Discoverer XIII Life Cycle

PRESENTED BY 6594 TEST WING (SATELLITE) (A.R.D.C.) SUNNYVALE, CALIFORNIA

This document contains a general discussion of the DISCOVERER XIII operation.

Existing reports on the DISCOVERER program have, on a whole, been either non-classified public information releases or technical engineering evaluation studies with limited distribution. This document is intended to fill the gap between these two by covering the overall operation in more detail than would be possible in public releases, yet eliminating the discussion of engineering details.

Photographs and drawings used were furnished by the Ballistic Missiles Division (ARDC), The Naval Missile Center (PMR), and the Lockheed Missiles and Space Division.

FIRST CAPSULE RECOVERED FROM AN ORBITING SATELLITE

A significant "first" in world-wide space technology was achieved on 11 August 1960 by the USAF with the recovery of the capsule ejected from an orbiting satellite. This operation involved DISCOVERER XIII with an Agena satellite and Thor booster. The launch was made at 1338 PDT on 10 August from Vandenberg AFB.

Satisfactory Agena injection altitude and velocity resulted in a near polar orbit with a period of 94 minutes. Capsule ejection was initiated on the seventeenth orbit so that recovery could be made in an area northwest of Hawaii. Recovery by air was not accomplished as the capsule and its parachute were first sighted by C-119 crews at about the time of water impact. Two RADARCs (sonobuoys) and several smoke bombs were dropped to mark the target area for helicopters dispatched by the nearest recovery vessel, the Haiti Victory. The capsule and parachute were successfully retrieved at 1922 PDT, 11 August 1960.

PRESIDENT ANNOUNCES FIRST RECOVERY OF SATELLITE CAPSULE

DISCOVERER TEST PROGRAM

The DISCOVERER program was established early in 1958 under the direction of ARPA, with technical management assigned to AFBMD. Full program responsibility was transferred from ARPA to the Air Force on 14 November 1959. The prime contractor is Lockheed Missiles and Space Division. Overall test control is exercised by the 6594th Test Wing (Satellite) and capsule recovery is the responsibility of its organization in Hawaii, the 6594th Recovery Control Group.

One of the most important functions of the Wing at present is the training of officers and airmen for eventual full blue suit capability to conduct the complete satellite test operation.

The Program consists of the design, development and flight testing of Agena satellites using the Thor IRBM as a booster and the Agena as the second stage.

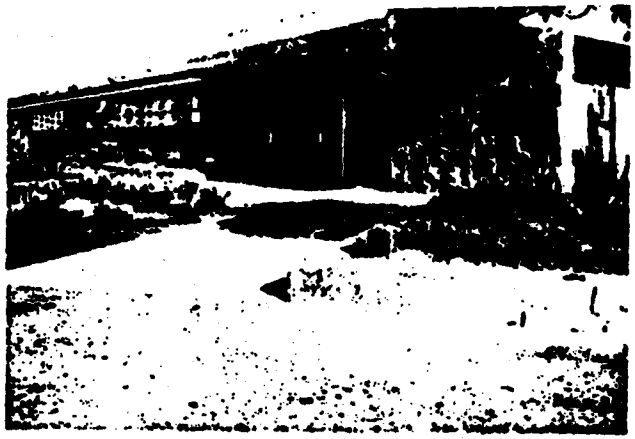
The primary test objectives are to:

(a) Develop and flight test the satellite and its subsystems.

(b) Demonstrate reliable stabilization of the satellite in orbit and response to programmed reorientation commands.

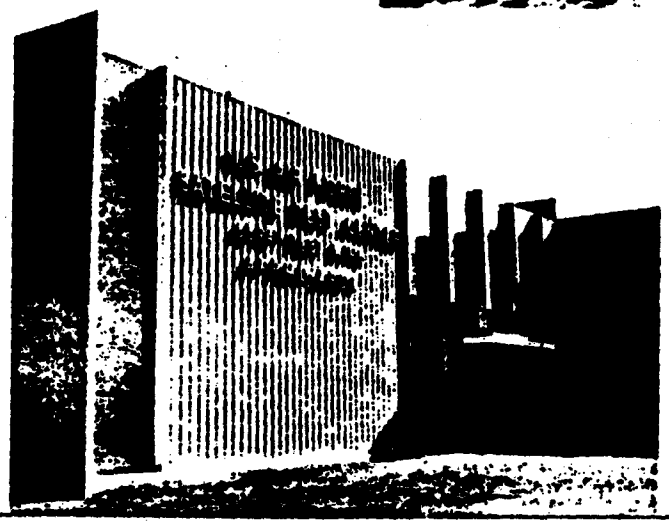
(c) Develop proven techniques for recovering capsules ejected from orbiting satellites.

(d) Perform space research and engineering tests in support of advanced military reconnaissance satellite programs.



HEADQUARTERS AFBMD,
INGLEWOOD, CALIFORNIA
PROGRAM DIRECTION

LOCKHEED MISSILES AND SPACE DIV.,
SUNNYVALE, CALIF.,
PRIME CONTRACTOR



6594TH TEST WING (SATELLITE) (ARDC),
SUNNYVALE, CALIFORNIA — TEST CONTROL

DISCOVERER FLIGHT TEST HISTORY

Flight tests started on 28 February 1959 with the launching of DISCOVERER I. Since then a total of thirteen tests have been conducted, placing eight satellites successfully into orbit. Capsule ejection was accomplished on six occasions and one of these resulted in the first recovery. Further details are given in the following tabulation:

DISCOVERER I 1022/163	28 Feb 59	Orbit achieved. Telemetry received for 514 seconds after lift-off.
DISCOVERER II 1018/170	13 Apr 59	Orbit achieved. Capsule ejected on the 17th pass. Recovery not attempted.
DISCOVERER III 1020/174	3 Jun 59	Launch, boost, separation and second stage operation successful. Failed to orbit.
DISCOVERER IV 1023/179	25 Jun 59	Launch, boost, separation and second stage ignition were successful. Failed to orbit because of premature ignition cut-off resulting in low injection velocity.
DISCOVERER V 1029/192	13 Aug 59	Orbit achieved. Capsule ejected on 17th pass. All objectives successfully accomplished except recovery.
DISCOVERER VI 1028/200	19 Aug 59	Orbit achieved. Capsule ejected. Success except for recovery.

DISCOVERER VII 1051/206	7 Nov 59	Orbit achieved. 400 cycle power failure prevented stabilization while in orbit and activation of the recovery sequences.
DISCOVERER VIII 1050/212	20 Nov 59	Orbit achieved. Excessive injection velocity produced a highly eccentric orbit resulting in early control gas depletion. The capsule was ejected but not recovered.
DISCOVERER IX 1052/218	4 Feb 60	On lift-off the umbilical mast did not retract and the Agena quick disconnect failed causing loss of helium pressure. The THOR shut down prematurely.
DISCOVERER X 1054/223	19 Feb 60	THOR flight control malfunction caused Range Safety officer to distruct 56 seconds after launch.
DISCOVERER XI 1055/234	15 Apr 60	Orbit achieved. Capsule ejected on 17th pass. Re-entry trajectory was high and beyond the predicted recovery area.
DISCOVERER XII 1053/160	29 Jun 60	Launch, boost, separation and Agena engine operation were successful. Failed to orbit because of a pitch down attitude at injection.
DISCOVERER XIII 1057/231	10 Aug 60	Orbit achieved. Capsule ejected on the 17th pass and recovered from the water. Little damage to the capsule. All objectives successfully accomplished except airborne recovery.

SATELLITE FLIGHT TEST SYSTEM

In order to conduct the flight test of the satellite extensive and widely separated facilities were required. The most obvious of these were, of course, a launch facility, tracking and control stations, a recovery force all tied together by a control center. The specific units involved and their primary functions were as follows:

STC — Satellite Test Center, Sunnyvale, California — overall control of the flight test.

VCC — Vandenberg Control Center, VAFB, Calif. — monitored satellite and booster checkout and launch operations. During final countdown activities STC was connected directly to the blockhouse.

VTS — Vandenberg Tracking Station, VAFB, Calif. — tracking, control and telemetry readout.

MTS — Mugu Tracking Station, Pt. Mugu, Calif. — tracking, control and telemetry.

KTS — Kodi Tracking Station, Kodiak, Alaska — tracking, control and telemetry readout.

HTS — Hawaii Tracking Station, Kaena Point, Hawaii — tracking, control and telemetry.

NBTS — New Boston Tracking Station, N.H., was active for station checkout and training.

Telemetry Ships — AG 161 and PRIVATE JOE E MANN located so as to cover telemetry during orbital injection and recovery phases. Furnished by PMR (with instrumentation readout equipment manned by LMSD).

WV-2 — Telemetry Aircraft furnished by PMR to cover capsule separation and re-entry functions.

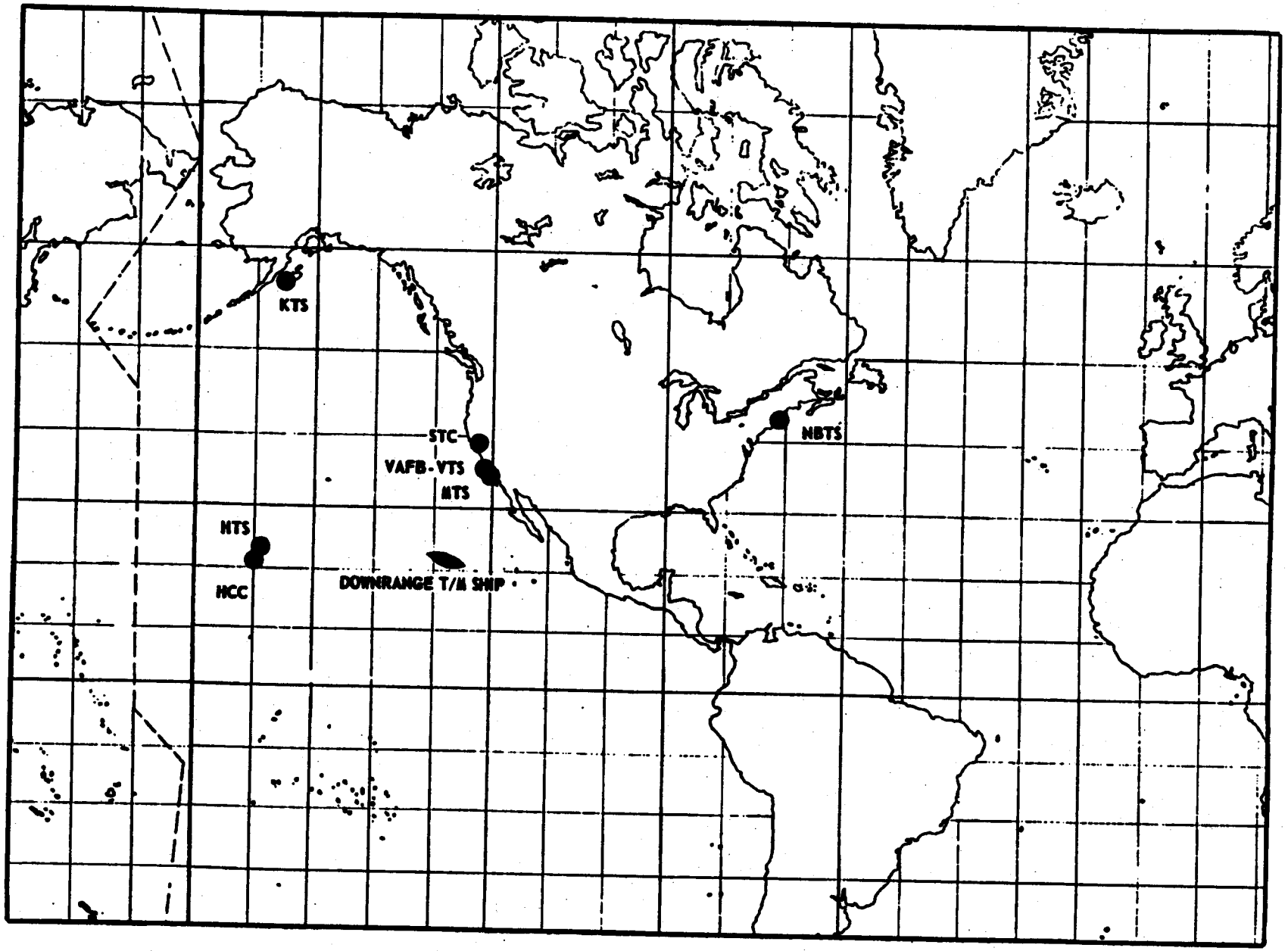
HCC — Hawaiian Control Center, Hickam AFB — controls the recovery operation.

Air Recovery Force — Eight C-119J and one C-130 aircraft of the 6594th Recovery Control Group. Four RC-121 Radar aircraft of the 552nd AEW&C Wing, McClellan AFB, Calif.

Surface Recovery Force — Two Victory Ships (Dalton & Haiti) with Helicopters. One Telemetry Ship (PVT JOE E MANN) supplemented the water recovery capability for this operation.

