary

Part 3 Summary

Part 3 Summary

Part 4 Summary

Part 4 Summary

Part 5

Part 6

Part 7

Part 8

Part 9

Part 10

Part 11

Part 12

Part 13

Part 14

Part 15

Part 16

Part 17

Part 18

Part 19

Part 20

Part 21

Part 22

Part 23

Part 24

Part 25

Part 26

Part 27

Part 28

Part 29

Part 30

Part 31

Part 32

Part 33

Part 34

Part 35

Program completed

10-1-50

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5-2

SNARK LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JULY - DECEMBER 1952</u>				
1	1	Dynamic Model #2	29 Aug 52	1st SNARK test at AFMTC. Stage 1 firings.
2	2	Dynamic Model #1	1 Oct 52	2nd test of N-73 launcher
3	3	Dynamic Model #3	30 Oct 52	3rd zero-length launcher test.
4	4	GM-246 (N-25)	26 Nov 52	First N-25 launch from zero-length launcher.
5	5	GM-972 (N-25)	19 Dec 52	2nd N-25 launch over AMR.
<u>JANUARY - JUNE 1953</u>				
6	1	GM-974 (N-25)	6 Feb 53	Failed structurally during terminal dive.
7	2	GM-2337 (N-25)	10 Mar 53	Completed Stage 1 tests.
<u>JULY - DECEMBER 1953</u>				
8	1	GM-3391 (N-69A)	6 Aug 53	1st N-69 launched AFMTC.
9	2	GM-3393 (N-69A)	15 Oct 53	Lost wings and burst into flames at T+5 min.
<u>JANUARY - JUNE 1954</u>				
10	1	GM-3395 (N-69A)	2 Feb 54	Lost wings and exploded at T+9 min.
11	2	GM-3396 (N-69A)	18 Feb 54	Impact 200 yds. off shore.
12	3	GM-11111 (N-69A)	26 Apr 54	Impact 3,000 ft. from launcher.
13	4	GM-3394-1 (N-69A)	3 Jun 54	First attempt to skid land missile at Cape unsuccessful.

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SNARK LAUNCHINGS

5-3

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JULY - DECEMBER 1954</u>				
14	1	GM 3392-1 (N-69A)	21 Jul 54	Last in aerodynamic test series.
15	2	GM 11113 (N-69B)	21 Sep 54	Missile returned up-range for shallow water dump.
16	3	GM 11114 (N-69B)	12 Oct 54	Became unstable after landing skids extended and impacted 28 mi. off shore.
17	4	GM 11116 (N-69B)	12 Nov 54	Carried North American guidance capsule.
18	5	GM 11115 (N-69B)	10 Dec 54	Went out of control at T+31 min.
<u>JANUARY - JUNE 1955</u>				
19	1	GM 13097 (N-69B)	13 Jan 55	Last of modified B type carrying N2C data recorder.
20	2	GM 13106 (N-69C)	10 Feb 55	Start of Phase II testing. First N-69C model SNARK. First terminal dive test.
21	3	GM 13107 (N-69C)	6 Apr 55	N-69C broke up in terminal dive.
22	4	GM 13108 (N-69C)	26 Apr 55	N-69C broke up at T+15 sec.
23	5	GM 11112 (N-69A)	13 May 55	Last recoverable type SNARK. Collided with photo plane.

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5-4

SNARK LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBERS	DATE LAUNCHED	REMARKS
<u>JULY - DECEMBER 1955</u>				
24	1	AF 51-17579 (N-69C) GM 13112 N-3293	13 Jul 55	Engine trouble caused impact 5 miles off- shore.
25	2	AF 51-17580 (N-69C) GM 13113 N-3294	9 Aug 55	Last of unmodified N-69C missiles.
26	3	AF 52-10972 (N-69C) GM 52-1710 N-3296	26 Oct 55	First N-69C with modified ballistic nose.
27	4	AF 52-10977 (N-69D) GM 52-1715 N-3301	26 Nov 55	First unmanned flight under stellar supervised inertial guidance. First missile to use Stations 5, 6, and 7.
28	5	AF 52-10973 (N-69C) GM 52-1711 N-3297	9 Dec 55	Ballistic nose perform- ance excellent.
29	6	AF 52-10974 (N-69C) N-3298	16 Dec 55	Nose delivery not satis- factorily demonstrated.
<u>JANUARY - JUNE 1956</u>				
30	1	N-3295 (N-69C) 52-10971	27 Jan 56	Nose delivery system failed to operate.
31	2	N-3302 (N-69D) 52-10978	8 Feb 56	Stellar guidance test. Flew only 2 minutes.
32	3	N-3299 (N-69C) 52-10975	17 Feb 56	Nose test failed. Flights suspended for component qualification tests.

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SNARK LAUNCHING

5-5

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBERS	DATE LAUNCHED	REMARKS
<u>JULY - DECEMBER 1956</u>				
33	1	N-3291 (N-69C) 51-17577	10 Jul 56	Ballistic nose test.
34	2	N-3300 (N-69C) 52-10976	26 Jul 56	Ballistic nose test.
35	3	N-3290R (N-69C) 51-17571	31 Aug 56	Nose test. First use of alternate impact area.
36	4	N-3305 (N-69D) 52-10981	13 Sep 56	Stellar guidance test.
37	5	N-3292 (N-69C) 52-17578	26 Sep 56	Ballistic nose test.
38	6	N-3303 (N-69D) 52-10979	2 Oct 56	1st successful recovery of SNARK at Cape Canaveral.
39	7	N-3286 (N-69C) 51-17572	31 Oct 56	Completed ballistic nose test program, Phase II.
40	8	N-3306 (N-69D) 52-10982	14 Nov 56	Stellar guidance test.
41	9	N-3309 (N-69D) 53-8172	5 Dec 56	Refused guidance and destruct signals. Landed in S. A. jungles. First to use Stations 8, 9, & 10.
42	10	N-3308 (N-69D) 53-8171	20 Dec 56	Stellar guidance test.

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56

SNARK LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBERS	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1957</u>				
43	1	AF 52-10983 (N-69D)	11 Jan 57	Guidance test. Skid landed OK.
44	2	AF 53-8173 (N-69D)	23 Jan 57	Guidance test. Major damage on landing.
45	3	AF 52-10983 (N-69D)	5 Feb 57	Guidance test. Major damage on landing.
46	4	AF 53-8175 (N-69D)	15 Feb 57	Guidance test. Skid landed OK.
47	5	AF 53-8174 (N-69D)	12 Mar 57	Guidance test. Skid landed OK.
48	6	Inertial #1	13 Mar 57	Mobile launcher test.
49	7	Inertial #2	15 Apr 57	Mobile launcher test.
50	8	AF 53-8176 (N-69D)	16 Apr 57	Guidance test. Skid landed OK.
51	9	AF 53-8178 (N-69D)	3 May 57	Guidance test. Broke up 25 miles down range.
52	10	AF 53-8177 (N-69D)	28 May 57	Guidance test. Destroyed on landing.
53	11	AF 53-8184 (N-69E) N-3321	20 Jun 57	First operational proto- type. Crashed at T+3 sec.

