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T U N E U P

MISSILE: Thor No. 151 (AF 58-2262)

LAUNCHED: 16 December 1958, 1545 hours, 75-1-1

COUNTDOWN HISTORY:

1. First Attempt: 16 December 1958, system recycled to T-15 after igniter links malfunction appeared in Phase I.
2. Second Attempt: 16 December 1958, system recycled after 36 minutes into count. Missile did not erect.

FLIGHT PERFORMANCE:

- | | <u>Event Time</u> |
|------------|-------------------|
| 1. MECO | 155.37 sec |
| VECO | 158.43 sec |
| Separation | 171.22 sec |
| Prearm | Not received |
2. Impact: 3 NM left, 6 NM long of intended 1262 NM target.
 3. All test objectives achieved; the operation was completely successful.

GROUND SUPPORT EQUIPMENT PERFORMANCE:

The GSE performance was satisfactory with the exception of the erector malfunction noted. Total countdown time was 20 minutes, no holds.

REMARKS:

1. This was the first Thor and the first missile to be fired from VAFB.
2. It was the first firing utilizing the integrated Initial Operation Capability (IOC) Thor Weapon System.
3. It was a demonstration flight under the cognizance of AFBMD and utilized a SAC crew for firing.

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Declassified:
6/9/72 TMC

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L I O N S R O A R

MISSILE: Thor No. 161 (AF 58-2272)

LAUNCHED: 16 April 1959, 1246 hours, 75-2-8

COUNTDOWN HISTORY:

1. First Attempt: 14 April 1959, external systems malfunction stopped the count at the end of Phase II.
2. Second Attempt: 14 April 1959, scrubbed at end of Phase I due to an engine centered malfunction.
3. Third Attempt: 15 April 1959, external systems malfunction stopped the count in Phase II.
4. Fourth Attempt: 15 April 1959, external systems scrubbed the launch attempt again due to an external systems malfunction.

FLIGHT PERFORMANCE:

- | | <u>Event Time</u> |
|------------|-------------------|
| 1. MECO | 158.9 sec |
| VECO | 162.8 sec |
| Separation | 173.4 sec |
| Prearm | 159.2 sec |
2. Impact: 100 NM long, 3.8 NM left of 1326 NM target. Excessive miss was due to improper guidance parameter setting in EET.
 3. The launch was considered successful with the exception of the guidance setting error.

GROUND SUPPORT EQUIPMENT PERFORMANCE:

Total countdown time 22 min 24 sec; operating countdown time 19 min 24 sec.

REMARKS:

This was the first Thor to be launched by a RAF Integrated Weapon System Training crew.

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6/9/72 (MC)

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R I F L E S H O T

MISSILE: Thor No. 191 (AF 58-2302)

LAUNCHED: 16 June 1959, 1445 hours, 75-2-7

COUNTDOWN HISTORY:

1. First Attempt: 22 May 1959, operation "Punch Press" cancelled due to a series of technical problems; the last of which were 95% LOX and launcher malfunctions.
2. Second Attempt: 10 June 1959, launch attempt scrubbed due to guidance malfunction and R/V and TM battery failure.

FLIGHT PERFORMANCE:

1. The missile did not program and was intentionally destroyed at approximately 105 seconds after lift off at approximately 150,000 ft. Probable cause of the incident was failure of the retainer clip to extract the lift off pin which start the programmer.
2. Major pieces of the missile were observed to impact in the water. Lighter pieces of skin, etc., fell as far as 20 miles from the pad.

GROUND SUPPORT EQUIPMENT PERFORMANCE:

1. The final launch countdown encountered no malfunction.
2. Two hydraulic lines did not disconnect from the missile at lift off due to improper installation and the mast retracted very slowly - no effect on incident.
3. Total countdown time 44 min 47 sec, operating countdown time 20 min 21 sec.

REMARKS:

Integrated Weapon System Training launch.

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Declassified:
6/9/72 (DWC)

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B E A N B A L L

MISSILE: Thor No. 175 (AF 58-2286)

LAUNCHED: 3 August 1959, 1441 hours, 75-1-1

COUNTDOWN HISTORY:

Attempts utilizing Missile No. 175:

1. First Attempt: 17 July 1959 - A defective telemetry battery halted the countdown temporarily. After replacement, a 95% LOX malfunction scrubbed the attempt.
2. Second Attempt: 18 July 1959 - Propellant transfer complete signal not received; recycled to beginning of Phase V and attempted again, 95% LOX malfunction scrubbed this attempt.
3. Third Attempt: 23 July 1959 - 95% LOX malfunction again stopped the count in Phase V.