Recovery Supporting Elements — Tracking stations at Barking Sands, South Point and Christmas Island. WV-2 Aircraft for frequency interference control. C-54 aircraft for telemetry monitoring.

PMR — Pacific Missile Range — the joint service west coast missile range operated by the Navy Missile Center at Pt. Mugu, Calif. Responsible for range scheduling, range safety, frequency interference control on all missile firings over the Pacific Ocean. Furnished downrange instrumentation and recovery ships and provided ground based instrumentation common to several programs.


KTS
STC
VAFB-VTS
MTS
NBTS
HTS
HCC
DOWNRANGE T/M SHIP

DISCOVERER XIII CONFIGURATION

DISCOVERER XIII was composed of Thor Booster #231 and Agena #1057, one of the last of the "A" models. The satellite was 19.5 ft. long, 5 feet in diameter and had a gross weight of 8,662 pounds. Its liquid rocket engine had a nozzle ratio of 20:1, used UDMH and IRFNA, and had a single burn capability of 120 seconds. Attitude control during the launch phase was maintained in pitch and yaw by swivelling the engine; in roll through the use of gas jets. During the orbital phase attitude was controlled by gas jets alone. On board guidance and command functions were handled by the horizon scanner, and guidance programer (D-timer). The orbital programmer (H-timer) controlled the periods during which beacon and telemetry signals were transmitted. It also restarted the D-timer which in turn activated the various recovery sequences.

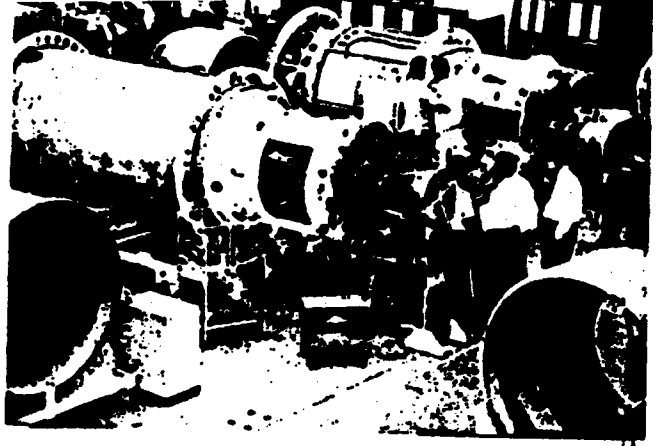
The capsule was essentially composed of two sections, the retro rocket assembly and the recovery package. The latter contained diagnostic instrumentation consisting of an "S" band beacon and a five channel telemetry unit. These resulted in more adequate instrumentation coverage of the separation and recovery sequences and improved the capsule tracking capability.

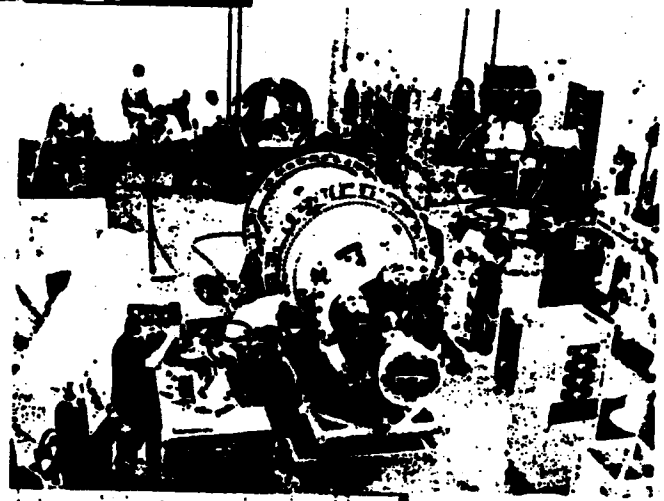
LMSD MODIFICATION AND CHECKOUT

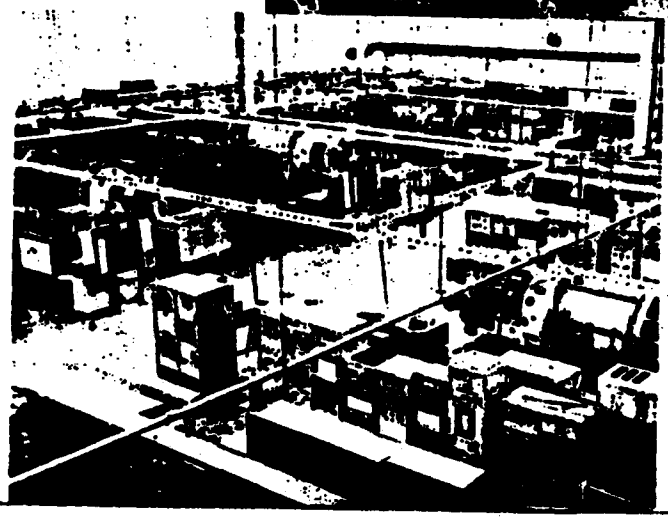
One of the major problems in a program of this sort are the many equipment modifications that are generated by the information gained with each firing.

Modifications on Agena 1057 were accomplished at the Sunnyvale Plant, the Santa Cruz static firing facility, and the Missile Assembly building at Vandenberg AFB. System and subsystem checks followed each of these operations and upon satisfactory completion the vehicle was passed on to the next phase.

On 29 June 1959 assembly had been completed and the vehicle was sent to MODIFICATION and CHECKOUT within the LMSD, Sunnyvale Complex. During the next five weeks engineering changes were followed by functional, alignment and calibration checks on all subsystems. The Final System run was completed on 15 August. Weight and center of gravity checks completed the plant activities and the satellite was made ready for transfer to Santa Cruz.



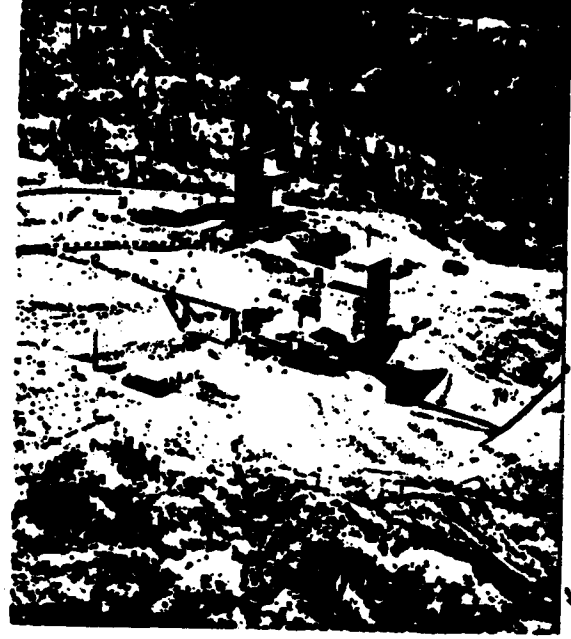




ASSEMBLY, MODIFICATION AND CHECKOUT AT LMSD, SUNNYVALE

SANTA CRUZ TEST FACILITIES

The Agena reached the static test facility on 21 August. It was scheduled for hot firing on Test Stand No. 2 but as this stand was being used a temporary installation was made on Stand 1. Here the Oxidizer feed system was flushed, Helium regulator leak and Electrical continuity checks were made. The unit was transferred to Test Stand #2 on 21 September where after power, tank pressurization and preliminary system checks, the hot firing countdown was started. During this operation it was noted that the pressure differential between fuel and oxidizer tanks started rising; venting the fuel tank had no effect and it was necessary to dump the UDMH. The trouble was located and rectified within a few hours and the countdown resumed. A static firing was successfully completed, except for low turbine speed, at 2245 hrs. on 29 September. Three days later a second static firing was made. Post-fire servicing, propulsion system flushing and electrical continuity checks were followed by the USAF acceptance inspection and preparation for shipment to Vandenberg AFB.



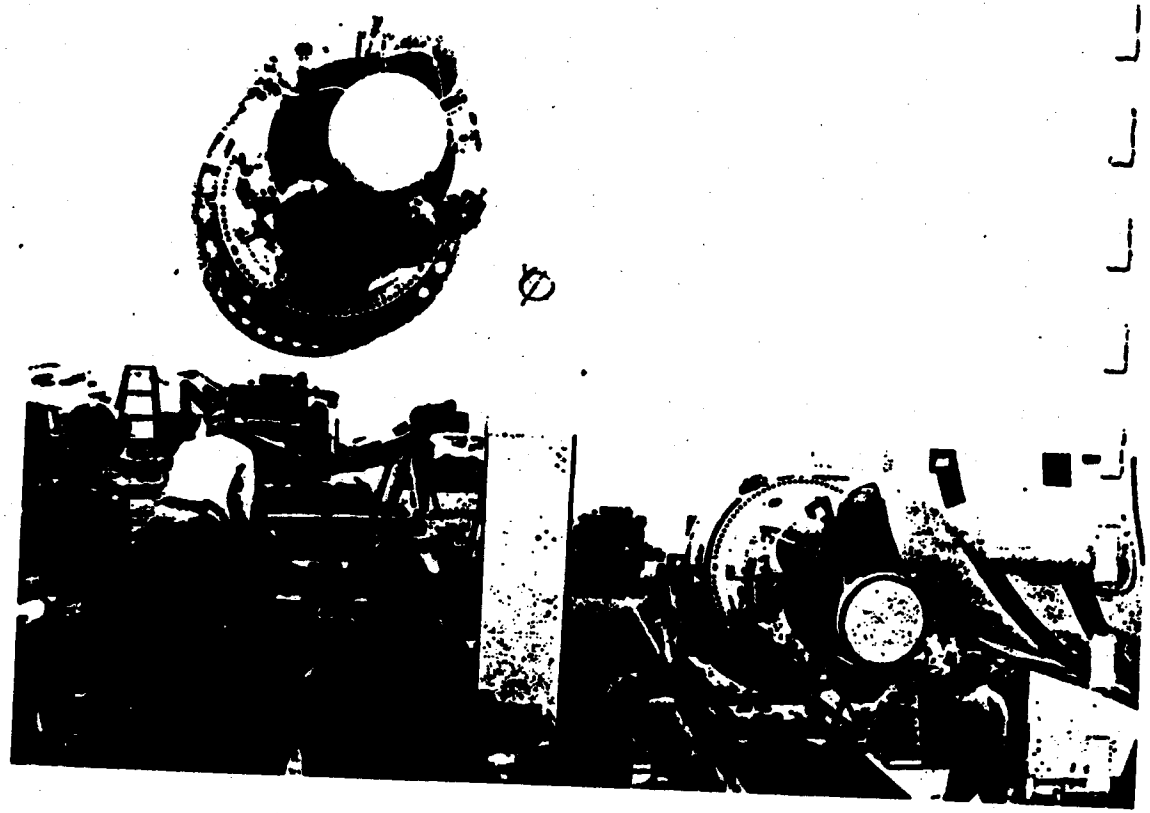
THE LMSD STATIC TEST FIRING FACILITY IN THE SANTA CRUZ MOUNTAINS

VAFB MAB AND PAD ACTIVITY

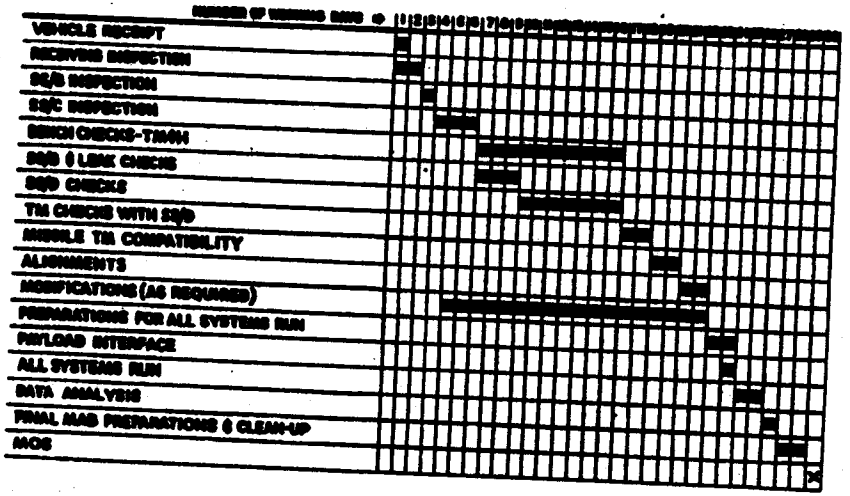
When Agena 1057 arrived at the missile assembly building on 23 November, it had a rather low work priority as five Agenas were scheduled for launch before it. It was not until June that work got underway seriously on modification and checkout of its various subsystems. Before the end of the month the vehicle was sent to Pad 5 where propulsion system leak tests were conducted. In July it was again transported to the pad for Electrical Compatibility checks. By 19 July all MAB building checks were essentially completed and Countdown and Flight System checks were started at the pad. This operation was plagued by several malfunctioning components and it took three weeks to satisfactorily complete checks which under normal conditions should have taken two days. The last MAB All-Systems tests were accomplished on 3 August. On the following day #1057 made its last trip to the pad. Readiness Minus 4 Day activities were started and the schedule proceeded without further incident. The Agena/Thor mating and other preparations for the final countdown were completed on 9 August.