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SNARK LAUNCHINGS

5-7

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBERS	DATE LAUNCHED	REMARKS
<u>JULY - DECEMBER 1957</u>				
54	1	N-3313 (N-69D) AF 53-8176	17 Jul 57	Crashed into sea near Station #5.
55	2	N-3323 (N-69E) AF 53-8186	16 Aug 57	First N-69E to meet test objectives. Crashed near Station #9.
56	3	N-3317 (N-69D) AF 53-8180	27 Aug 57	First SNARK flight to Station #10 area. Completed Phase III contractor guid- ance tests.
57	4	N-3322 (N-69E) AF 53-8185	19 Sep 57	Flew to 1365 mile point and returned.
58	5	N-3316 (N-69D) AF 53-8179	1 Oct 57	First all-military SNARK launching by 6555th GMS.
59	6	N-3324 (N-69E) AF 53-8187	31 Oct 57	First missile flight to Station #12, Ascension.
60	7	N-3316-2 (N-69D) AF 53-8179	20 Nov 57	Destroyed in skid strip landing.
61	8	N-3326 (N-69E) AF 53-8189	5 Dec 57	2nd flight to Ascension.

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5-8

SHARK LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISILE NUMBER	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1958</u>				
62	1	N-3327 (N-69E) AF 53-8190	25 Jan 58	Launched on target at 5,000 mile range.
63	2	N-3328 (N-69E) AF 53-8191	11 Feb 58	Impact in Station #12 area.
64	3	N-3330 (N-69E) AF 53-8193	8 Mar 58	Flew to Station #12 area.
65	4	N-3329 (N-69E) AF 53-8192	3 Apr 58	Track lost between Sta. #9 and #12. Destruct ordered.
66	5	N-3409 (N-69E) AF 55-3147	6 May 58	Nose released by radio con- trol in Station #12 area.
67	6	N-3410 (N-69E) AF 55-3148	28 May 58	Last contractor programmed flight. Crashed 615 nm down- range.
68	7	N-3413 (N-69E) AF 55-3151	27 Jun 58	First E & ST launch by 556th SM Sq. assisted by 6555th GWS.
<u>JULY - DECEMBER 1958</u>				
69	1	N-3411 (N-69E) AF 55-3149	25 Aug 58	Contact lost at T-33 min. Destruct ordered.
70	2	N-3412 (N-69E) AF 55-3150	30 Aug 58	Turned around at Sta. #9 and returned to Sta. #1 impact area for nose release.
71	3	N-3414 (N-69E) AF 55-3152	19 Sep 58	Completed Phase IV tests.
72	4	N-3318 (N-69D) AF 53-8181	23 Oct 58	First follow-on Phase V test using Airborne Parabolic Arc Computer.
73	5	N-3317 (N-69D) AF 53-8180	8 Nov 58	First SAC training flight using recovered missiles. Again recovered with slight damage.
74	6	N-3319 (N-69D) AF 53-8182	11 Dec 58	Second APAC test crashed during landing approach.
75	7	N-3308 (N-69D) AF 53-8171	16 Dec 58	2nd SAC trg. flight. Turned around at Sta #7 & ditched in shallow water of Cape Canaveral. MT 60-2544

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5-9

SNARK LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1959</u>				
76	1	N-3312-2 (N-69D) AF 53-8175	12 Feb 59	556th SM Sq. SAC training flight. False radar plot caused destruct near Sta. #5.
77	2	N-3320 (N-69D) AF 53-8183	10 Mar 59	3rd APAC R&D launch. Returned and landed at Cape.
78	3	N-3422 (SM-62A) AF 57-008	6 Apr 59	1st of 3 extended Phase IV tests. First production model SM-62A.
79	4	N-3320-1 (N-69D) AF 53-8183	21 Apr 59	APAC R&D test. 2nd flight of this missile. Recovered again.
80	5	N-3421 (SM-62A) AF 57-009	5 May 59	Extended Phase IV test. Long- est flight to date of 5 hrs. 34 min.
81	6	N-3428 (SM-62A) AF 57-010	26 May 59	Last extended Phase IV test.
<u>JULY - DECEMBER 1959</u>				
82	1	N-3320 (N-69D) AF 53-8183	2 Jul 59	3rd launch for this APAC vehicle. Accomplished 3rd landing.
83	2	N-3415 (SM-62A) AF 57-001	25 Sep 59	1st production type SNARK to carry APAC. Crashed 200 yards from pad.
84	3	N-3417 (SM-62A) AF 57-003	9 Nov 59	Carried APAC. Missile lost 1,300 miles down range.
85	4	N-3418 (SM-62A) AF 57-002	11 Dec 59	Destroyed itself at 3,000 mile range.
86	5	N-3317-3 (N-69D) AF 53-8180	16 Dec 59	Last programmed N-69D flight. Missile recovered.

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5-10

SMARK LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1960</u>				
87	1	N-3425 (SM-62A) AF 57-011	12 Feb 60	First of 11 APAC extended tests. Launched by 702nd SM Wing, SAC
88	2	N-3426 (SM-62A) AF 57-012	3 Mar 60	APAC extension test. By 702 SMW, SAC.
89	3	N-3427 (SM-62A) AF 57-013	6 Apr 60	APAC extension test by 702nd SMW, SAC. Impact Station #12.
90	4	N-3444 (SM-62A) AF 59-1574	16 May 60	APAC extension test by 702nd SMW, SAC. Impact Station #12.
91	5	N-3445 (SM-62A) AF 59-1575	16 Jun 60	APAC extension tests by 702nd SMW, SAC. Stalled and crashed at T+6 min.

