Post Launch
Mission Operation Report
No. E-668-82-01

July 19, 1982

TO: A/Administrator

FROM: EL-4/Landsat Program Manager

SUBJECT: Landsat-4 Post Launch Report #1

Landsat-4 (formerly Landsat-D) was launched successfully at 1:59 p.m. EDT on July 16, 1982, from Vandenberg Air Force Base. The Delta 3920 launch vehicle performed flawlessly and placed the satellite into the planned three sigma low orbit of 694 km. The lower orbit was selected to eliminate a retrograde maneuver for the orbit adjust burns necessary to place the satellite into its planned operational 16-day repeat track at 705 km. The orbit adjust burns required for final orbit placement will be performed during the week of July 25, 1982.

The injected orbit parameters vs. the final required orbit parameters are:

	INITIAL ORBIT	FINAL REQUIRED ORBIT
Altitude	694 km Circular	705 km Circular
Inclination	98.2 Degrees	98.2 Degrees
Period	98.7 Minutes	98.9 Minutes

Spacecraft separation and the initiation of solar array deployment occurred, as planned, over the Indian Ocean tracking station. Spacecraft attitude rates at separation were low, allowing the Earth Sensor to immediately acquire the Earth with the momentum wheels and without use of the propulsion system. Full solar array deployment and solar array rotation were confirmed during the Alaska pass on the first orbit. Proper command and telemetry link operation were also verified during the Alaska pass.

During the night of July 17, 1982, stored command loads to initiate spacecraft functions were successfully transmitted to the spacecraft. The initial calculated spacecraft ephemeris and star catalogue were uplinked to the spacecraft and the On-Board-Computer successfully processed the data. Attitude Control was then transferred to the star tracker from the Earth sensor on Sunday, July 18, and the precision mission pointing accuracy of less than 0.01 degree was achieved.

On Saturday, July 17, Payload Correction Data was successfully transmitted from the spacecraft to the ground. This data will be compared to data collected after the TDRSS boom is deployed and the sensors are activated to determine the magnitude of any high frequency dynamic disturbances due to instrument operation.

All systems activated as of Noon on July 18, 1982, are performing well with no significant discrepancies reported

Major activities planned for the week of July 19, 1982, are:

- Monday, July 19 - Activation of the MSS and data transmission via the X-band link.

(E83-10185) LANDSAT-4 POST LAUNCH REPORT 1 (National Aeronautics and Space Administration) 2 p HC A02/MF A01 CSCL 22B

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- Tuesday, July 20 - Activation of the TM and data transmission via the X-band link.

- Wednesday, July 21 - Combined MSS and TM operations and data transmission via the X-band link. Deployment of the TDRSS boom.

- Thursday, July 22 - Beginning of the orbit adjust maneuver with a propulsion system calibration burn. The Ku-band transmitter will be activated and power radiated from the TDRSS antenna to check RFI with the X-band and S-band transmissions.

- Friday, July 23 - The Global Positioning System will be activated.

- Saturday, July 24 - An orbit adjust maneuver will be performed.

- Sunday, July 25 - The TDRSS antenna system will be exercised in the program track mode.

Harry Mannheimer