CHECK OUT AT THE MISSILE ASSEMBLY BUILDING, VANDENBERG AFB

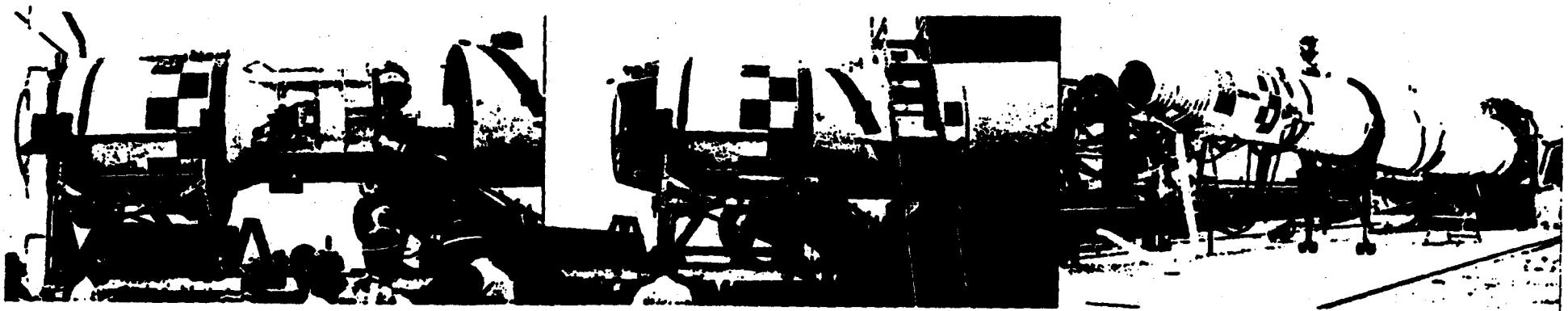
VAFB MAB AND PAD ACTIVITY

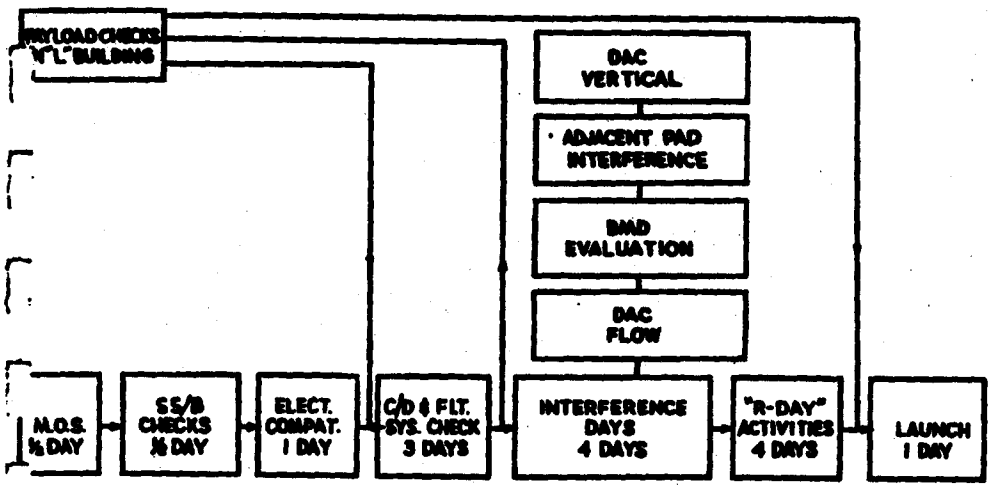


AGENA MAB SCHEDULE



ACTIVITIES AT THE PAD AREA INCREASE AS DAY OF LAUNCH APPROACHES



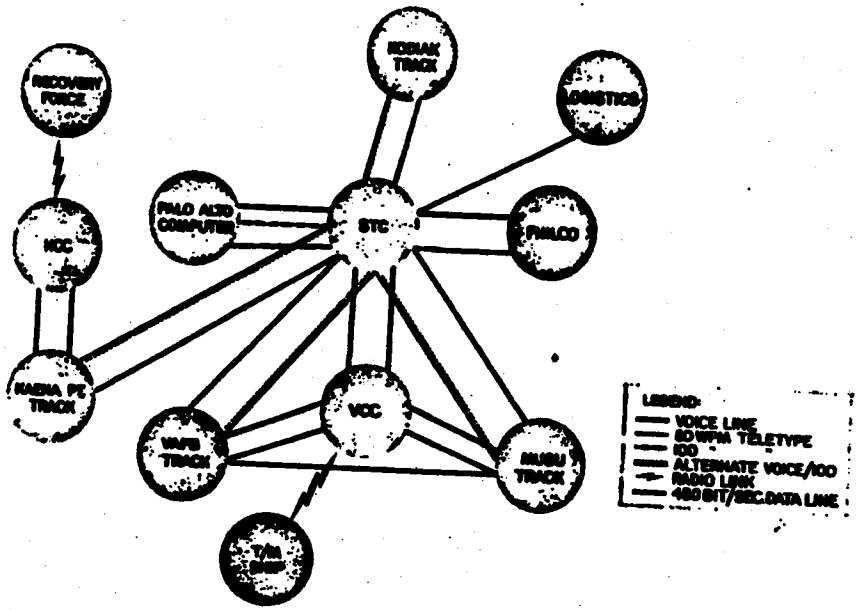


TYPICAL PAD FLOW

SATELLITE FLIGHT TEST SYSTEM COUNTDOWN

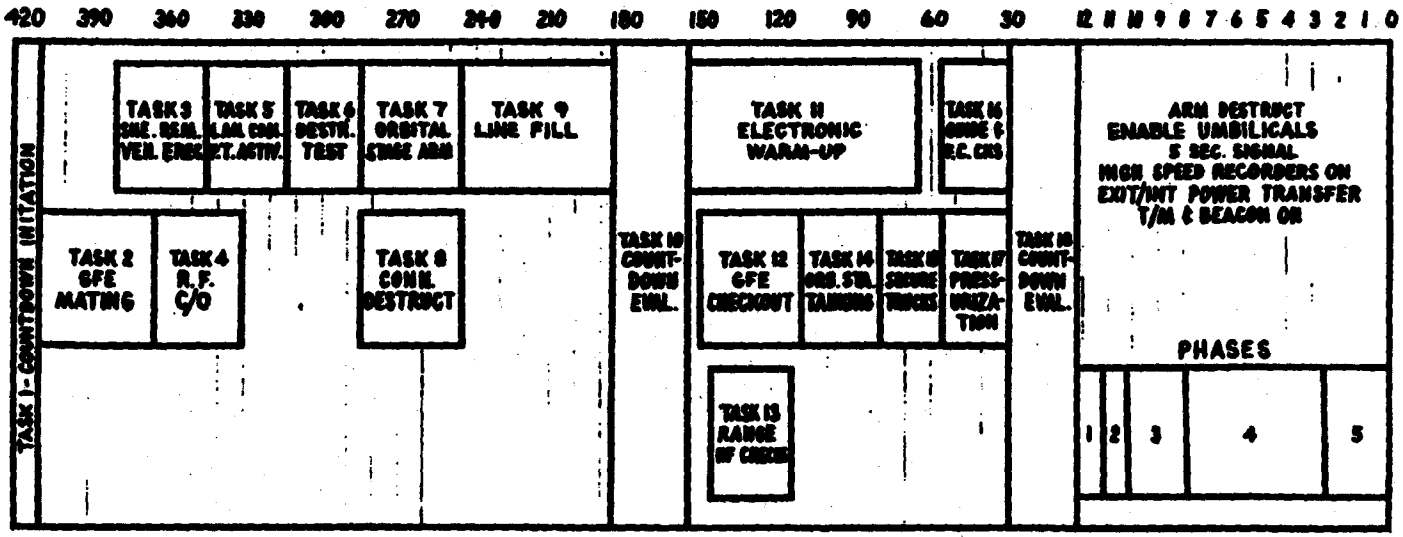
Though the DISCOVERER XIII launch pad activity was the most critical and complex portion of the final countdown, it was by no means the only element involved, for at this point the over-all system began to function as a team. Each element had specific tasks to perform and upon each rested some measure of responsibility for the success of the over-all flight test. The system countdown started at 0600 hours (PDT) on 10 August with each station reporting to the Satellite Test Center. During the next six hours at prescribed intervals, communications checks were conducted on voice and data links; periodic weather studies were made; the equipment status and readiness were sent in. HCC reported on the status of the recovery forces. And launch pad activity was monitored continuously through direct voice communications with the blockhouse.

(1) (2)


KODIAK TRACK
LOGISTICS
RECOVERY FORCE
PALO ALTO COMPUTER
STC
PWLCO
HCC
RADNA PT. TRACK
VCC
WHITE TRACK
MUSKU TRACK
LEGEND:
VOICE LINE
TELETYPE
ALTERNATE VOICE/ICO
RADIO LINK

SATELLITE/BOOSTER COUNTDOWN

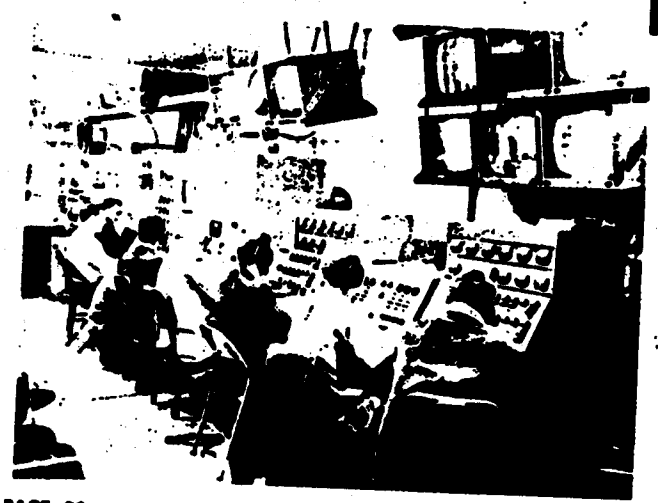
The Satellite/booster countdown schedule was essentially the same as that shown in the attached block diagram. One important change was the elimination of Task 2 as mating had already been accomplished. Shelter removal and vehicle erection occurred at 0614 hours (T-361 minutes). R-F checkout took 53 minutes longer than planned because of the beacon and telemetry additions to the capsule. An additional 22 minutes delay was caused by the replacement of a faulty Destruct Receiver. Because of these schedule slippages a 76-minute HOLD was called. Subsequent operations Propellant Line Fill, Tanking and Pressurization were conducted without incident. Checks on Range R-F equipment as well as Guidance and Flight Control Units were also conducted as planned. Before going into the Terminal Count, an 11-minute HOLD was called to resolve a train schedule conflict. During the last 12 minutes of the countdown, excitement rose to considerable heights as two additional difficulties developed. Fortunately these proved to be minor. A circuit breaker had to be reset in the THOR power trailer resulting in a six-minute delay; and the other HOLD turned out to be based on a misunderstanding between MTS and the Range Safety Officer and was immediately cancelled. The Terminal Count resumed at Phase 5 and Lift-off occurred three minutes later at 1337:54 hours (PDT).