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5-11

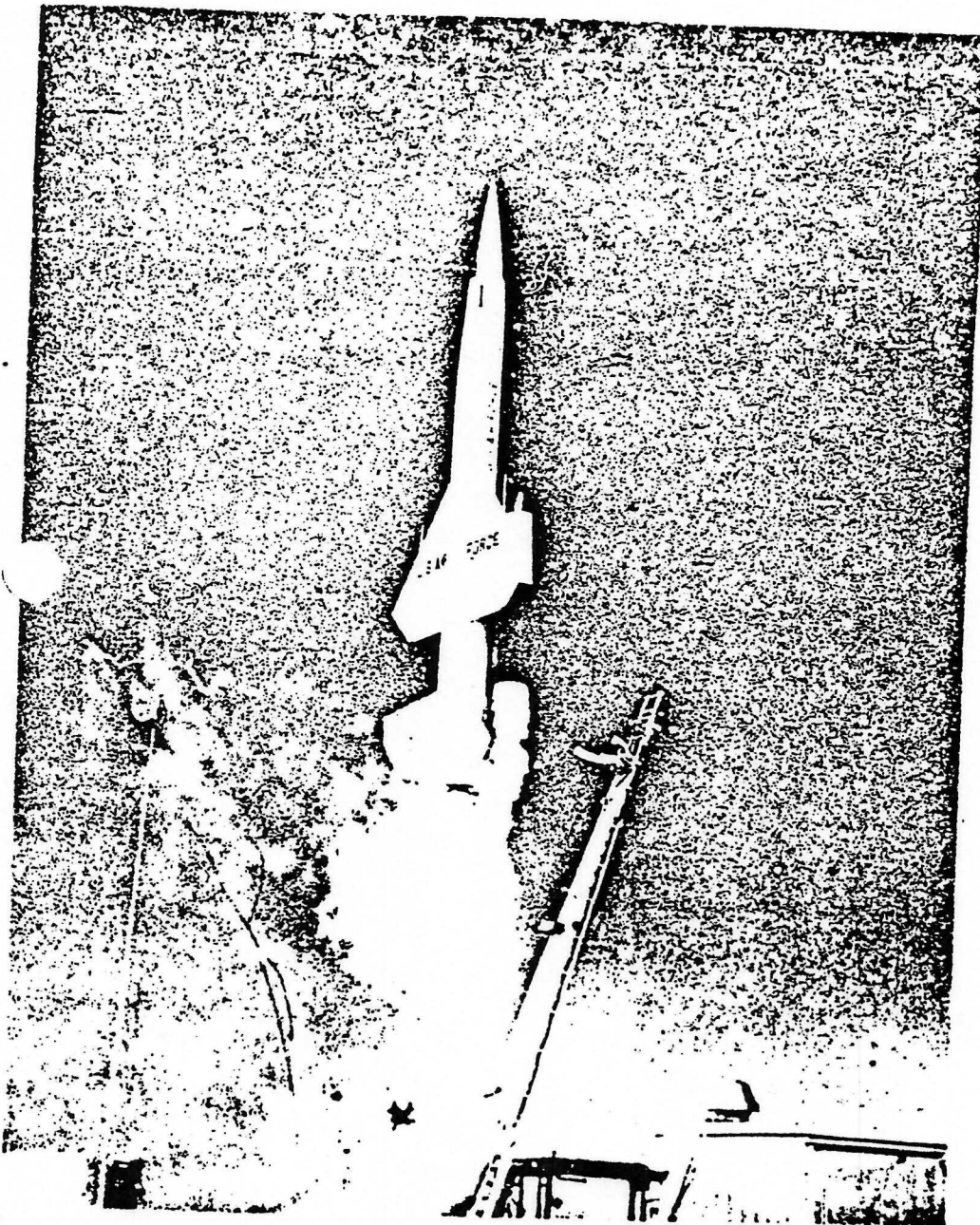
SHARK LAUNCHINGS

TOTAL TO DATE	TEST NUMBER	MISSILE NUMBER	DATE LAUNCHED	REMARKS
JULY - NOVEMBER 1960				
92	1017	N-3146 (SM-62A) AF59-1876	8 Jul 60	6th of 11 modified Category II APAS Extension Program. Launched by 702 Strategic Missile Wing. Scheduled for Sta 12 impact. Impact 1050 mi D/R attributed to guidance failure. NORAIR support. Tech backup.
93	1507	N-3148 (SM-62A) AF59-1877	26 Aug 60	SAC launch crew, NORAIR tech support. 7th modified Category II. Impact Sta 12 area. Flight time 3 hrs 33 min. 2.1 mi miss distance.
94	2514	N-3152 (SM-62A) AF59-1882	26 Sep 60	SAC crew launch, NORAIR backup. 8th modified Category II. Automatic ballistic nose release at Sta 12. Miss distance 1 mi.
95	2802	N-3158 (SM-62A) AF59-1888	11 Oct 60	SAC launch crew backed up by NORAIR. 9th modified Category II Extension missile. Failure in missile electrical system caused flight termination after 7 min of flight.
96	3513	N-3160 (SM-62A) AF59-1890	11 Nov 60	SAC launch crew backed up by NORAIR. 10th modified Category II Extension Program. RSO destruct 7.3 min.
97	3512	N-3158 (SM-62A) AF59-1888	5 Dec 60	SAC launch crew backed up by NORAIR. 11th and last modified Category II Extension Program missile. Last SHARK programmed for launch at AWR. Programmed Sta 12. Impact 4,100 mi D/R. 300 mi left of course.

END OF PROGRAM

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THE U. S. AIR FORCE'S BOMARC INTERCEPTOR MISSILE STARTS ITS FLIGHT FROM CAPE CANAVERAL, LAUNCHING SITE OF THE AIR FORCE MISSILE TEST CENTER.

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6-1

Tab 6

MISSILE	BOMARC (IM-99)
SPONSOR	Air Force
CONTRACTOR	Boeing Airplane Company

First R&D launch	10 Sep 52
Last R&D launch at AMR	15 Apr 60
Total launchings at AMR	70

Program transferred to Eglin range.

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6-2

BOMARC LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JULY - DECEMBER 1952</u>				
1	1	621-1	10 Sep 52	1st BOMARC launched AFMTC. Impact 800 ft. N.W. of launcher.
<u>JANUARY - JUNE 1953</u>				
2	1	621-2	23 Jan 53	Flight failure at 7 ft. altitude.
3	2	623-1	10 Jan 53	Exploded at 17,000 ft.
<u>JULY - DECEMBER 1953</u>				
4	1	623-2	27 Jul 53	Also exploded.
5	2	623-3	4 Sep 53	Failed structurally.
<u>JULY - DECEMBER 1954</u>				
6	1	623-7	5 Aug 54	11 mon. period spent to re- design missile. Broke up after 15 seconds of flight.
7	2	623-8	25 Oct 54	1st stable flight to impact.
8	3	623-9	24 Nov 54	Performance satisfactory.
<u>JANUARY - JUNE 1955</u>				
9	1	623-10 (53-8268)	19 Jan 55	Successful flight.
10	2	623-21 (54-3061)	21 Feb 55	Ramjet test vehicle.
11	3	623-11 (54 3051)	3 Mar 55	Demonstrated ability to fly predetermined path.
12	4	623-22 (54-3062)	5 May 55	Structural failure at super- sonic speed. Ramjet test vehicle.

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6-3

BOMARC LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JULY - DECEMBER 1955</u>				
13	1	BAC 623-12 AF 54-3052	27 Jul 55	Last of Boost Test vehicles. Completed Phase I tests. Structural failure at T+35.5 seconds.
14	2	BAC 623-23 AF 54-3063	25 Aug 55	Ramjet propulsion test.
15	3	BAC 623-24 AF 54-3064	29 Sep 55	Ramjet propulsion test.
16	4	BAC 623-25 AF 54-3059	17 Nov 55	Ramjet propulsion test. First flight to carry radome.
17	5	BAC 623-26 AF 54-3060	30 Nov 55	1st night flight of BOMARC. 6th and final ramjet propulsion test. End Phase II.
<u>JANUARY - JUNE 1956</u>				
15	1	BAC 623-13 AF 54-3053	2 Feb 56	First guidance test. Prema- turely destroyed by fail-safe.
19	2	BAC 623-14 AF 54-3054	15 Mar 56	Guidance test. First success- ful attempt at combining mid- course and terminal guidance.
20	3	BAC 623-15 AF 54-3055	14 Apr 56	Guidance test. Missed target by 165 ft.
21	4	BAC 623-16 AF 54-3056	21 May 56	Guidance test. Missile broke- up at T-25 sec.
22	5	BAC 623-17 AF 54-3057	19 Jun 56	Guidance test. Malfunction prevented target intercept.
<u>JULY - DECEMBER 1956</u>				
23	1	BAC 623-18 AF 54-3058	13 Jul 56	Guidance tests completed.
24	2	BAC 624-6 AF 54-3070	12 Oct 56	First tactical prototype BOMARC.
25	3	BAC 624-2 AF 54-3066	29 Nov 56	Second tactical prototype.

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BOMARC LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1957</u>				
26	1	BAC 624-3 AF 54-3067	3 Jan 57	Tactical prototype test. Objectives not accomplished.
27	2	BAC 624-4 AF 54-3068	13 Feb 57	Phase IV continued. First from interim tactical launcher.
28	3	BAC 624-5 AF 54-3069	26 Feb 57	Phase IV test. All objectives accomplished.
29	4	BAC 624-6 AF 54-3065	17 Apr 57	Broke up at T+36 seconds.
<u>JULY - DECEMBER 1957</u>				
30	1	BAC 624-7 AF 54-3071	22 Jul 57	Exploded at T+63.5 seconds.
31	2	BAC 624-8 AF 54-3072	25 Aug 57	First split-day countdown.
32	3	BAC 624-9 AF 54-3073	16 Sep 57	First operation against QB-80 drone target.
33	4	BAC 624-10 AF 54-3074	27 Sep 57	First to carry HE warhead.
34	5	BAC 624-11 AF 54-3075	11 Oct 57	First successful destruct of QB-17 target.
35	6	BAC 624-16 AF 54-3080	23 Oct 57	First low level target acquisition attempt. Direct hit.
36	7	BAC 624-22 AF 54-3076	24 Nov 57	Final live HE warhead test.
37	8	BAC 624-14 AF 54-3078	9 Dec 57	First to carry dummy nuclear warhead.