Attempts utilizing Missile No. 190 (AF 58-2301)

1. First Attempt: 16 July 1959 - The guidance system tumbled during Phase V.
2. Second Attempt: 18 July 1959 - A defective telemetry battery stopped the count in Phase V.
3. Third Attempt: 21 July 1959 - Launcher and internal systems malfunctions stopped the count in Phase V.
4. Fourth Attempt: 23 July 1959 - Phase V timer expired instantaneously at the start of the phase.

FLIGHT PERFORMANCE:

- | | <u>Event Time</u> |
|---|--------------------|
| 1. MECO | 152.4 sec |
| VECO | 152.8 sec |
| Separation | 167.4 sec |
| Prearm | No signal received |
| 2. Impact: 68 NM long, 8 NM left of 1326 NM target. Primary cause of miss was failure of the propellant valves to close properly, thus exhibiting a large residual impulse. | |

GROUND SUPPORT EQUIPMENT PERFORMANCE:

Fuel fine malfunction cleared during count. Total countdown time 36 min 14 sec operating countdown time 19 min 7 sec.

REMARKS:

Integrated Weapon System Training launch.

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SHORT SKIP

MISSILE: Thor No. 190 (AF 58-2301)

LAUNCHED: 14 August 1959, 1236 hours, 75-2-6

COUNTDOWN HISTORY:

1. First Attempt: 12 August 1959 - Lack of pressure in VE #1 caused automatic engine cutoff.
2. Second Attempt: Four attempts were also made to launch this missile for operation "Bean Ball." See appropriate pages, this book.

FLIGHT PERFORMANCE:

1. Fuel depletion commenced at 153.4 sec after lift off and resulted in destruction of the missile at 155.4 sec.
2. Impact: 237 NM short, 4 NM left of intended 1370 NM target due to fuel depletion.

GROUND SUPPORT EQUIPMENT PERFORMANCE:

Fuel fine malfunction cleared during count. Total countdown time 25 min 48 sec; operating countdown time 19 min 48 sec.

REMARKS:

Integrated Weapon System Training launch.

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FAB 30 Sep 64

Declassified:
6/4/72 (112)

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G R E A S E G U N

MISSILE: Thor No. 228 (AF 59-2349)

LAUNCHED: 17 September 1959, 1409 hours, 75-1-2

COUNTDOWN HISTORY:

There were no aborted launch attempts on this operation.

FLIGHT PERFORMANCE:

	<u>Event Time</u>
1. MECO	155.1 sec
VECO	161.2 sec
Separation	No signal received
Prearm	155.3 sec
2. Impact:	3.5 NM short, 3.5 NM right of intended 1370 NM target.

GROUND SUPPORT EQUIPMENT PERFORMANCE:

Fuel fine malfunction cleared during count. Total countdown time 68 min, operating countdown time 20 min. Operational range and weather holds accounted for most of hold time.

REMARKS:

Integrated Weapon System Training launch.

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Downgraded at 3 yr intervals IAW DOD DIR 5200.10
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Declassified:
6/4/72 (mc)

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FOREIGN TRAVEL

MISSILE: Thor No. 239 (AF 59-2360)

LAUNCHED: 6 October 1959, 1126 hours, 75-2-8

COUNTDOWN HISTORY:

There were no aborted launch attempts on this operation.

FLIGHT PERFORMANCE:

- | | <u>Event Time</u> |
|------------|--------------------|
| 1. MECO | 157.1 sec |
| VECO | 160.6 sec |
| Separation | No signal received |
| Prearm | 157.6 sec |
2. Impact: 3 NM short, 3 NM right of intended 1370 NM target.

GROUND SUPPORT EQUIPMENT PERFORMANCE:

No malfunctions during countdown. Total countdown time 21 minutes 10 seconds, operating countdown time 18 minutes 15 seconds.

REMARKS:

This was the first Combat Training Launch by the RAF.