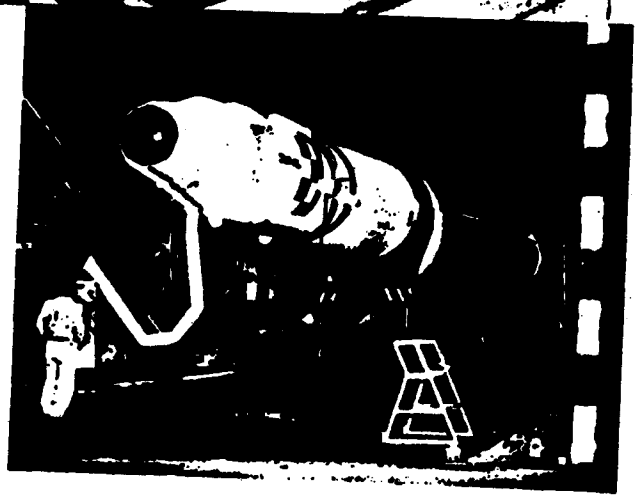


COUNTDOWN SCHEDULE

SATELLITE/BOOSTER COUNTDOWN

BLOCK HOUSE ACTIVITY DURING THE COUNTDOWN

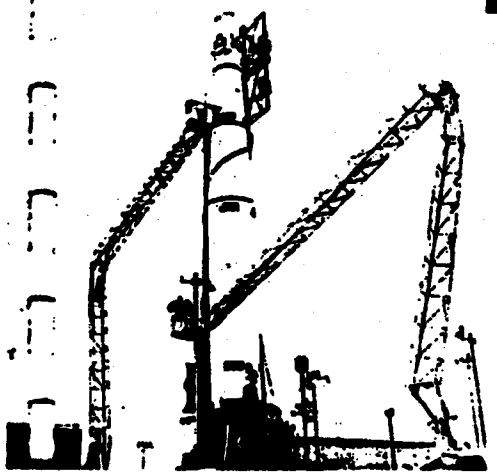


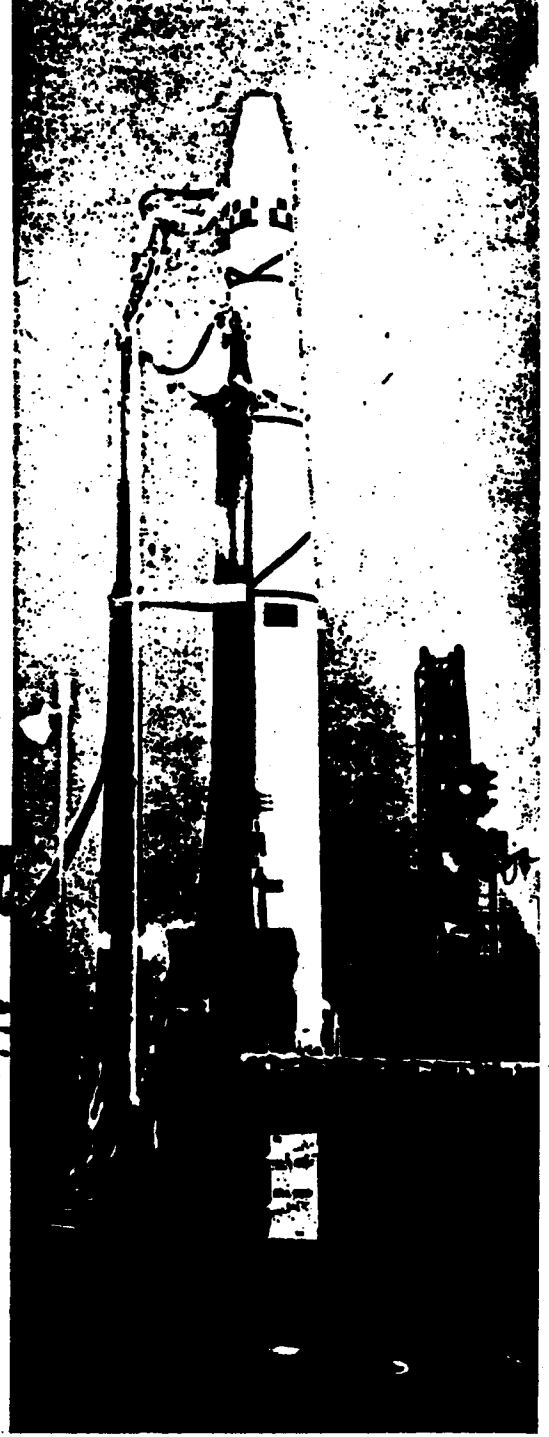


LAUNCH PHASE

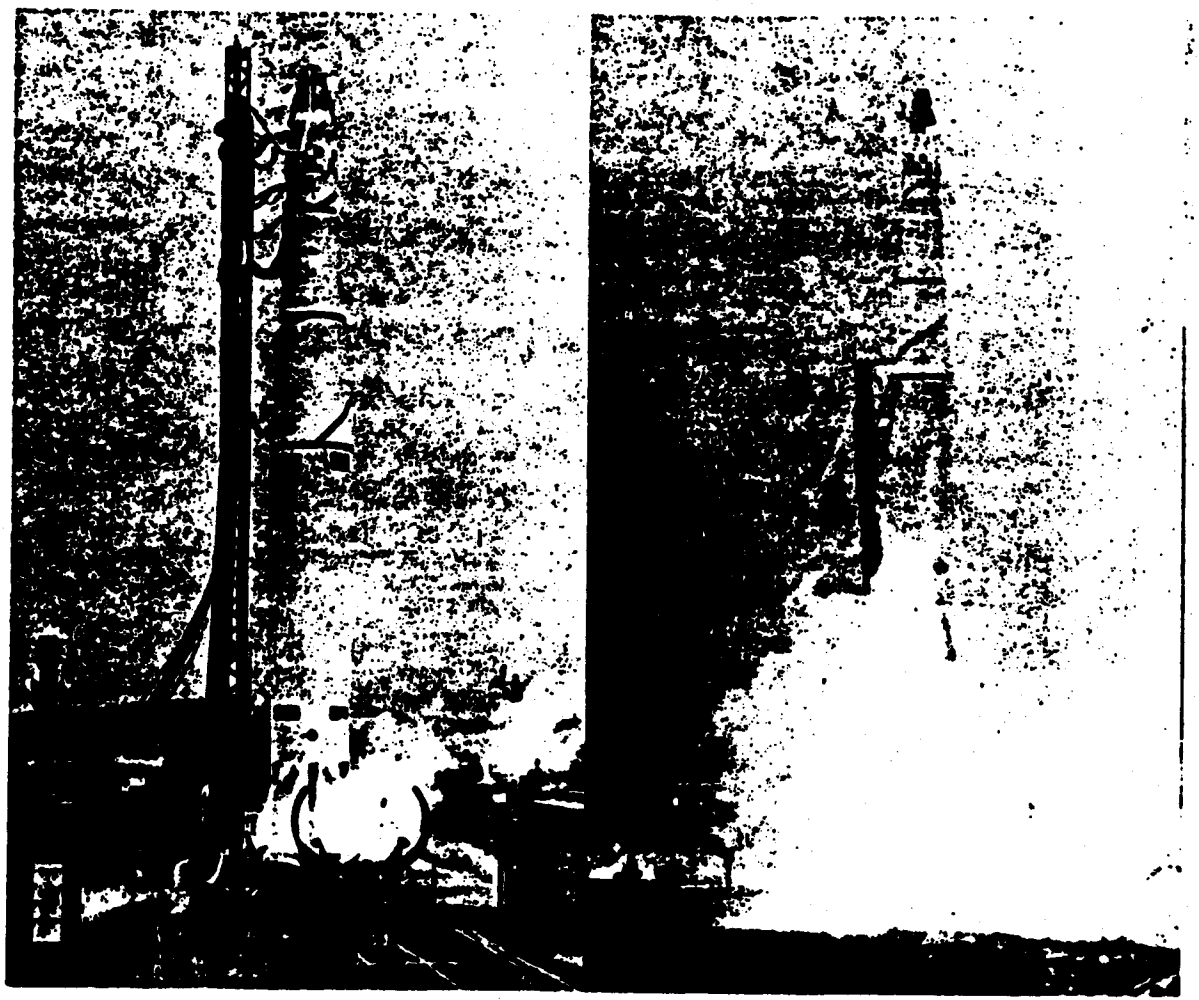
Shortly after lift-off, the missile rolled to a departure azimuth of 174° (172° intended) and started a programmed pitchover. THOR main engine cutoff was approximately 1.5 seconds early but within tolerance at T+163. Separation was successfully completed. Position data fed to the Reeves computer at MTS during ascent and coast phases indicated that the programmed AGENA engine start time and velocity to be gained would have to be corrected. Commands extending D-timer hold and reducing the integrator velocity setting were sent to the vehicle. Engine start occurred at T+302.45, nominal thrust was obtained for 119 seconds when the engine was shutdown by the integrator.

Burnout occurred at T+421.42 seconds at an altitude of 139.7 nm and an inertial velocity of 25,786 feet per second.





COUNTDOWN SEQUENCES SHOWING ERECTION, THE DESTRUCT CHECK AND PROPELLANT LOADING

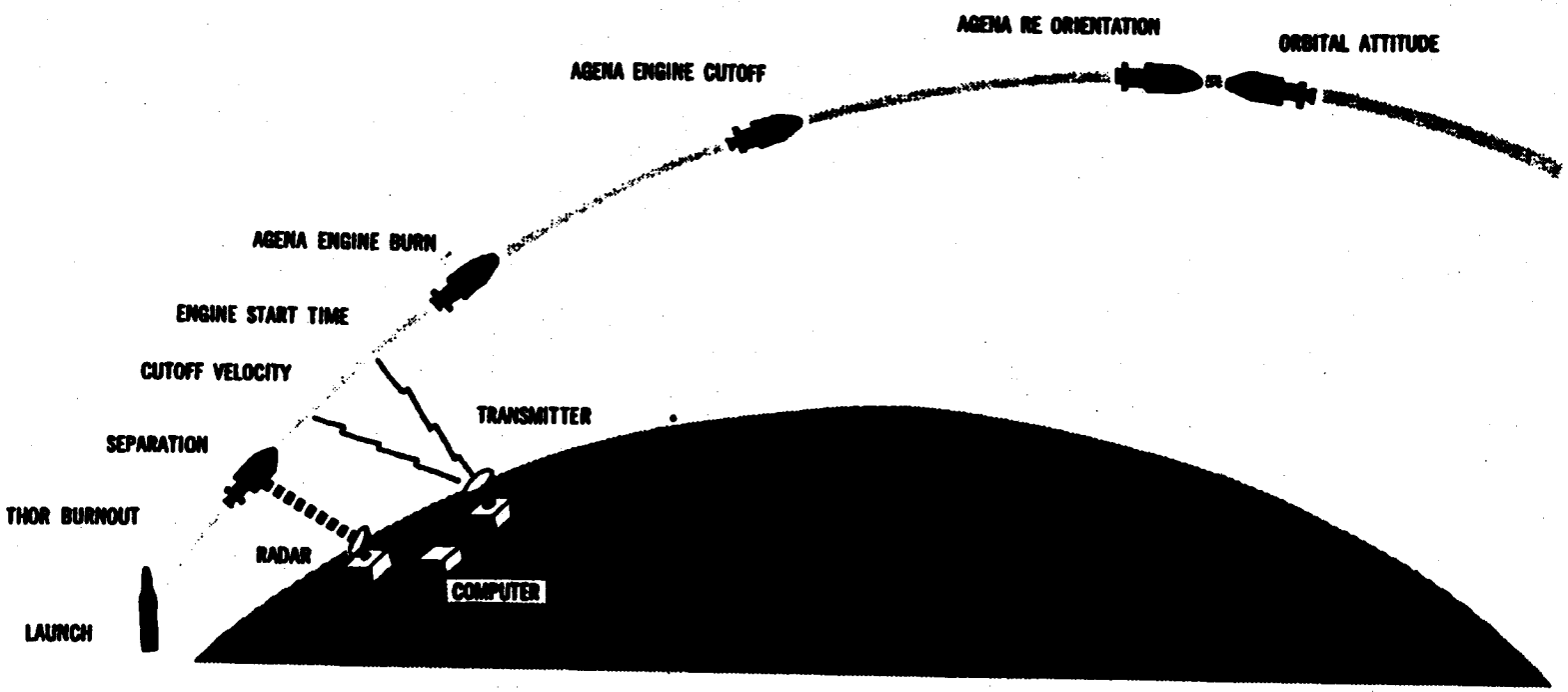


T+1 SEC.

T+3 SEC.

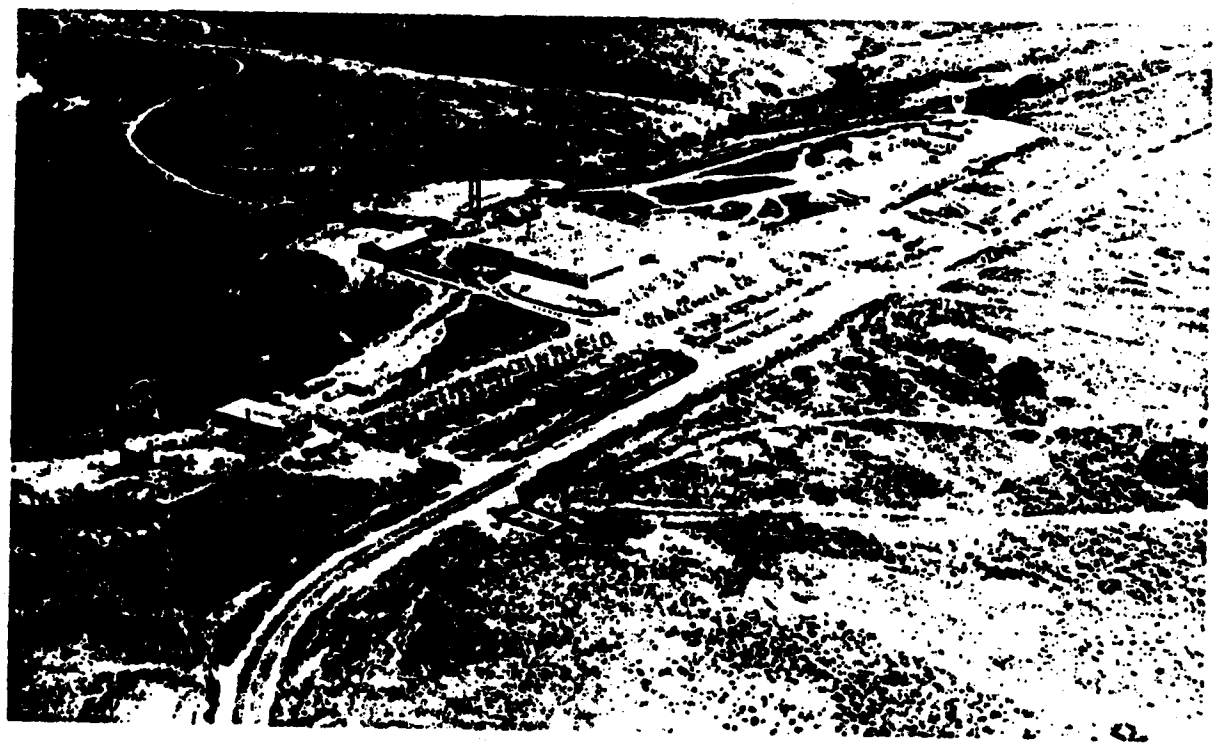
T+4 SEC.