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6-5

BOMARC LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
JANUARY - JUNE 1958				
38	1	AF 54-3077	14 Jan 58	Head-on intercept not effected.
39	2	BAC 624-17 AF 54-3081	20 Mar 58	Stalled at 100 miles down range.
40	3	BAC 624-18 AF 54-3082	2 Apr 58	Demonstrated range of 187 nm.
41	4	BAC 624-19 AF 54-3083	1 May 58	Command system failure prevented intercept.
42	5	BAC 624-21 AF 54-3085	20 May 58	Telemetry failure prevented intercept data.
43	6	BAC 624-23 AF 54-3087	9 Jun 58	Head-on intercept of zig-zag target within kill distance.
44	7	BAC 624-24 AF 54-3088	20 Jun 58	Cross-course intercept within kill distance.
45	8	BAC 624-20 AF 54-3084	26 Jun 58	Cross-course intercept within kill distance.

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BOMARC 1463

January 3 - Eglin AFB (Santa Rosa Island, Gulf Missile Range), IM-99B first successful low-altitude interception; strike was assisted by a "new electronic device" carried by the drone target.

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6-6

BOMARC LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JULY - DECEMBER 1958</u>				
46	1	BAC 624-25 AF 54-3089	11 Jul 58	Entered vertical dive at T+129 seconds and was destroyed.
47	2	BAC 624-XY1 AF 56-4028	7 Aug 58	1st production line BOMARC. 1st launch directed and controlled by SAGE system. Kingston, N.I.
48	3	BAC 624-XY2 AF 56-4030	15 Aug 58	1st BOMARC completely processed and launched by 6555th CM Sq. Guided to direct hit by SAGE.
49	4	BAC 624-22 AF 54-3086	21 Aug 58	Cross-course intercept under SAGE within kill distance.
50	5	BAC 624-XY3 AF 56-4031	3 Sep 58	Erratic flight required destruct at T+131 seconds.
51	6	BAC 624-XY4 AF 56-4033	24 Sep 58	1st flight against supersonic QX-10 target.
52	7	BAC 624-XY5 AF 57-2731	21 Oct 58	Two launched by SAGE within 12 seconds of one another at separate targets. Both scored kills. One by direct hit.
53	8	BAC 624-XY6 AF 56-4027	21 Oct 58	
54	9	BAC 624-XY7 AF 57-2734	21 Nov 58	SAGE controlled. Intercept within kill distance.
55	10	BAC 624-XY8 AF 57-2735	13 Dec 58	Launched by SAGE with HE warhead. Intercept within kill distance.
56	11	BAC 624-XY9 AF 57-2737	19 Dec 58	Last SAGE compatibility test at AMP. Target change ordered during flight. Scored kill.
57	12	BAC 624-XY10 AF 57-2738	24 Dec 58	Launched against QF-80 maneuvering target.

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6-7

BOMARC LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1959</u>				
58	1	BAC 624-XX16 AF 57-2532	27 Jan 59	Entered dive too soon. Passed in front of target.
59	2	BAC 624-XX11 AF 57-2739	27 Jan 59	Scored direct hit on QF-80 target.
60	3	BAC 624-XX12 AF 57-2741	13 Feb 59	Erratic behavior brought Range Safety destruct.
61	4	BAC 624-XX13 AF 57-2744	4 Mar 59	Fuze failed to detonate war- head at intercept.
62	5	BAC 624-XX14 AF 57-2747	31 Mar 59	Warhead failed detonate at intercept.
63	6	BAC 624-XX15 AF 57-2749	21 Apr 59	Last XM-99A missile. Target intercepted.
64	7	BAC 631-1 AF 58-6999	27 May 59	1st XM99B missile. Ramjets failed to ignite.
<u>JULY - DECEMBER 1959</u>				
65	1	BAC 631-2 AF 58-7000	14 Jul 59	2nd XM99B. Left ramjet flamed- out at T+45 seconds.
66	2	BAC 631-3 AF 58-7001	12 Aug 59	3rd XM99B. Ramjets flamed-out.
67	3	BAC 631-4 AF 58-7002	2 Sep 59	4th XM99B. Entered vertical dive at T+150 seconds.
68	4	BAC 631-5 AF 58-7003	28 Oct 59	1st XM99B to use full rated solid booster of 50,000 lb. thrust. Right ramjet flamed- out at T+51 seconds and left ramjet at T+81 seconds.

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6-8

BOMARC LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1960</u>				
69	1	BAC 631-6 AF 58-7004	29 Jan 60	XIM-99B. Flight control failure caused engine flame-out and impact at 32 miles down range.
70	2	BAC 631-8 AF 58-7006	15 Apr 60	Ended BOMARC testing at AMR. XIM-99B.

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Tab 7

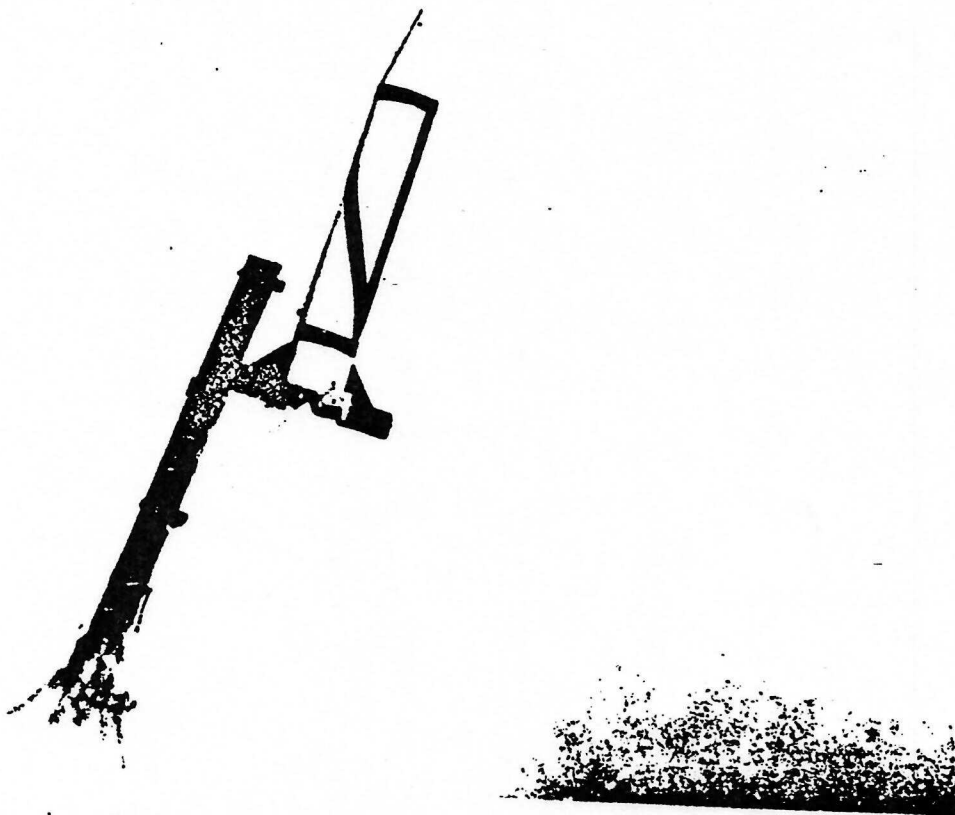
MISSILE	RV-A-10
SPONSOR	Army
CONTRACTOR	General Electric Company

First launching	11 Feb 53
Final launching	25 Mar 53
Total launchings at AMR	4

Program completed

RV-A-10 LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1953</u>				
1	1	#1	11 Feb 53	First launch in RV-A-10 program.
2	2	#2	1 Mar 53	Flight erratic. Attempted destruct failed. Impact 50 nm down range.
3	3	#3	25 Mar 53	Scheduled night launching.
4	4	#4	25 Mar 53	Final RV-A-10 launch.



