VII. LAUNCH OPERATIONS

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PRELAUNCH ACTIVITIES

The major prelaunch activities at the Western Test Range (WTR) are shown in table VII-I. During the tests problems were satisfactorily resolved as discussed in the following paragraphs.

Thorad electrical connector X-rays. - NASA directed that an X-ray examination be made of 99 of the readily accessible and flight critical connectors on the Thorad. The results of this inspection indicated that 23 of the connectors were suspect, and these were opened for further inspection, cleaning, or rework.

Thorad turbopump torque test. - An out of specification variation in the running torque was observed while the turbine in the turbopump was being manually rotated. The second stage nozzle of the turbine assembly was repositioned and the turbopump was retested satisfactorily.

Thorad single-propellant flow. - The liquid-oxygen propellant valve for vernier engine No. 1 indicated leakage and was replaced. The fuel depletion float switch stuck in the high position and was replaced. A regulation circuit in the ground power supply for the ground inverter malfunctioned and was replaced.

Thorad dual-propellant flow. - The fuel depletion float switch stuck in the high position and was replaced. An expansion joint in the liquid-oxygen transfer line to the booster leaked and was retorqued.

COUNTDOWN AND LAUNCH

The countdown for the first launch attempt of the Thorad-Agena-Nimbus III began on April 10, 1069, concurrent with the countdown of a United States Air Force mission which had launch priority. The Nimbus III countdown started at 1123 Pacific standard time (PST) and proceeded as planned to the start of Agena propellant tanking. At this time the status of the Air Force mission was reevaluated. The results of the evaluation indicated that the countdown for the Air Force mission was continuing successfully toward its scheduled launch. Consequently, the Nimbus III countdown was terminated.

The countdown for the second launch attempt began at 1123 PST on April 11, 1969.

The countdown proceeded without significant problems until 2234 PST when the fuel leak detector (Aerospace Ground Equipment) for the Agena showed the presence of fuel vapors. The cause of the vapors could not be determined and the launch attempt was terminated at 0022 PST on April 12, 1969. Pressure checks after countdown termination and propellant unloading showed a small leak through the vent port of the fuel propellant isolation valve. The gas leakage rate observed during the pressure check was determined to be within specification limits. A plastic tube and bottle was attached to the vent line on the fuel propellant isolation valve so that the actual fluid leakage rate of fuel could be checked during the next scheduled countdown.

The final countdown for launch was initiated at 1124 Pacific standard time on April 13, 1969. Early completion of the launch vehicle tasks through mobile service tower removal permitted early tanking of the Agena and provided a 2-hour check on the leakage rate through the vent port of the fuel propellant isolation valve. Only a trace of fuel had collected in the bottle after the 2-hour period, and the plastic tubing and bottle were removed. No significant problems occurred during the countdown. Lift-off, 5.08-centimeter (2-in.) motion, occurred at 2354:03.136 Pacific standard time on April 13, 1969.

TABLE VII-I. - MAJOR PRELAUNCH

ACTIVITIES FOR NIMBUS III

Date	Event
1/17/69	Thorad Arrival at Vandenberg AFB
2/19/69	Agena Arrival at Vandenberg AFB
3/19/69	Spacecraft Arrival at Vandenberg AFB
3/30/69	Thorad-Agena Mate
3/30/69	Thorad-Agena Erection
4/01/69	Agena-Spacecraft Mate
4/03/69	Simulated Launch
4/10/69	First Launch Attempt
4/11/69	Second Launch Attempt
4/13/69	Launch