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S T A N D F A S T

MISSILE: Thor No. 220 (AF 59-2341)

LAUNCHED: 21 October 1959, 1557 hours, 75-1-1

COUNTDOWN HISTORY:

1. First Attempt: 20 October 1959 - Count stopped at 2 min 12 sec in Phase V when SMC operator thought he saw LOX leaking from main engine.
2. Second Attempt: 20 October 1959 - Countdown terminated in ignition stage when main LOX valve and igniter fuel valve opened before ignition detector link would break.

FLIGHT PERFORMANCE:

- | | <u>Event Time</u> |
|------------|--|
| 1. MECO | 156.9 sec |
| VECO | 163.4 sec |
| Prearm | 157.2 sec |
| Separation | 167.0 sec |
| 2. Impact: | 1.5 NM long and 0.5 NM right of intended 1326 NM target. |

GROUND SUPPORT EQUIPMENT PERFORMANCE:

There were no malfunctions during countdown. Total countdown time 29 min 58 sec, operating countdown time 19 min.

REMARKS:

Integrated Weapon System Training Launch.

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SP8 30 SEP 64*

*Declassified
6/9/72 (710)*

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B E A C H B U G G Y

MISSILE: Thor No. 181 (AF 58-2292)

LAUNCHED: 12 November 1959, 1124 hours, 75-1-2

COUNTDOWN HISTORY:

1. First Attempt: 10 November 1959 - 100% LOX malfunction stopped countdown at 2 min 23 sec in Phase V.
2. Second Attempt: 10 November 1959 - Automatic engine cutoff stopped count during ignition phase.

FLIGHT PERFORMANCE:

	<u>Event Time</u>
1. MECO	148.9 sec
VECO	154.9 sec
Prearm	149.1 sec
Separation	163.7 sec

2. Impact: 0.1 NM short. 0.8 NM right of intended 914 NM target.

GROUND SUPPORT EQUIPMENT PERFORMANCE:

No malfunctions during countdown. Total countdown time 24 min 23 sec, operating countdown time 20 min 40 sec.

REMARKS:

Integrated Weapon System Training launch.

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SP2 30 Sep 67

*Declassified:
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H A R D R I G H T

MISSILE: Thor No. 265 (AF 59-2386)

LAUNCHED: 1 December 1959, 2129 hours, 75-1-1

COUNTDOWN HISTORY:

1. First Attempt: 30 November 1960 - Missile bottles malfunction; stopped in Phase I.
2. Second Attempt: 30 November 1960 - Engine centered malfunction; stopped in Phase I.
3. Third Attempt: 30 November 1960 - Engine centered malfunction; stopped in Phase I.
4. Fourth Attempt: 30 November 1960 - Improper guidance system setup; stopped in Phase I.

FLIGHT PERFORMANCE:

- | | <u>Event Time</u> |
|------------|--------------------|
| 1. MECO | 151.9 sec |
| VECO | 157.0 sec |
| Prearm | No signal received |
| Separation | 167.4 sec |
2. Impact: 92 NM long, 2 NM right of intended 693 NM target. No roll program was executed and the measurement input to the guidance computer was incorrect.

GROUND SUPPORT EQUIPMENT PERFORMANCE:

Missile bottles malfunction in Phase I. Total countdown time 34 min 27 sec, operating countdown time 19 min 39 sec.

REMARKS:

This was the second Combat Training Launch for the RAF. It was the first lofted trajectory and the first missile to be fired at night from Vandenberg AFB, Calif.

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TALL GIRL

MISSILE: Thor No. 185 (AF 58-2296)

LAUNCHED: 14 December 1959, 1814 hours, 75-1-2

COUNTDOWN HISTORY:

There were no aborted launch attempts on this operation.

FLIGHT PERFORMANCE:

The flight was normal until about 83 seconds after lift off when the missile started to become unstable. An erratic flight path was followed until about 149 seconds when the missile broke up.

GROUND SUPPORT EQUIPMENT PERFORMANCE:

There were no malfunctions during the countdown. Total countdown time 23 min 6 sec, operating countdown time 17 min 56 sec.

REMARKS:

Integrated Weapon System Training launch. This was the second lofted trajectory with an intended target at 692 NM.