LAUNCH PHASE RADAR AND TELEMETRY COVERAGE

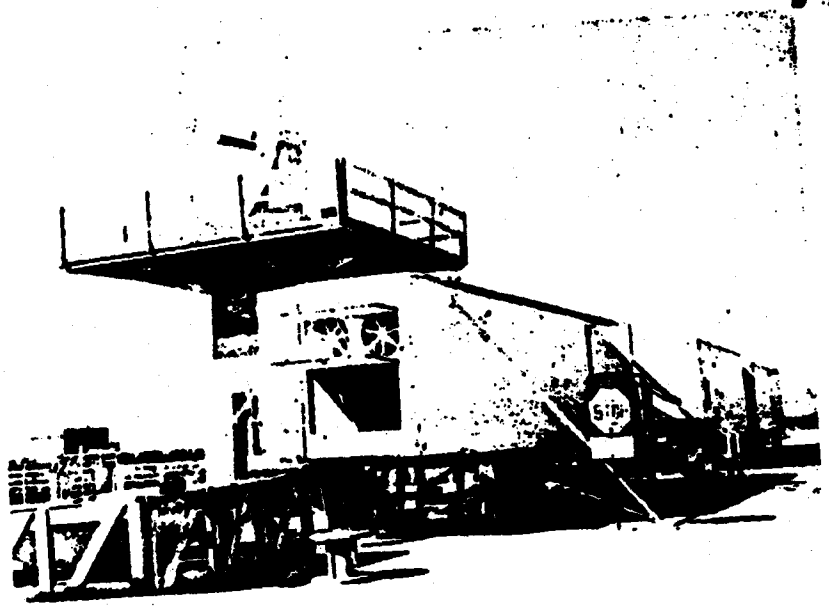


60 FOOT TLM-18 ANTENNA TRACKS ON CWAT OR TELEMETRY

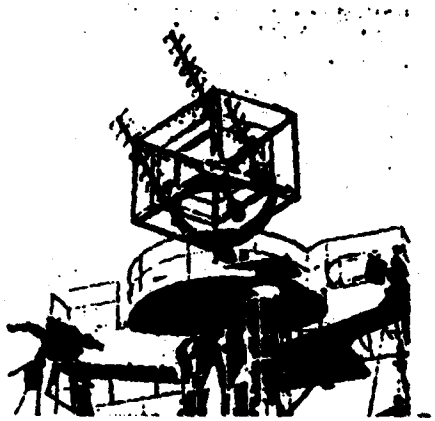
THE RECEIVER SITE AT VTS

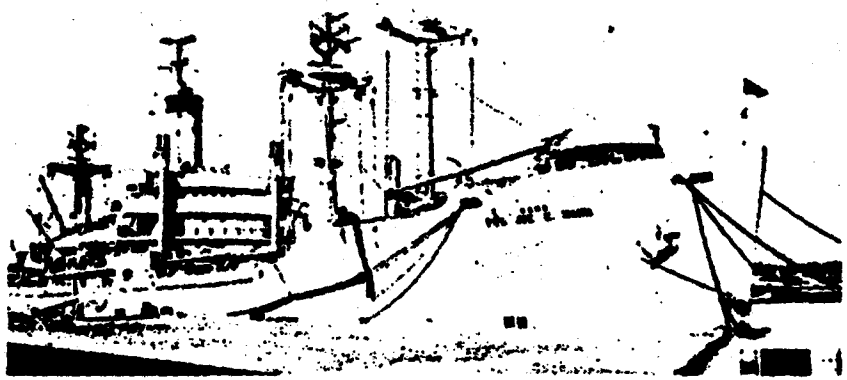


LAUNCH PHASE RADAR AND TELEMETRY COVERAGE

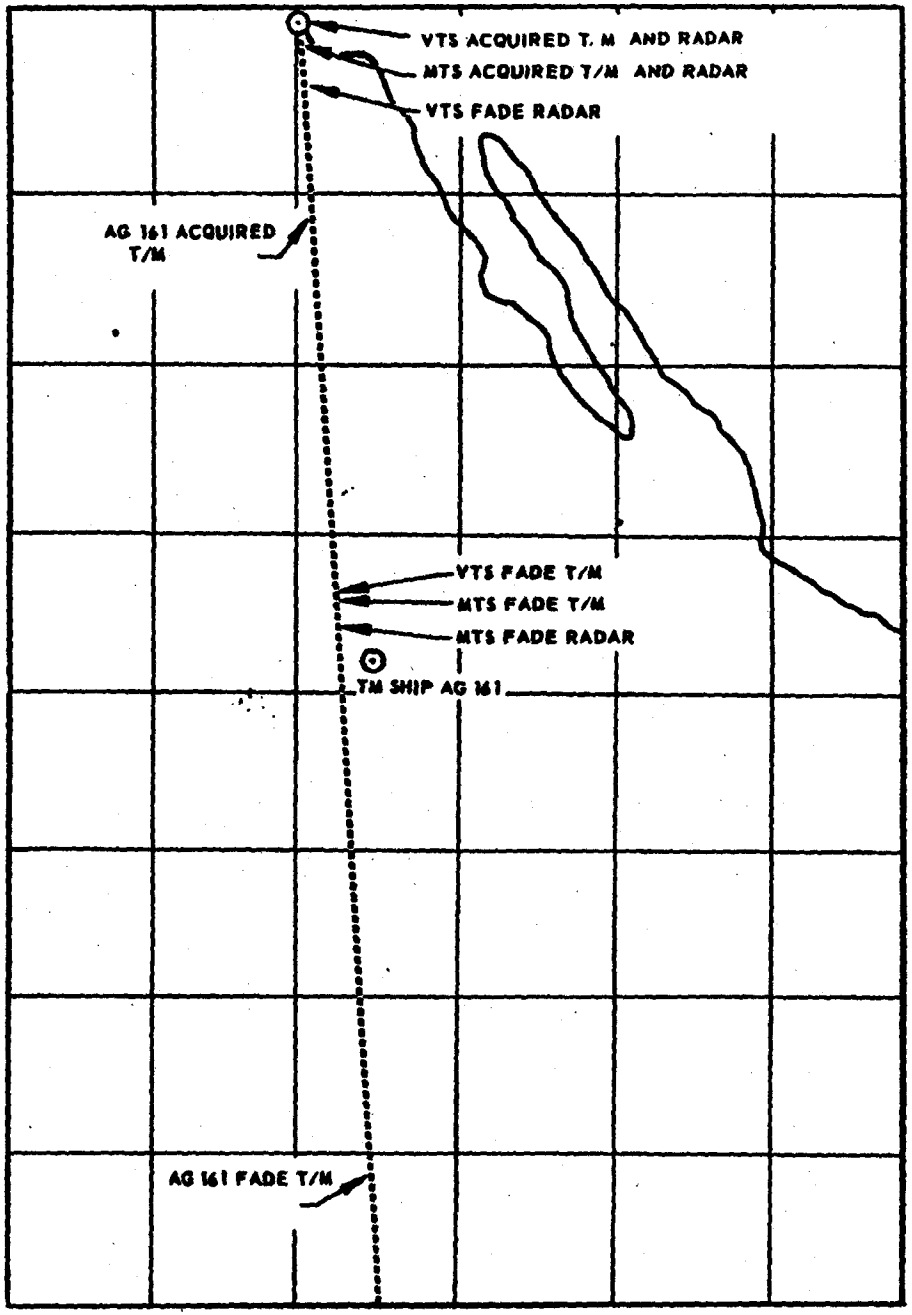


RADAR VANS AT MUGU TRACKING STATION (MTS). INTERNAL SHOTS SHOW THE RADAR OPERATOR SEATED (TOP) AND AUTOMATIC PLOTTING BOARD IN THE CONTROL VAN.





TWO DOWNRANGE TELEMETRY SHIPS WERE USED. THE PVT JOE E MANN SHOWN HERE WITH A CLOSE UP OF TRI-HELIX TELEMETRY RECEIVING ANTENNA



ORBITAL PHASE

After injection into orbit the Agena was slewed in Azimuth 180° so that it would continue to circle the earth with greater stability (back to front) in a position horizontal to the earth's surface. It was maintained in this position by a 4° per minute programmed pitch; its attitude (pitch and roll) monitored by the horizon scanner and its yaw alignment by the sun position indicator.

Based on data from the tracking stations it was determined that the near polar eliptic orbit was actually inclined at 82.87° from the equitorial plane, had an apogee of 379 nm, a perigee of 137 nm and a period of 94.1 minutes. With subeeqent passes this and other information was continually reviewed by STC and formed the basis for estimated station acquisition times, orbital programmer commands, and predictions of the time and location of parachute deployment.

Some of the planned and actual orbits are shown in the attached figures. Each orbit (pass) was numbered consecutively starting with the first northbound crossing of the equitorial plane somewhere over Africa.

PASS 1. KTS tracked by radar and the CWAT (continuous wave acquisition transmitter) and also recorded telemetry. The 65°N and 60°N reference latitude crossings were 123 seconds later than predicted. STC directed KTS to send certain specific commands to bring the onboard orbital programmer into synchronization with the satellites track over the earth. Only marginal contact was made by VTS, HTS and USNS PVT JOE E. MANN.

PASS 2. KTS and HTS tracked the vehicle with all equipment. Each station sent one command.

PASSES 3 thru 7. Were not monitored because the satellite did not pass in the vicinity of the tracking and control stations.

PASSES 8, 9 and 10. Were northbound passes. A command was sent by VTS on Pass 9 but was not required for Passes 8 and 10.

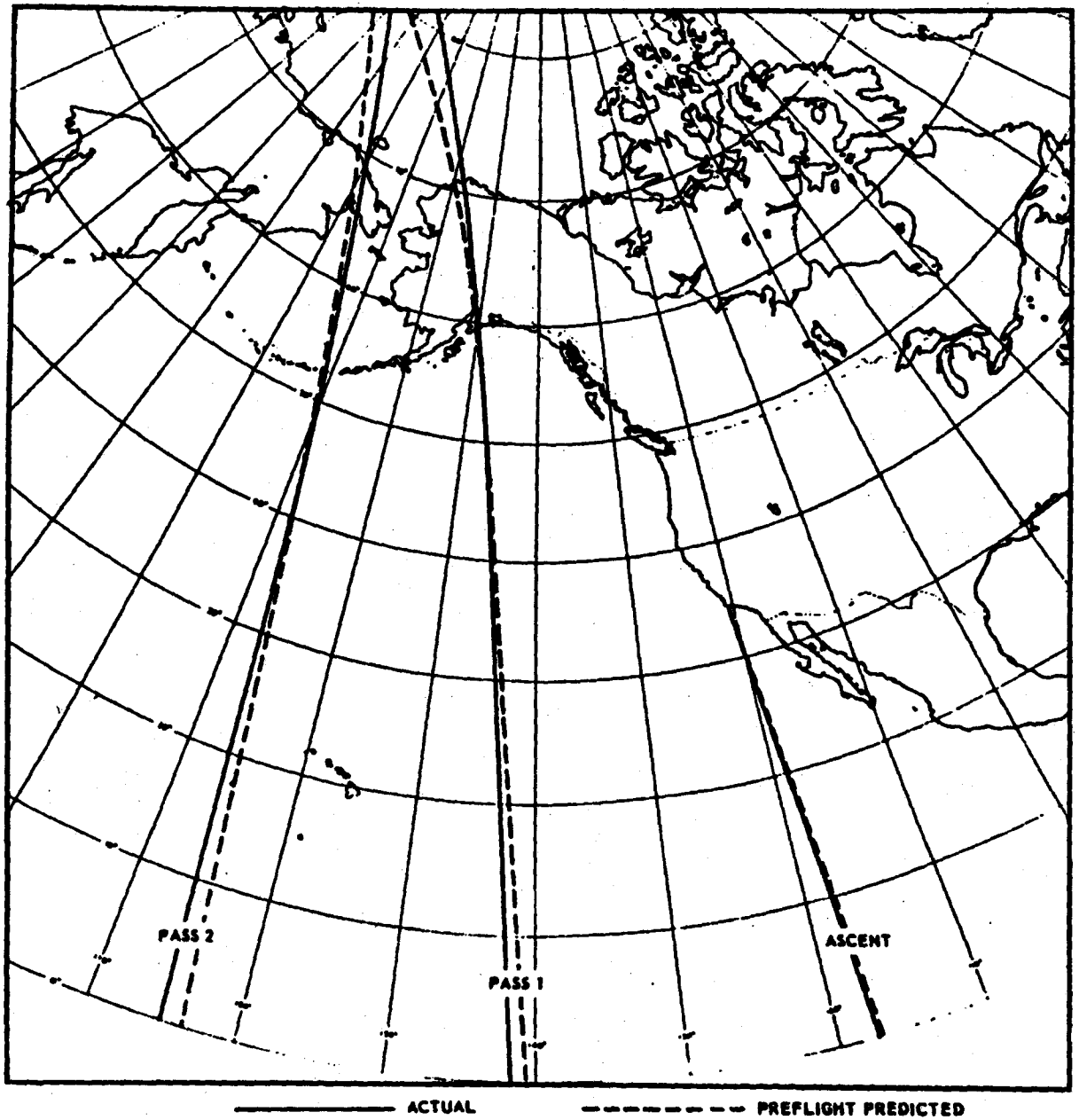
PASSES 11, 12, 13 and 14. Did not pass close to the tracking stations.