THE ARMY'S HVA-10 TEST BED VEHICLE UNDERGOING LAUNCH AT CAPE CANAVERAL,
LAUNCHING SITE OF THE AIR FORCE MISSILE TEST CENTER.

et, it was advanced for its time by anyone's standards. Moreover, with an overall length of 244 inches and a total propellant weight of almost 5000 pounds, RV-A-10 could deliver a 1500-pound payload to a range of 75 nautical miles, an astounding feat for the day. To avoid the cracking problems experienced with the Sergeant sounding rocket, on the other hand, RV-A-10 had to be somewhat conservative in design; thus, it featured a 0.2-inch-thick steel case (which, although not excessive, was much thicker than the 0.065-inch case for the flight-weight Sergeant), a more elastic polysulfide propellant than that used in Sergeant, and a star perforation designed not only for performance but also to relieve stress points. In short, the RV-A-10 design compromised somewhat on performance to ensure success, but it was large enough in size to guarantee impressive results.

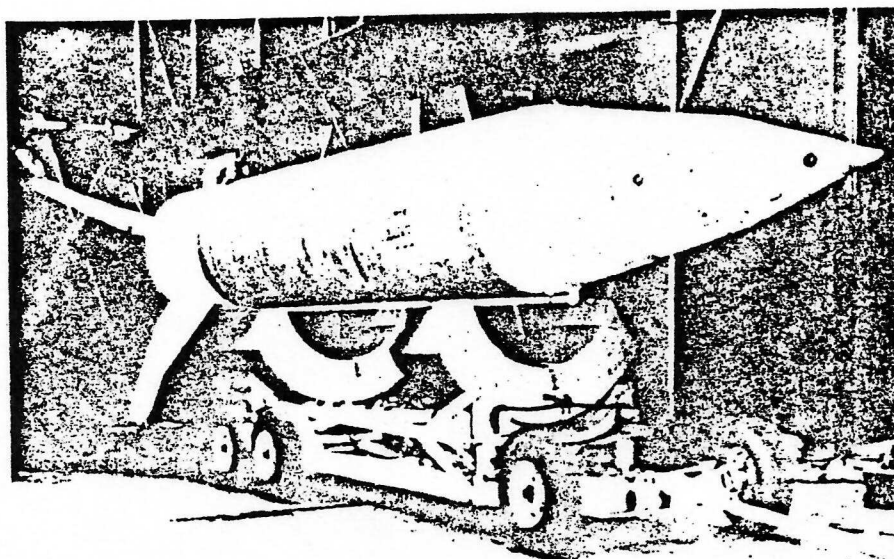
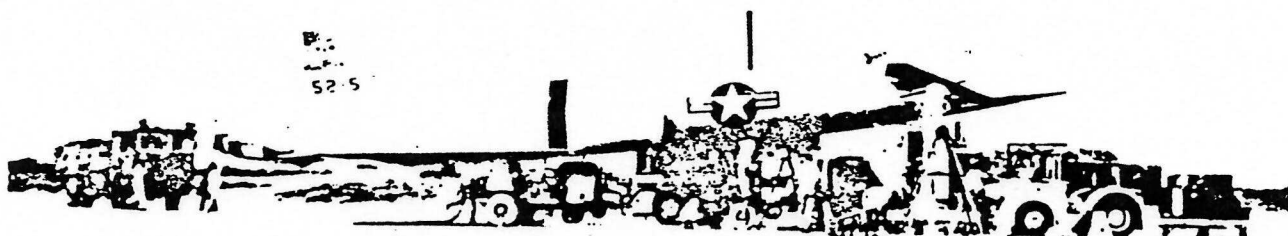


Figure 12 The RV-A-10 rocket (courtesy of Thiokol Chemical Corporation).

The conservatism paid off. Development of the RV-A-10, in contrast to that of the 15-inch Sergeant, was almost trouble-free. The only serious problem, a resonant burning phenomenon, was eliminated by modifying the propellant composition. During February-March 1953, four RV-A-10 vehicles were successfully launched and flight-tested from the Air Force Missile Test Center (AFMTC) at Cape Canaveral, Florida.³⁷

The success of the RV-A-10 test rockets in 1953 marked the beginning of the era of large solid-propellant rocket powerplants. Although crude and inefficient by present standards, RV-A-10 was the first flight-proven solid-propellant rocket



THE U.S. AIR FORCE'S X-10 RESEARCH VEHICLE FOR THE X-10 PROGRAM AFTER
LANDING ON MISSILE SKID STRIP AT CAPE CANAVERAL, LAUNCHING SITE OF THE
AIR FORCE MISSILE TEST CENTER.

Tab 8

MISSILE	NAVARD (SM-64)
SPONSOR	Air Force
CONTRACTOR	North American Aviation, Inc.

First X-10 launch	19 Aug 55	12 launchings
Final X-10 launch	20 Nov 56)	
First XSM-64	6 Nov 56)	9 launchings
Final XSM-64	25 Feb 58)	
First RISE (XSM-64)	11 Sep 58)	2 launchings
Final RISE (XSM-64)	12 Nov 58)	
First X-10 Drone	24 Sep 58)	3 launchings
Final X-10 Drone	25 Jan 59)	
Total launchings at AMR		26

X-10 portion of program completed.