DOWNGRADE AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS
DOD DIR 5200.10

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Declassified:
6/9/72 (mc)

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R E D C A B O O S E

MISSILE: Thor 215 (AF 58-2326)

LAUNCHED: 21 January 1960, 1210 hours, 75-1-2

COUNTDOWN HISTORY:

On 21 January 1960 an attempt was made to launch Missile 272 (AF 59-2393) to fulfill this operation. This attempt was scrubbed when PTS complete was not reached.

FLIGHT PERFORMANCE:

- | | <u>Flight Time</u> |
|---|---------------------|
| 1. MECO | 156.4 sec |
| VECO | 162.8 sec |
| Prearm | 156.7 sec |
| Separation | Signal not received |
| 2. Impact: 0.5 NM short and 3.2 NM left of intended 1326 NM target. | |

GROUND SUPPORT EQUIPMENT PERFORMANCE:

There were no malfunctions during countdown. Total countdown time 190 min 10 sec, operating countdown time 18 min 13 sec. The excessive countdown time was according to plan. Missile 215 was counted down to the end of Phase II where it was held in a ready condition pending the outcome of the attempted launch of Missile 272. When 272 was scrubbed, the operational hold was released on 215 and proceeded to launch.

REMARKS:

This was the last RAF Integrated Weapon System Training launch.

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C E N T E R B O A R D

MISSILE: Thor No. 272 (AF 59-2393)

LAUNCHED: 2 March 1960, 1206 hours, 75-2-8

COUNTDOWN HISTORY:

There were no aborted launch attempts on this operation. However, an attempt was made to launch this missile for operation "Red Caboose."

FLIGHT PERFORMANCE:

Flight Time

1. MECO	155.8 sec
VECO	162.5 sec
Prearm	156.2 sec
Separation	169.028 sec

2. Impact: 1.5 NM short and 0.1 right of intended target.

GROUND SUPPORT EQUIPMENT PERFORMANCE:

Could not acquire Short Range Theodolite in Phase I, 180 sec timer malfunction in Phase III, total countdown time 65 min 55 sec, operating countdown time 19 min 54 sec. The 180 sec timer is used to close WV to insure start tank filling. A hold of 35 min was used to assure start tank filling and operational holds.

REMARKS:

Combat Training Launch. Missile had experienced 28 dual propellant flows in special tests plus 7 preparation and training type double flows.

DOWNGRADE AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS
DOD DIR 5200.10

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CLAN CHATTEN

MISSILE: Thor No. 233 (AF 59-2354)

LAUNCHED: 22 June 1960, 1626 hours, 75-2-7

COUNTDOWN HISTORY:

One previous unsuccessful attempt was made to launch this missile at 1445 hours on 22 June 1960. The attempt was scrubbed at 1:52 in Phase II due to lift-off switch malfunction.

FLIGHT PERFORMANCE:

	<u>Flight Time</u>
1. MECO	155.1
VECO	160.7
Prearm	155.4
Separation	170.7

2. Impact: 1.75 NM short, 0.5 NM left of the intended 1370 NM target.

3. GROUND SUPPORT EQUIPMENT PERFORMANCE:

There were no malfunctions in the GSE during terminal count. Total count-down time was 32 minutes 7 seconds of which 16 minutes 18 seconds was operating time.

REMARKS:

This was the fourth CTL launch by the RAF. It was the first CTL to utilize a missile which had been returned from an operational status in England. The launch countdown was initiated with the shelter removed and the missile vertical.

DOWNGRADE AND 5 YEAR INTERVALS;
DECLASSIFY AFTER 10 YEARS
UNLESS INDICATED

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*Declassified:
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LEFT RUDDER

MISSILE: Thor No. 186 (AF 58-2297)

LAUNCHED: 11 October 1960, 1453 hours, 75-2-8

COUNTDOWN HISTORY:

There were no aborted launch attempts on this operation.

FLIGHT PERFORMANCE:

	<u>Flight Time</u>
1. MECO	157.7
VECO	164.4
Prearm	157.9
Separation	172.5

2. Impact: 1.0 NM short, 6.0 NM left of intended 1326 NM target.

3. GROUND SUPPORT EQUIPMENT PERFORMANCE:

There were no GSE malfunctions during the terminal count. Total countdown time was 67 minutes 11 seconds of which 17 minutes 57 seconds was operating time. The excessive countdown time was according to plan. A 10 minute operational hold at the end of Phase II was inserted to clear the pad and a 39 minute 14 second technical hold at 3 minutes into Phase IV was applied to demonstrate on extended hold capability at this point.