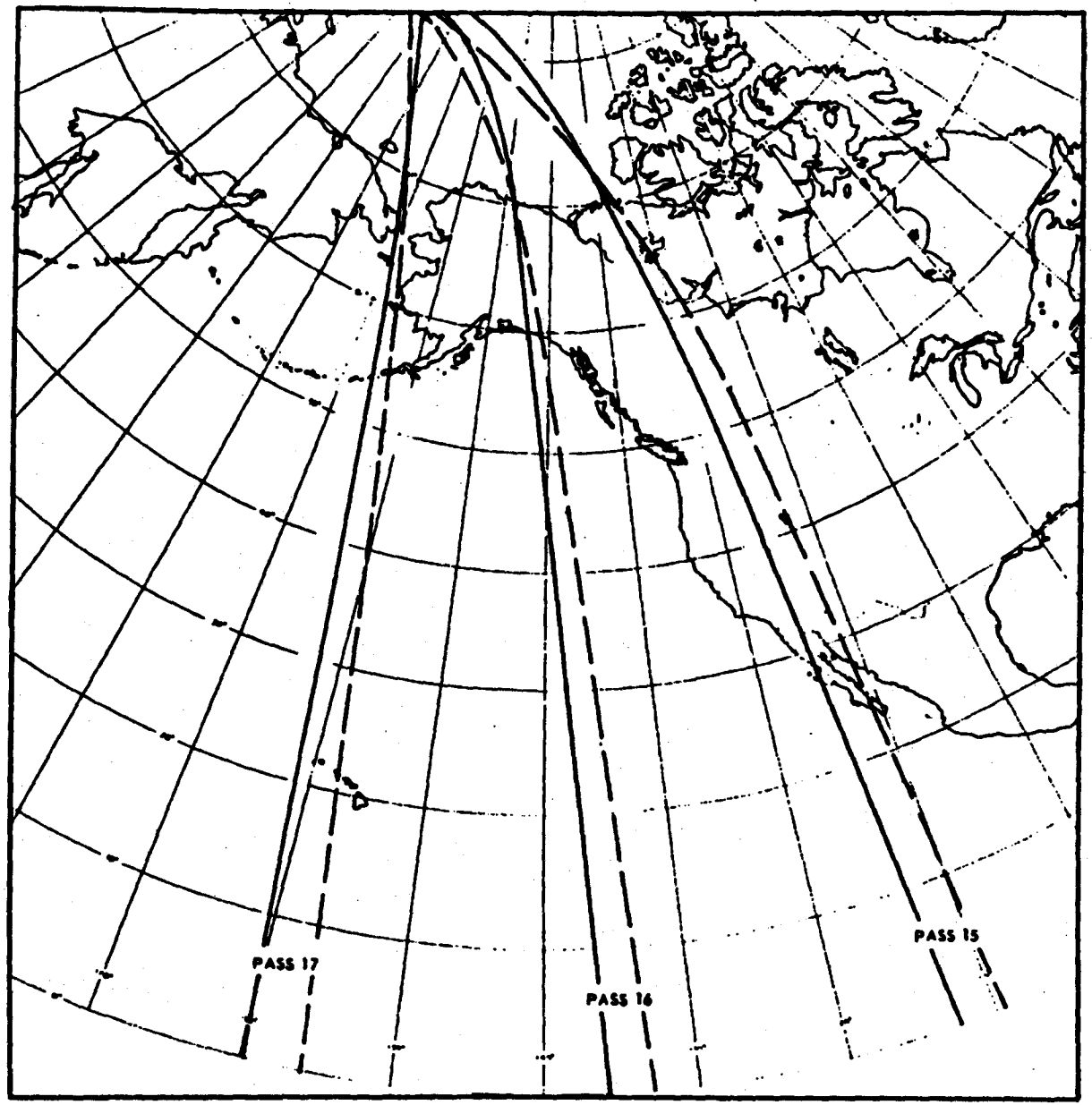
PASS 15. KTS acquired the satellite at near the predicted time, and sent a command. VTS and MTS had difficulty in obtaining continuous radar lock-on, however, programmer functions were observed by both stations to have occurred within 6 seconds of expected time. Real-time telemetry readouts were all normal.

PASS 16. KTS acquired as programmed and had excellent tracking. One command was sent. MTS and VTS also tracked without trouble on this pass. All parameters were normal.

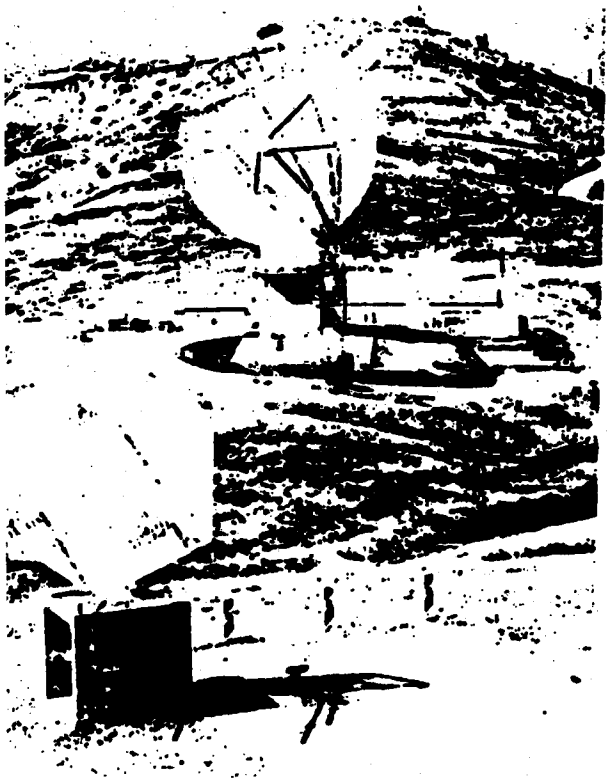
PASS 17. The recovery operation had been orginally programmed for this pass and as all conditions were normal no change was commanded from the ground. KTS reported nominal track. Satellite telemetry coverage was good and verified the restarting of the D-Timer which not only initiated the separation and recovery sequences but activated the capsule "S" band beacon and telemetry. KTS acquired this beacon and monitored all the capsule separation sequences. These events were also later verified by the telemetry tapes made by the WV-2, located beneath the Agena at capsule separation.

ORBITAL PHASE RADAR AND TELEMETRY COVERAGE

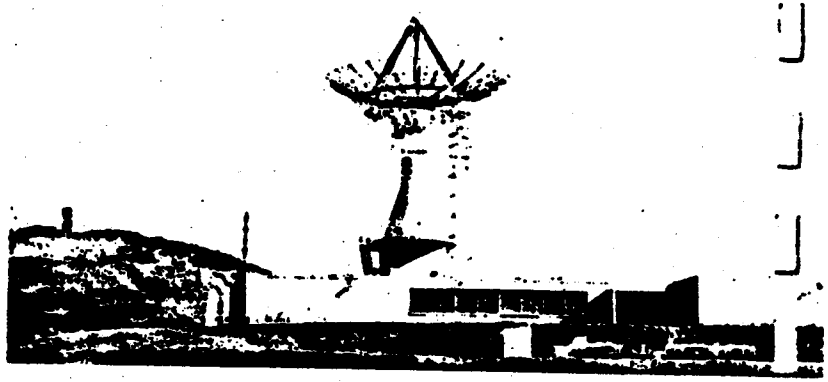


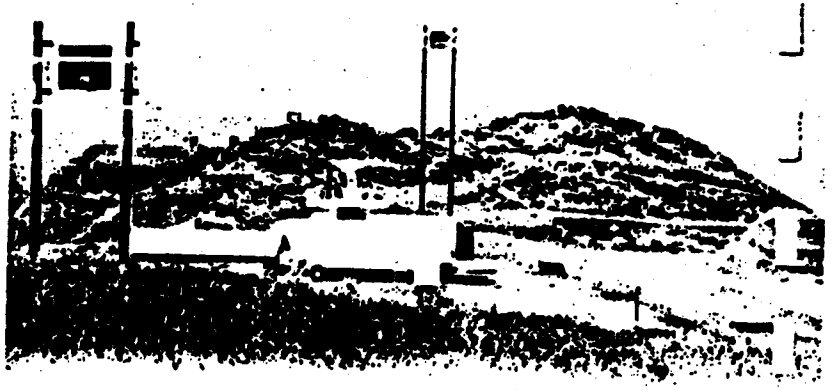

PASS 17
PASS 16
PASS 15
ACTUAL
PREFLIGHT PREDICTED

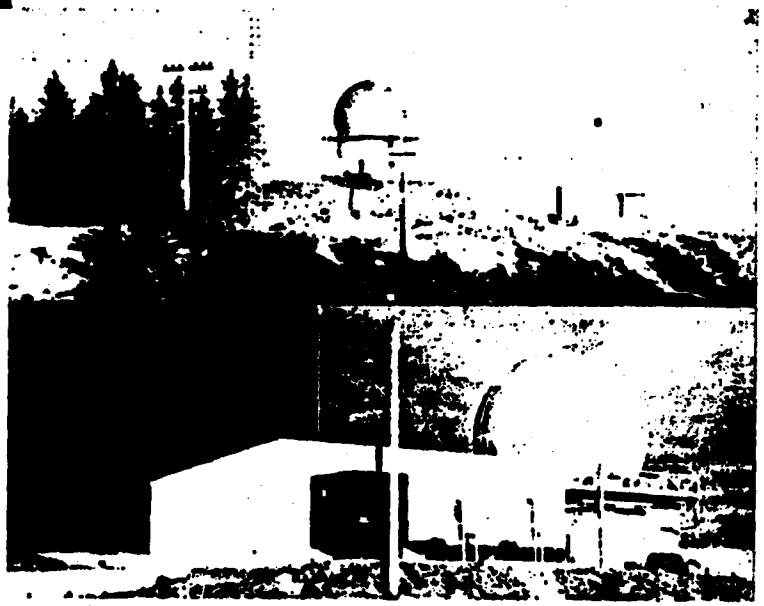
ORBITAL PHASE RADAR AND TELEMETRY COVERAGE



HAWAIIAN TRACKING STATION (HTS) ACTIVE DURING ORBITAL AND RECOVERY PHASES. EQUIPMENT SHOWN INCLUDES TRI-HELIX, TLM-18 AND VERLORT ANTENNAS.