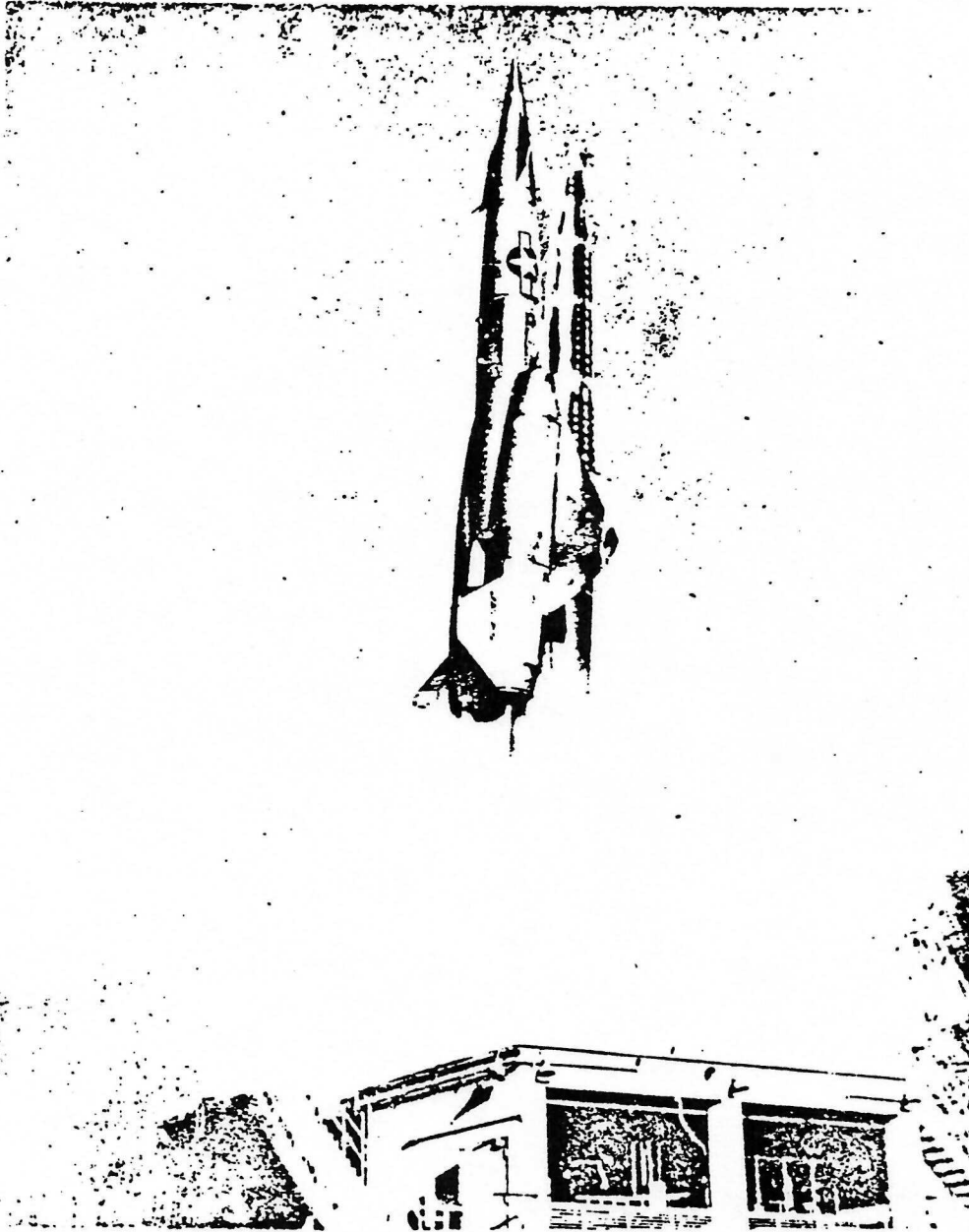
XSM-64 portion of program cancelled.

RISE (XSM-64) program cancelled.

X-10 Drone program cancelled.

NAVAHO LAUNCHINGSX-10 LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JULY - DECEMBER 1955</u>				
1	1	GM 19312 (X-10)	19 Aug 55	First NAVAHO test at AMR. Wrecked in landing.
2	2	GM 52-4 (X-10)	24 Oct 55	Wrecked in attempted landing.
<u>JANUARY - JUNE 1956</u>				
3	1	GM 52-1 (X-10)	3 Feb 56	First successful missile landing on Cape skid-strip.
4	2	GM 52-1 (X-10)	29 Feb 56	Completed aerodynamic and take-off tests.
5	3	GM 52-1	20 Mar 56	Satisfied high-angle approach landing test requirements.
6	4	GM 52-2	24 Apr 56	First terminal dive test; missile lost prior to dive-in.
7	5	GM 52-5	5 Jun 56	First autonavigator test. Missile landed on skid-strip.
<u>JULY - DECEMBER 1956</u>				
8	1	GM 52-5	18 Jul 56	Autonavigator test.
9	2	GM 52-1	27 Aug 56	Terminal dive test.
10	3	GM 52-6	21 Sep 56	Autonavigator test.
11	4	GM 52-6	24 Oct 56	Autonavigator test.
12	5	GM 52-6	20 Nov 56	Final X-10 program launch, final autonavigator test, and final terminal dive test.



THE AIR FORCE'S EXPERIMENTAL MISSILE, NAVAM, BLASTS OFF FROM ITS LAUNCHING PAD AT CAPE CANAVERAL, FLORIDA

NAVAHO LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>XSM-6L</u>				
<u>JULY - DECEMBER 1956</u>				
1	1	AF 52-10989	6 Nov 56	First XSM-6L missile launched. Missile #1. Booster #3, Part II.
<u>JANUARY - JUNE 1957</u>				
2	1	AF 52-10990	22 Mar 57	Missile #2. Booster #6, Part II test. Impacted 25 mi. downrange.
3	2	AF 53-8272	25 Apr 57	Missile #5, Booster #7, Part II test. Fell back on pad and exploded.
4	3	AF 53-8270	26 Jun 57	Missile #3, Booster #8, Part II test. Ramjets failed.
<u>JULY - DECEMBER 1957</u>				
5	1	AF 53-8271	12 Aug 57	Missile #4, Booster #9, Part II test. Ramjets failed at 230 mi. range.
6	2	AF 54-3095	18 Sep 57	Missile #6, Booster #10, Part II test. Completed 1/3 of 1500 mile flight.
7	3	AF 54-3096	13 Nov 57	Missile #7, Booster #11, Part II test. Crashed 90 mi. down- range.
<u>JANUARY - JUNE 1958</u>				
8	1	AF 54-3098	10 Jan 58	Missile #9, Booster #13. Flame- out occurred after turn around at Station #9.
9	2	AF 54-3097	25 Feb 58	Program final. Missile #8, Booster #12. Booster shut-off at T+20 seconds caused destruct.

C-4

NAVAGC LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
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PROJECT RISE

JULY - DECEMBER 1958

1	1	AF 55-4223 Booster #4	11 Sep 58	First RISE launch. Ramjets failed to ignite. Crashed 82 miles down range.
2	2	AF 55-4222 Booster #14	15 Nov 58	RISE program cancelled. Broke up at 77,000 ft. altitude.

X-10 DRONE

JULY - DECEMBER 1958

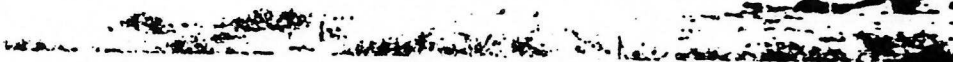
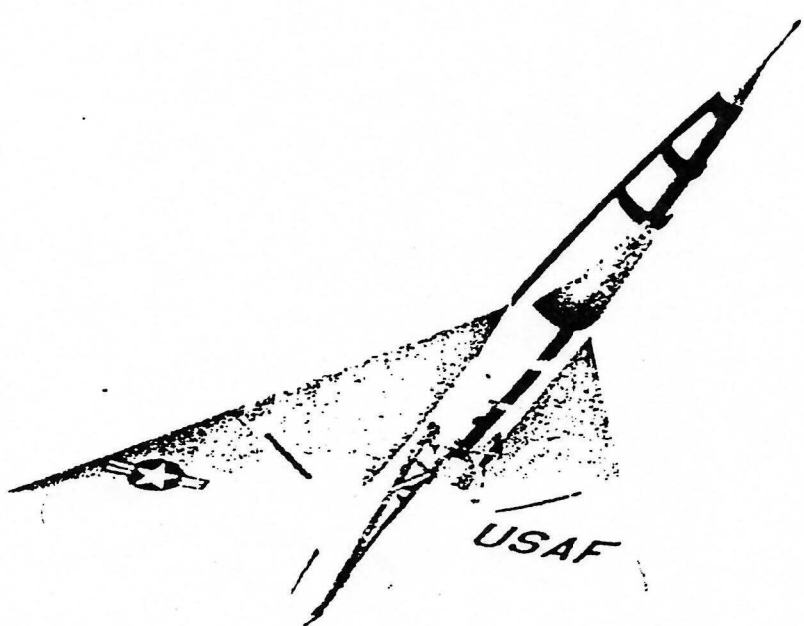
1	1	GM 52-5	24 Sep 58	First X-10 drone used as BOMARC target. Failed to engage runway barrier on landing. Ran off end of skid-strip and burned.
2	2	GM 19313	13 Nov 58	Runway barrier broke and X-10 burned on skid-strip.