REMARKS:

This was the fifth CTL launch by the RAF. It was the second CTL to utilize a missile which had been returned from an operational status in England.

DOWNGRADE AT 3 YEAR INTERVALS:
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ACTON TOWN

MISSILE: Thor Nr 267 (AF 59-2388)

LAUNCHED: 13 December 1960, 1208 hours, 75-2-8

COUNTDOWN HISTORY:

There were no aborted launch attempts on this operation.

FLIGHT PERFORMANCE:

	<u>Flight Time</u>
1. MECO	156.0
Prearm	156.2
VECO	159.2
Separation	170.5
2. Impact: 0.7 NM long, 2.8 NM left of intended 914 NM target as predicted by FPS 16 Radar. SOFAR bomb did not detonate.	

GROUND SUPPORT EQUIPMENT PERFORMANCE

Total countdown time was 35 minutes, 37 seconds. This time consisted of 22 minutes, 7 seconds, operating time; and 13 minutes, 30 seconds, hold time. One 10-minute hold was planned and executed at the end of Phase II to clear the pad; the second hold was also planned and was executed in Phase IV to demonstrate the hold capability at this point. The extremely long operating time was caused by low fuel flow rate due to an improper fuel storage tank pressure regulator setting.

REMARKS

This was the sixth CTL launch by the RAF. The missile launched had been in an operational status in England. This was a lofted trajectory.

DOWNGRADE AT 3 YEAR INTERVALS;
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DOD DIR 5200.10

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SHEPHERDS BUSH

MISSILE: Thor #243 (AF 59 2364)

LAUNCHED: 29 March 1961, 2113:43 hours, 75-2-7

COUNTDOWN HISTORY:

One previous launch countdown was attempted on this missile on 28 March 1961. However, a range safety hold was called during Phase III of the terminal count and lasted for one hour and 58 minutes. When the hold was released it was discovered that the 95% LOX float switch was frozen. The launch was subsequently scrubbed at 2207 hours.

FLIGHT PERFORMANCE:

	<u>Flight Time</u>
1. MECO	155.8 Sec
VECO	164.2 Sec
Prearm	156.15 Sec
Separation	170.24 Sec

2. Impact: 1.6 NM short, 0.5 NM left of the intended 1326 NM target according to SOFAR reports.

GROUND SUPPORT EQUIPMENT PERFORMANCE:

There were no GSE malfunctions during the terminal count. Total countdown time was 13 minutes and 43 seconds.

REMARKS:

1. This was the seventh CTL launch by the RAF.
2. This was the first Thor to be launched utilizing the new fast countdown.
3. It was the first test utilizing ECP 45, which references the guidance system to the missile airframe and was highly successful.
4. The airburst capability of the warhead was demonstrated by ejection of chaff at re-entry.

DOWNGRADE AT 3 YEAR INTERVALS;
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DOD DIR 5200.10

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WHITE BISHOP

MISSILE: Thor No. 276 (AF 59-2397)

LAUNCHED: 20 June 1961, 1654 hours, 75-2-7

COUNTDOWN HISTORY:

1. First Attempt: Initiated at 1257, 20 June 1961. Fuel leak in the fuel start tank over board drain line quick disconnect, stopped the countdown in Phase III. Both propellants were off-loaded and the system was recycled and repaired.
2. Second Attempt: Initiated at 1539, 20 June 1961.

FLIGHT PERFORMANCE:

	<u>Flight Time</u>
1. MECO	154.4
VECO	160.8
Prearm	154.7
Separation	169.0

2. Impact: 1.25 NM short, 0.75 NM left of intended 1305 NM target as indicated by SOFAR.

GROUND SUPPORT EQUIPMENT PERFORMANCE:

Total countdown time was 75 minutes, 37 seconds. The planned 10 minute hold was executed at the end of Phase II to clear the pad. A second hold of 40 minutes was planned and executed during Phase III to demonstrate the hold capability at this point. A final technical hold was imposed in Phase IV to correct a telemetry problem. Between the two launch attempts the lower half of the leaking quick disconnect was replaced. During the leak check on the second attempt the "O" ring on the quick disconnect was again found to be leaking and was replaced.

REMARKS:

This was the eighth CTL launch by the RAF. The missile was returned from an operational status in England.