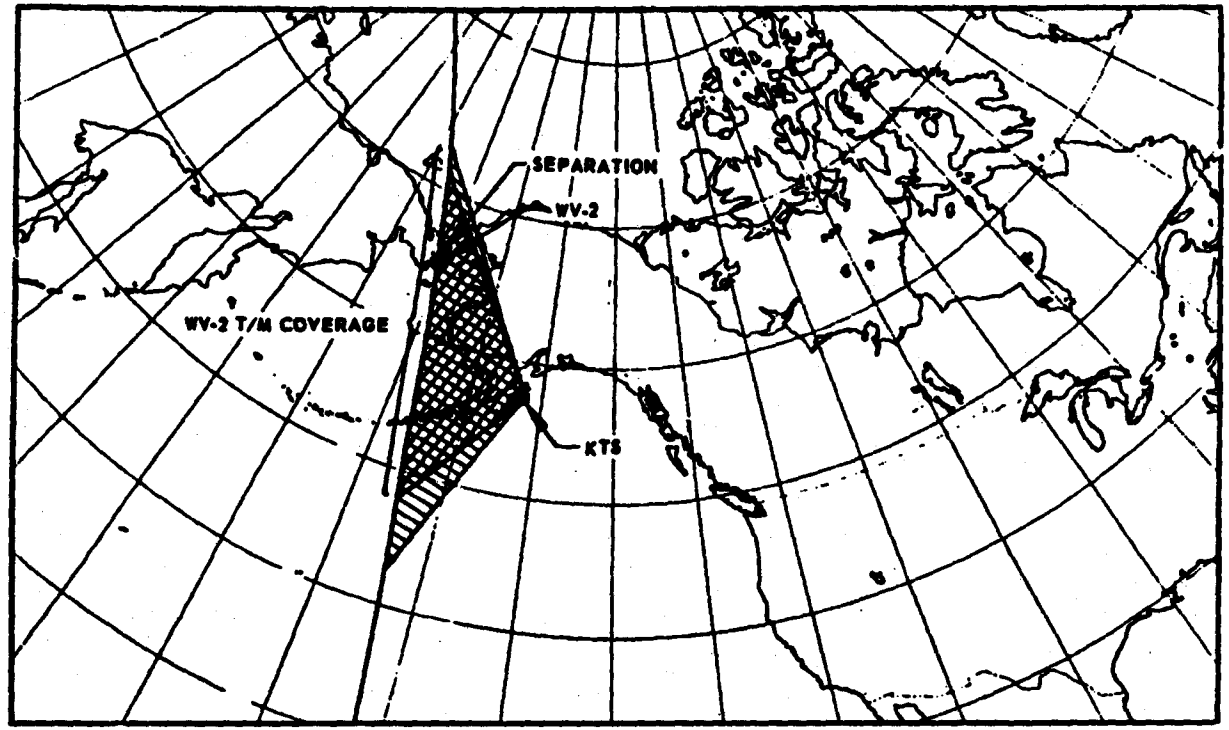




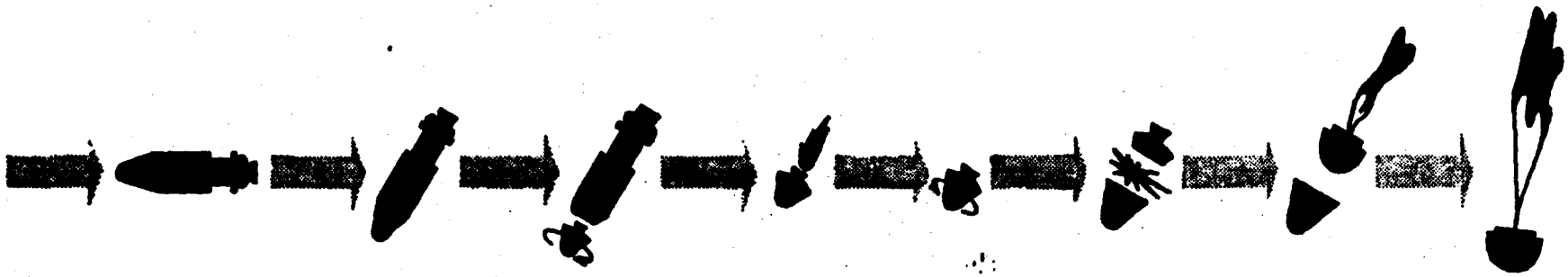
KODIAK TRACKING STATION, ALASKA (KTS)
SHOWING TELEMETRY AND RADAR ANTENNA INSTALLATIONS AND TRACKING OPERATIONS

CAPSULE SEPARATION AND RECOVERY SEQUENCES

As previously indicated the initiation of the separation and recovery sequences began with the starting of the D-timer, which, either directly or indirectly determined when each event took place. In 5 seconds it started repositioning the Agena to a 60° pitch down attitude. 75 seconds later (at T−0) the capsule separated from the vehicle. Retro-Rocket fire occurred at 1613:28 PDT (T + 4.38 seconds) and was preceded by spinning the capsule to avert abnormal thrust vectors due to misalignment of the nozzle. De-Spin was initiated about 11 seconds later and was immediately followed by Thrust Cone separation. This last of the separation sequences set the stage for the capsule recovery events by exposing the parachute container and other essential recovery gear. With the firing of the retro rocket the capsule lost orbital velocity and the resultant force vector directed it towards the earth. As the atmosphere became more dense an ionization sheath blanketed the capsule causing a blackout of telemetry and beacon transmissions. Deceleration reached the 5 G level at 1622:48 Hrs (T+513 seconds) throwing a switch to start the capsule recovery sequences after a 128 second delay. These events took place in quick succession and included, (1) removal of the parachute cover; (2) parachute deployment; and (3) the jettisoning of the ablative shell.



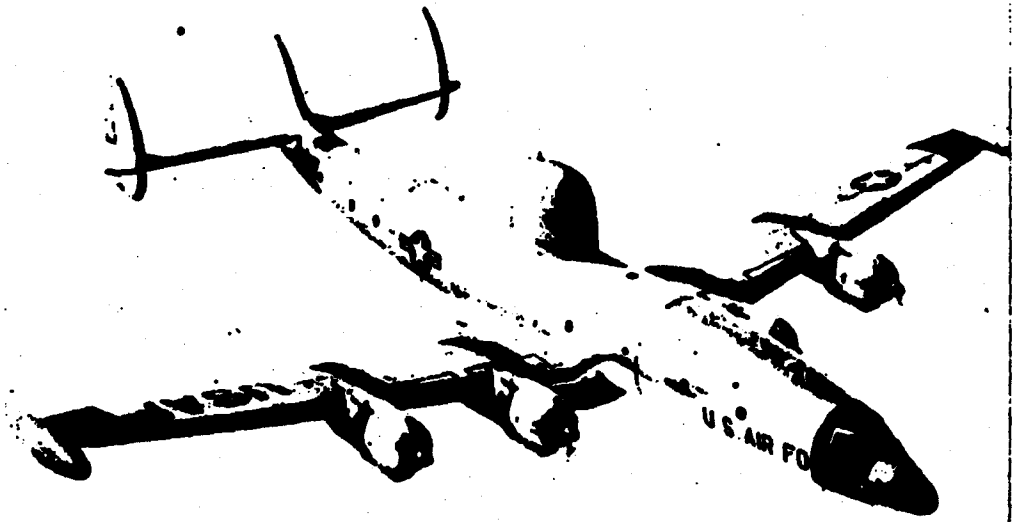
LEGEND: VEHICLE AND CAPSULE PATH CAPSULE TELEMETRY COVERAGE VHF BEACON COVERAGE



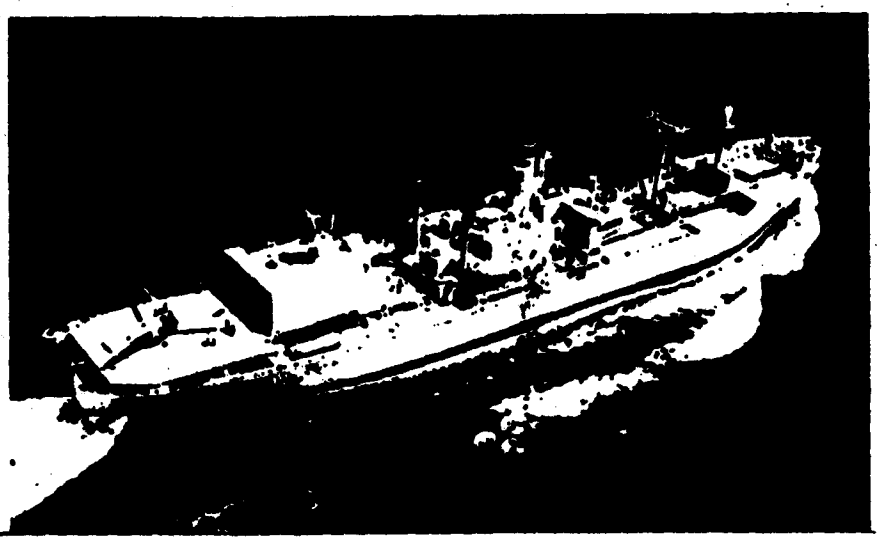
CAPSULE RECOVERY FORCES

The 6594th Recovery Control Group had full responsibility for the recovery operation. Control was exercised through the Hawaiian Control Center (HCC). The air recovery force consisted of eight C-119J and one C-130 aircraft directly supported by four RC-121 radar aircraft. Two Victory Ships, the Haiti and Dalton, each carrying two HRS-3 helicopters, formed the surface recovery force. Supporting elements included the ground stations (Kaena Point, Barking Sands, South Point and Christmas Island), a telemetry ship PVT JOE E MANN located south of the primary recovery area and telemetry and frequency monitoring aircraft (four JC-54s and one WV-2).

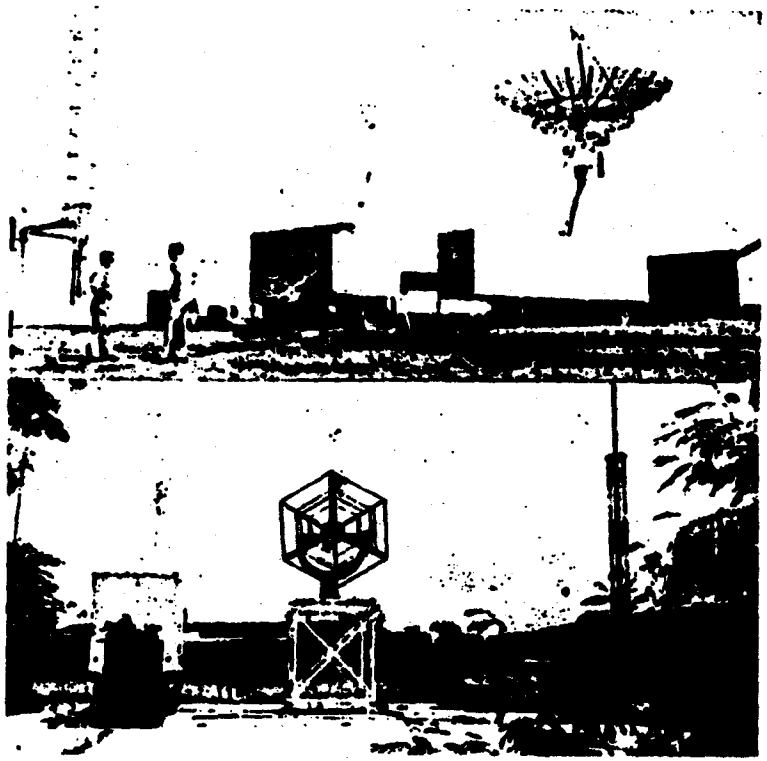
Briefing of the surface force elements, including representatives from the Victory Ships and PMR tracking stations, took place on 8 August. Air elements were initially briefed on the following day and received final instructions and briefing on the latest weather forecasts prior to take-off on 11 August.



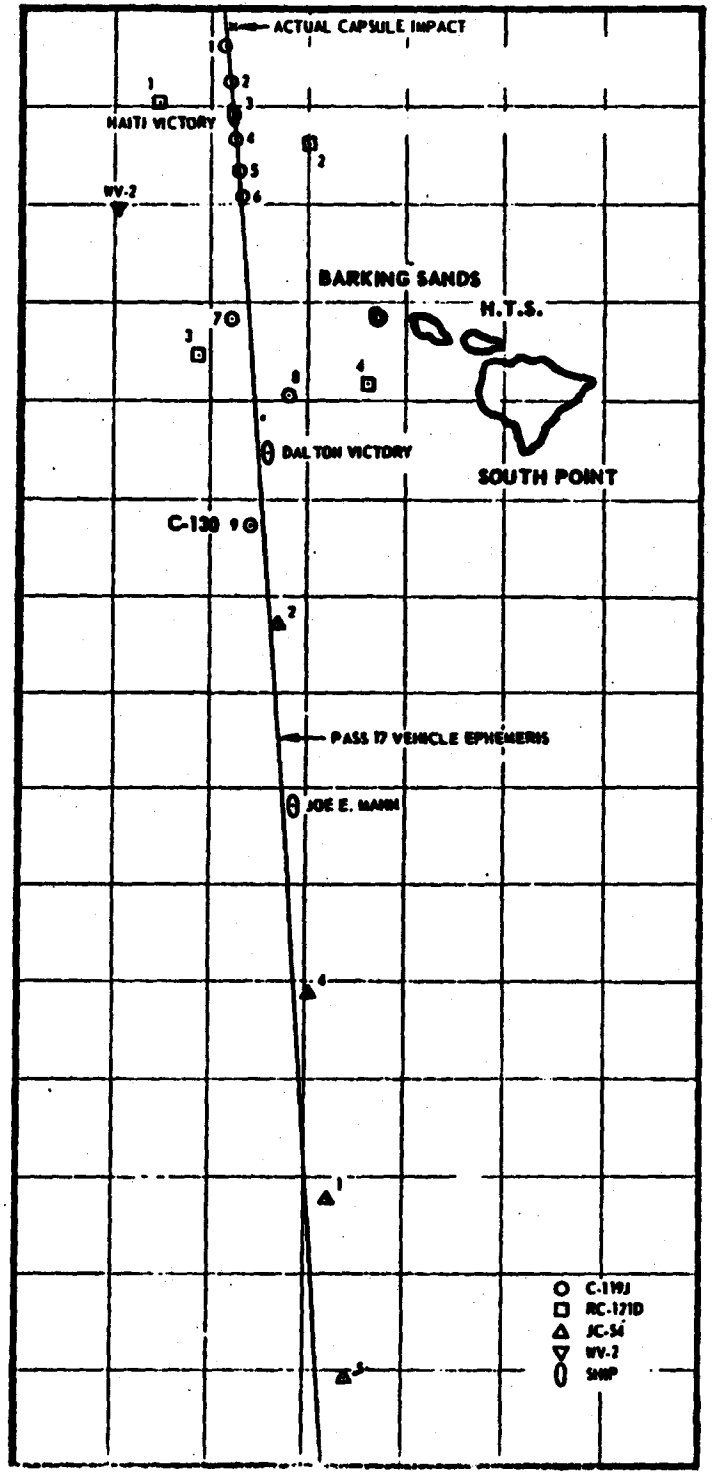
THE PRIMARY ELEMENTS OF THE AIRBORNE AND WATER RECOVERY FORCES: C-119, RC-121 AND VICTORY SHIP WITH ONE OF ITS TWO HELICOPTERS VISIBLE ON THE FANTAIL