JANUARY - JUNE 1959

3	1	GM 52-3	26 Jan 59	Final drone. Missile lost 57 miles down range.
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NAVAHO
SUMMARY OF LAUNCHINGS

X-10 R&D Vehicle	12
XSM-64 R&D Vehicle	9
XSM-64 <u>Rise</u> Program	2
X-10 Drone Program	<u>3</u>
Total launchings	26



10

THE U.S. AIR FORCE'S BULL GOOSE MISSILE BY FAIRCHILD, AFTER LAUNCH AT CAPE
CANAVERAL LAUNCHING SITE OF THE AIR FORCE MISSILE TEST CENTER.

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9-1

Tab 9

MISSILE BULL GOOSE (SM-73)
SPONSOR Air Force
CONTRACTOR Fairchild Aircraft Company

First R&D launch 13 Mar 57
Final launch 5 Dec 58

Dummy launchings 5
Dynamic missiles launched 15
Total launchings
 at AMR 20

Program cancelled 12 Dec 58

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9-2

BULL GOOSE LAUNCHINGS

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1957</u>				
1	1	Dummy	13 Mar 57	First launch of BULL GOOSE program.
2	2	Dummy	13 May 57	Zero-length launcher test.
3	3	No. 2	27 Jun 57	First live missile test of BULL GOOSE program.
<u>JULY - DECEMBER 1957</u>				
4	1	No. 3	20 Aug 57	Met test objectives.
5	2	No. 4	26 Sep 57	Fuel leak limited flight to one hour.
6	3	No. 5	27 Oct 57	Throttle control difficulty limited flight to 2 hours.
7	4	No. 6	26 Nov 57	Flew four hours.
<u>JANUARY - JUNE 1958</u>				
8	1	No. 7	31 Jan 58	Flew 2 hours of scheduled 5 hour flight. Crashed 60 miles off coast.
9	2	No. 9	18 Mar 58	Flew 5 hours in race-track pattern between Stations #1 and #3.
10	3	No. 10	18 Apr 58	First flight from modified launcher. Caught fire, crashed, and exploded at T+5 seconds.
11	4	No. 8	15 May 58	Went out of control after 2½ hours of flight.

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9-3

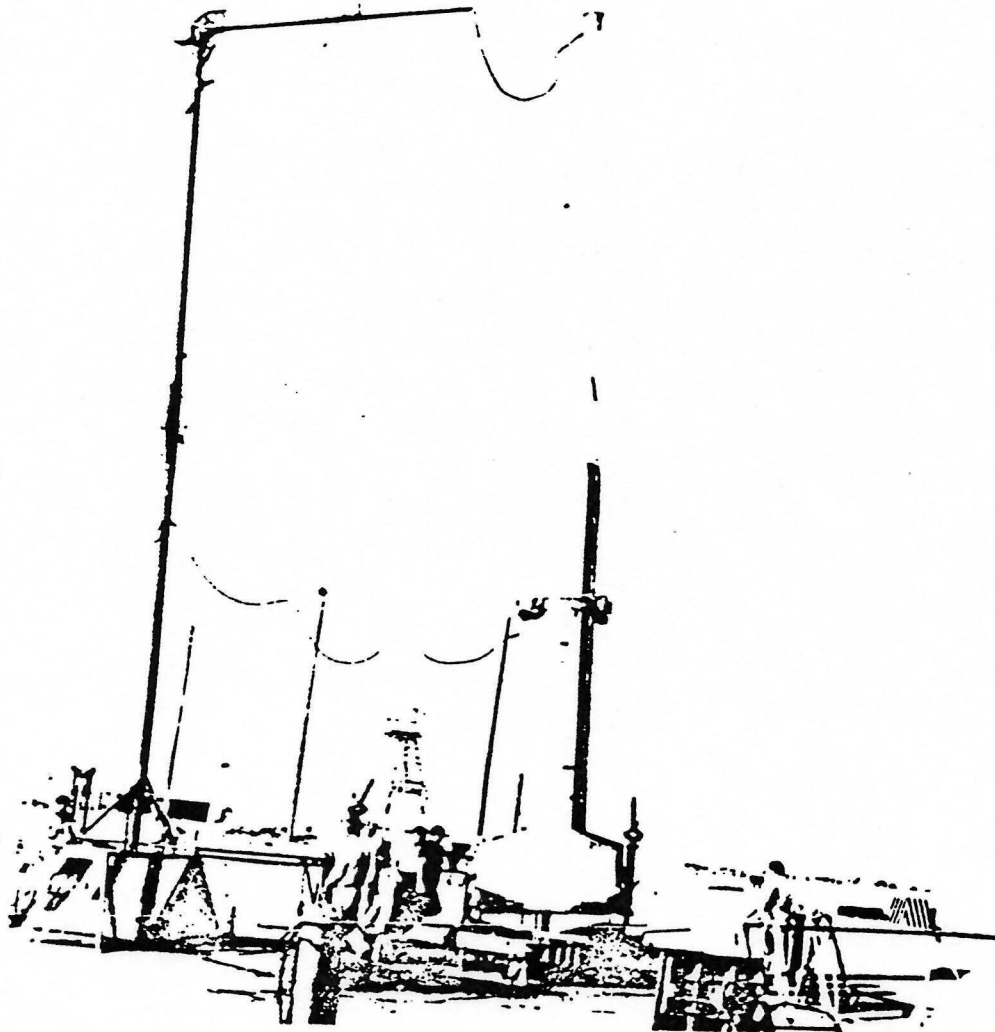
BULL GOOSE LAUNCHINGS

(Changed to GOOSE in August 1958)

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JULY - DECEMBER 1958</u>				
12	1	No. 12	24 Jul 58	Stalled and crashed at T+50 min. due to fuel starvation.
13	2	No. 13	28 Aug 58	Premature flight termination at T+172 min.
14	3	No. 11	12 Sep 58	Broke up at T+138 min.
15	4	Dummy No. 4	16 Sep 58	Evaluated booster performance and modified launcher.
16	5	Dummy No. 5	25 Sep 58	Proved suitability of tactical launch shelter.
17	6	No. 11	30 Sep 58	Inverted spin impact occurred at T+56 minutes.
18	7	No. 15	11 Nov 58	First test with YJ-83 engine. Fuel starvation caused crash at T+29 minutes.
19	8	No. 15	28 Nov 58	Engine flame-out occurred at T+180 minutes.
20	9	Dummy No. 6	5 Dec 58	Tested booster preheated to 150° F.

Teletype 12 Dec 58 directed termination of program.
No further launchings.