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DOWNGRADED AT 3 YEAR INTERVALS:
DECLASSIFIED AFTER 12 YEARS

DOD DIR 5200.10

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SKYE BOAT

MISSILE: Thor No. 165 (AF 58-2276)

LAUNCHED: 6 September 1961, 1530 hours, 75-2-7

COUNTDOWN HISTORY:

There were no aborted launch attempts on this operation.

FLIGHT PERFORMANCE:

	<u>Flight Time</u>
1. MECO	158.46 sec
VECO	164.83 sec
Prearm	158.71 sec
Separation	173.71 sec

2. Impact: On target in range and 3.5 NM right of intended 1305 NM target as indicated by SOFAR.

AEROSPACE GROUND EQUIPMENT PERFORMANCE:

The total countdown time was 142 minutes and 17 seconds. A planned 10 minute hold was executed at the end of Phase II to clear the pad. A second hold of 120 minutes was planned and executed at 3 minutes in Phase III to demonstrate the hold capability at this point. All equipment performed within specifications.

REMARKS:

This was the ninth CTL launch by the RAF. The missile was returned from an operational status in England.

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DOWNGRADED AT 3 YEAR INTERVALS:
DECLASSIFIED AFTER 12 YEARS
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PIPER'S DELIGHT

MISSILE: Thor No. 214 (AF 58-2325)

LAUNCHED: 5 December 1961, 1730 hours, 75-2-8

COUNTDOWN HISTORY:

There were no aborted launch attempts during this operation.

FLIGHT PERFORMANCE:

	<u>Flight Time</u>
1. MECO	155.09
VECO	160.48
Prearm	155.45
Separation	170.18

2. Impact: 2.7 NM short and 1.0 NM left of intended 1304 NM target as indicated by SOFAR.

AEROSPACE GROUND EQUIPMENT PERFORMANCE:

The total countdown time was 320 minutes. A hold was called at R-90 minutes for 130 minutes duration to replace the range safety prima cord. Total operating countdown time was 9 minutes and 22 seconds. All equipment performed within specifications.

REMARKS:

This was the tenth CTL launch by the RAF. The missile was returned from an operational status in England.

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BLACK KNIFE

MISSILE: Thor #229 (AF 59-2350)

LAUNCHED: 19 March 1962, 1528 hours, 75-2-7

COUNTDOWN HISTORY:

There were no aborted launch attempts during this operation.

FLIGHT PERFORMANCE:

1. The missile started to pitch downrange and to the left immediately after lift-off. It was destroyed by command at 26.5 seconds later. At destruct the missile was approximately 2 miles downrange, left of course, and at about 3,000 feet altitude. Major pieces of debris impacted on or near the beach in the water.
2. Investigation revealed that there was a malfunction in the flight controller pitch attitude loop. A specific cause could not be identified.

AEROSPACE GROUND EQUIPMENT PERFORMANCE:

The total countdown time was 20 minutes, 34 seconds, including a planned 3 minute hold at the end of Phase II, and 49 seconds of recycle time in Phase IV. Phase IV was recycled when the timer ran out prior to completing the internal slew. The second time through the phase again was slow but completed satisfactorily.

REMARKS:

1. This was the 11th CTL by the RAF.
2. The missile had been returned from an operational status in England.
3. Pad damage was extremely heavy due to the pitch down attitude at lift-off and resulting abnormal flame and blast impingement.

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DECLASSIFIED AFTER 12 YEARS
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BLAZING CINDERS

MISSILE: Thor #269 (AF 59-2390)

LAUNCHED: 18 June 1962, 1730 PDT, 75-2-8

COUNTDOWN HISTORY:

There were no aborted launch attempts during this operation.

FLIGHT PERFORMANCE:

- | | |
|------------|--------|
| 1. MECO | 154.35 |
| VECO | 160.75 |
| Prearm | 154.69 |
| Separation | 169.31 |
2. Impact: .75 NM short and .1 NM right of intended 1326 NM target as indicated by SOFAR.

AEROSPACE GROUND EQUIPMENT PERFORMANCE:

The total countdown time was 16 minutes and 37 seconds. This includes a planned hold of 2 minutes and 39 seconds at the end of Phase 2. All equipment performed within specifications.

REMARKS:

This was the 12th CTL launch by the RAF. The missile was returned from an operational status in England.

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