CAPSULE RECOVERY FORCES

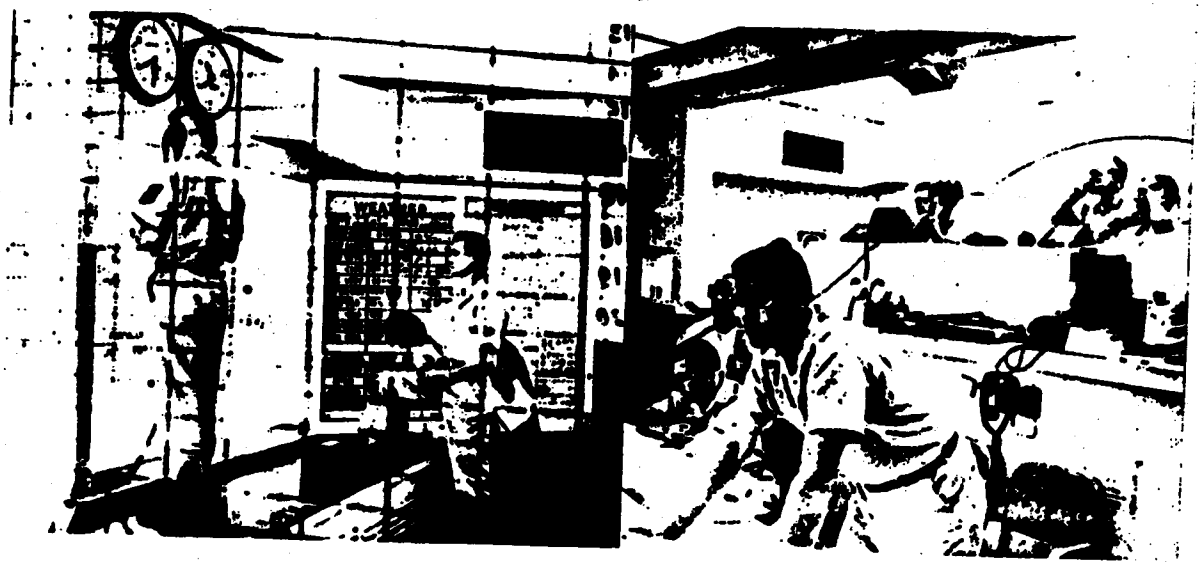


SOUTH POINT - BARKING SANDS



AIRBORNE RECOVERY CREW BRIEFING

HAWAIIAN CONTROL CENTER (6594TH RECOVERY GP.) MONITORS THE OPERATION



CAPSULE RECOVERY OPERATION

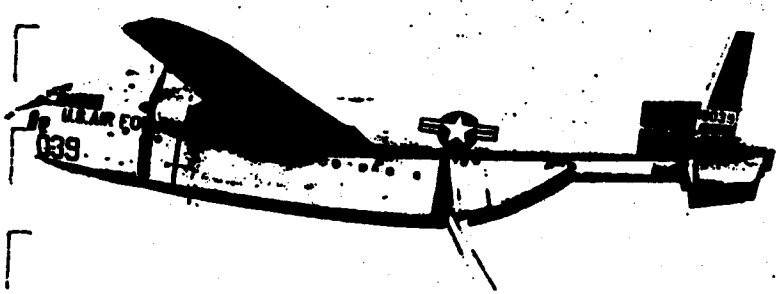
All recovery and support elements were "on station" considerably before parachute deployment (see attached illustration). Chaff had been released and the capsule was transmitting telemetry and beacon signals. The Haiti Victory was the first to report a Class A bearing on the beacon at 000° to 015° (1620:15 PDT). 45 seconds later Barking Sands Tracking Station had a similar bearing at 340° to 345°. Reliable bearings were reported by C-119 #3 and 2 at 1623:45 and 1624:15.

At 1624:25 C-119 #1 received a signal which saturated its scope — a condition which could not be alleviated by reducing receiver gain. The control RC-121, not having been informed of this sent #1 towards a possible "chaff" target to the west. This turned out to be a cloud and the C-119 raced back towards the capsule which was then strongly pinpointed at a position between 15 and 20 miles northeast of its original station.

The first visual sighting was made by C-119 #2 at 1705:30 PDT shortly after capsule impact on the water. Its position was immediately flashed to HCC and the nearest recovery ship, the Haiti Victory, about 100 nm away. Within a few minutes C-119 #3, 4, and 1 had arrived on the scene. Two radarcs (sonobuoys) and several smoke bombs were dropped to supplement the capsule's flashing light, radio beacon and dye marker systems.

As it would be about two hours before the Haiti Victory would be close enough to release its helicopters, one of the C-119s and an RC-121 were assigned to the watch detail.

The helicopters were released about 50 miles from target position. When they arrived, Helicopter #2 dropped a frogman into the water to secure the capsule to the hoist cable. The capsule was safely aboard at 1922 PDT and immediately taken to the Haiti Victory. Meanwhile the frogman was recovered by the second helicopter.

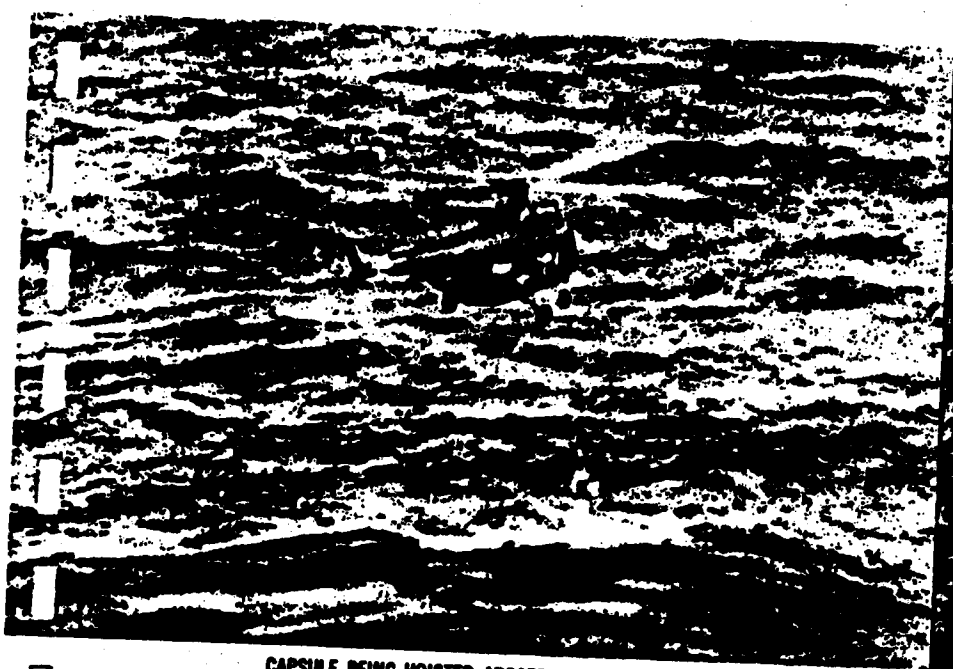


C-119 AIRCRAFT WITH CAPSULE RECOVERY GEAR EXTENDED

C-119 #2 FIRST TO MAKE VISUAL CONTACT — DROPPED FLARES AND A SONOBUOY

CAPSULE RECOVERY OPERATION

FROGMAN JUMPS INTO WATER



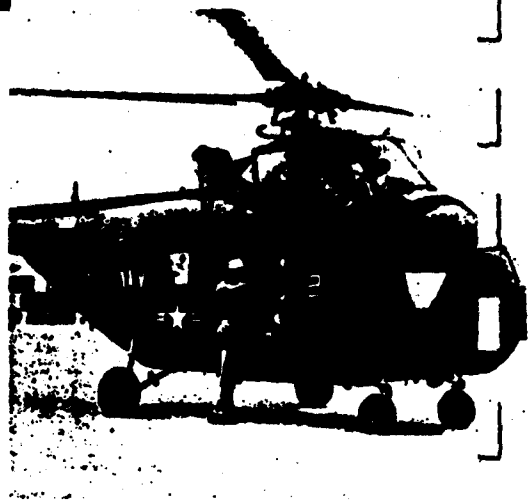
CAPSULE BEING HOISTED ABOARD HELICOPTER

FROGMAN RETRIEVED BY THE SECOND HELICOPTER

CAPSULE RECOVERY OPERATION

CAPSULE BEING READIED FOR AIR SHIPMENT

TRANSFER FROM HELICOPTER TO C-130 AT HICKAM A.F.B.



HELICOPTER RETURNS TO VICTORY SHIP

THE HELICOPTER CREW THAT MADE THE WATER RETRIEVAL

GEN. O'DONNELL, COMMANDER PACAF, TALKS TO COL. MATHISON, 6594TH TEST WING, WHO ESCORTED CAPSULE BACK TO THE MAINLAND

AIRCREW PRESS CONFERENCE AT HICKAM A.F.B.

POST RECOVERY CAPSULE ACTIVITIES

On the following morning (Friday, 12 August) when the Haiti Victory was about 50 miles south of Pearl Harbor, a courier from the 6594th Test Wing arrived aboard to take charge of the capsule, and fly it immediately to Washington. At Hickam AFB it was transferred from helicopter to C-130, and a brief stop was made at LMSD, Sunnyvale, so that certain instrumentation could be removed for evaluation.

General White and General Schriever were on hand to view the capsule when it arrived at Andrews AFB on Saturday morning. The tentative plans for a White House ceremony and Presidential announcement were definitely scheduled for 1100 hours on Monday.

The stage was set. Behind the capsule stood the President, the Secretary of Defense and their top Air Force advisors, as well as military representatives from ARDC, AFBMD, and the 6594th Test Wing. The announcement of the historic capsule recovery was made to the nation through press, radio and television. The President then removed the Flag which had been secretly placed in the instrumentation package prior to launch.

This was the climax of the capsule's eventful life cycle, however public interest continued to run high and for many weeks, it was placed on display throughout the country. In December, it was returned to the plant for final clean up and polish prior to its installation at its final resting place — the Smithsonian Institute.

INSPECTION OF CAPSULE INSTRUMENTS
AT LMSD, SUNNYVALE, CALIF.

PICTURES TAKEN BEFORE CAPSULE IS LOADED ABOARD C-130 FOR SHIPMENT TO WASHINGTON SHOWS GEN. RITLAND, COMMANDER AFBMD; MR. BROWN, GENERAL MANAGER, LMSD; COLONEL BATTLE, DISCOVERER PROJECT OFFICER.

COL. MOORE, COMMANDER, 6594TH TEST WING

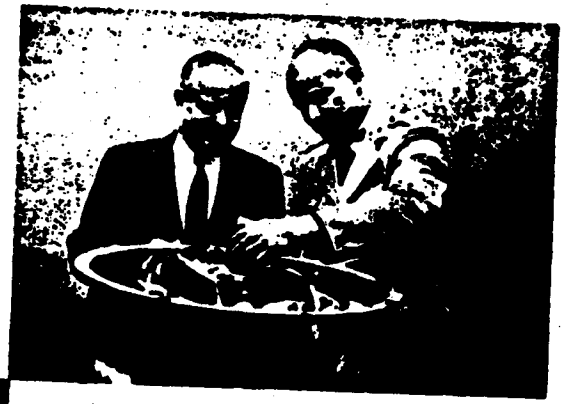
POST RECOVERY CAPSULE ACTIVITIES

FLANKED BY THE SECRETARY OF DEFENSE AND HIS TOP AIR FORCE ADVISORS THE PRESIDENT TELLS THE NATION OF THE FIRST CAPSULE RECOVERY FROM AN ORBITING SATELLITE

PRESIDENT REMOVES OLD GLORY FROM THE CAPSULE. THIS FLAG IN 26½ HOURS TRAVELLED ALMOST A HALF A MILLION MILES THROUGH SPACE

GENERALS WHITE, RITLAND AND SCHRIEVER INSPECT CAPSULE AT HEADQUARTERS ARDC, ANDREWS AFB.

POST RECOVERY CAPSULE ACTIVITIES



THE CAPSULE WAS ON PUBLIC DISPLAY AT MANY PLACES
INCLUDING THE SENATE CHAMBERS,
THE A.F.A. CONVENTION AND AT SUNNYVALE