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THE 1-1/2 A. 4. 1077-1-17 RESEARCH VEHICLE FOR THE NS-107A PROGRAM, BY
LAUNCHER, READY FOR LAUNCH AT CAPE CANAVERAL, LAUNCHING SITE OF THE
AERONAUTICAL TEST CENTER

Declassified By AFSA

UNCLASSIFIED

[REDACTED]

10-1

Tab 10

MISSILE	X-17 (RTV)
SPONSOR	Air Force
CONTRACTOR	Lockheed Aircraft

First R&D launch	23 May 55
Final launch	22 Aug 57

Quarter-scale models launched	3
Half-scale models launched	3
Full-scale models launched	6
Research models launched	<u>26</u>
Total launchings at AMR	38

Program completed

UNCLASSIFIED

[REDACTED]

MT 60-2544

Declassified By AFSH/C

UNCLASSIFIED

10-7

WE 107A PROGRAM

X-17

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1955</u>				
1	1	Q-1	13 May 55	First quarter scale model.
2	2	Q-2	27 May 55	Second quarter scale model.
3	3	Q-3	13 Jun 55	Third and final quarter scale model.
4	4	H-1	23 Jun 55	First half scale model.
5	5	H-2	30 Jun 55	Second half scale model.
<u>JULY - DECEMBER 1955</u>				
6	1	H-2	14 Jul 55	Third and final half scale model.
7	2	D-1	26 Aug 55	First full scale development model. Failed structurally.
8	3	D-2	23 Sep 55	Second full scale model. Disintegrated at 17,000 ft.
9	4	D-3	1 Dec 55	Third and final full scale model. Satisfactory test.
<u>JANUARY - JUNE 1956</u>				
10	1	D-4	20 Jan 56	1st & 2nd stages active, dummy 3rd stage.
11	2	D-5	5 Mar 56	All 3 stages active.
12	3	R-1	17 Apr 56	1st full scale research model.
13	4	D-6A	26 Jun 56	All 3 stages active. Last development model.

UNCLASSIFIED

MT 60-2544

Declassified By AFS...

UNCLASSIFIED

10-3

WE-107A PROGRAM

X-17

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
JULY - DECEMBER 1956				
14	1	R-2 4203-3	17 Jul 56	2nd research model with 3 active stages.
15	2	R-3 4203-4	17 Jul 56	3rd stage failed to ignite.
16	3	R-4 4203-2	18 Aug 56	Exploded at T+18 seconds.
17	4	R-5 4203-5	23 Aug 56	Objectives accomplished.
18	5	R-6 4203-6	28 Aug 56	Telem signal lost at T+106 seconds.
19	6	R-7 4203-7	8 Sep 56	2nd and 3rd stages fired prematurely.
20	7	R-8 4203-8	1 Oct 56	Objectives accomplished.
21	8	R-9 4203-9	5 Oct 56	Objectives accomplished.
22	9	R-10 4203-10	13 Oct 56	Objectives accomplished.
23	10	R-11 4203-11	18 Oct 56	Objectives accomplished.
24	11	R-12 4203-12	25 Oct 56	Objectives accomplished.
25	12	R-13 4203-13	5 Nov 56	Carried nose cone.
26	13	R-14 4203-14	16 Nov 56	Carried nose cone.
27	14	R-15 4203-15	23 Nov 56	Carried nose cone.
28	15	R-16 4203-16	3 Dec 56	Carried nose cone.
29	16	R-17 4203-17	11 Dec 56	Carried nose cone.

UNCLASSIFIED

MT 60-2544

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UNCLASSIFIED

~~SECRET~~

10-1

WS-107A PROGRAM

I-17

TOTAL TO DATE	DURING PERIOD	MISSILE NUMBER	DATE LAUNCHED	REMARKS
<u>JANUARY - JUNE 1957</u>				
30	1	R-18 L203-18	8 Jan 57	All test objectives accomplished.
31	2	R-19 L203-19	15 Jan 57	2nd and 3rd stages failed to ignite.
32	3	R-20 L203-20	29 Jan 57	Range Safety destruct at T+ 24 seconds.
33	4	R-21 L203-21	7 Feb 57)	All test objectives accomplished.
34	5	R-22 L203-22	14 Feb 57)	
35	6	R-23 L203-23	1 Mar 57)	
36	7	R-24 L203-A3	11 Mar 57)	
37	8	R-25 L203-A4	21 Mar 57	
<u>JULY - DECEMBER 1957</u>				
38	1	R-26	22 Aug 57	Post program launch.

PROGRAM COMPLETED

UNCLASSIFIED

~~SECRET~~

MT 60-2544

DWL

LIST OF X-17 RTV (RE-ENTRY TEST VEHICLE) LAUNCHES (WS 107A PROGRAM) - TOTAL: 34

<u>Missile</u>	<u>Launch Date</u>	<u>Launched From</u>	<u>Summary</u>
H-1	30 Jan 55	Pad 3	Second half scale model.
H-2	14 Jul 55	" "	Third and final half scale model.
D-1	26 Aug 55	" "	First full scale development model. Failed structurally.
D-2	23 Sep 55	" "	Second full scale model. Disintegrated at 17,000 ft.
D-3	1 Dec 55	" "	Third and final full scale model. Satisfactory test.
D-4	20 Jan 56	" "	1st & 2nd stages active, dummy 3rd stage.
D-5	5 Mar 56	" "	All 3 stages active.
R-1	17 Apr 56	" "	1st full scale research model.
D-6A	26 Jun 56	" "	All 3 stages active. Last development model.
R-2 4203-3	17 Jul 56	" "	2nd research model with 3 active stages.
R-3 4203-4	27 Jul 56	" "	3rd stage failed to ignite.
R-4 4203-2	18 Aug 56	" "	Exploded at T/18 seconds.
R-5 4203-5	23 Aug 56	" "	Objectives Accomplished.
R-6 4203-6	28 Aug 56	" "	Telem signal lost at T/106 seconds.
R-7 4203-7	8 Sep 56	" "	2nd and 3rd stages fired prematurely.
R-8 4203-8	1 Oct 56	" "	Objectives accomplished.
R-9 4203-9	5 Oct 56	" "	Objectives Accomplished.
R-10 4203-10	13 Oct 56	" "	Objectives accomplished.
R-11 4203-11	18 Oct 56	" "	Objectives accomplished.
R-12 4203-12	25 Oct 56	" "	Objectives accomplished.
R-13 4203-13	5 Nov 56	" "	Carried nose cone.
R-14 4203-14	16 Nov 56	" "	Carried nose cone.
R-15 4203-15	23 Nov 56	" "	Carried nose cone.

(X-17 CONT'D)

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X-17 (CONTINUED)

<u>Missile</u>	<u>Launch Date</u>	<u>Launched From</u>	<u>Summary</u>
R-16 4203-16	3 Dec 56	Pad 3	Carried nose cone.
R-17 4203-17	11 Dec 56	" "	Carried nose cone.
R-18 4203-18	8 Jan 57	" "	All test objectives accomplished
R-19 4203-19	15 Jan 57	" "	2nd and 3rd stages failed to ignite.
R-20 4203-20	29 Jan 57	" "	Range Safety destruct at T/24 s
R-21 4203-21	7 Feb 57)	" "	
R-22 4203-22	14 Feb 57)	" "	
R-23 4203-23	1 Mar 57) --	" "	All test objectives accomplished
R-24 4203-A3	11 Mar 57)	" "	
R-25 4203-A4	21 Mar 57	" "	Final launch in program.
R-26	22 Aug 57	" "	Post program launch.

PROGRAM COMPLETED

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Launches By System, 1955-1970

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DWL

RECAP OF X-17 (WS-107A PROGRAM) LAUNCHES
BY WING PERSONNEL -- BY YEAR
(As of 31 December 1968)

1955: 5

1956: 20

1957: 9

TOTAL LAUNCHED: 34

Note: All X-17 Missiles Launched from PAD 3.

Compiled By: M. A. Kingsley
(As of 31 Dec 1968)

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