NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546
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RELEASE NO: 65-240

PROJECT: SCOUT EVALUATION

CONTENTS

PRESS KIT

Scheduled to be launched no earlier than Aug. 10, 1965.

NEWS NASA

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SCOUT EVALUATION LAUNCH SCHEDULED AT WALLOPS ISLAND

A Scout Evaluation Vehicle (SEV) incorporating a number of engineering improvements will be launched on a proving flight by the National Aeronautics and Space Administration from Wallops Station, Wallops Island, Va., no earlier than Aug. 10.

Primary purpose of the experiment is to demonstrate in flight the operation of a number of improved vehicle features which have been progressively developed for the Scout program during the past 18 months.

These include: (1) The Scout's capability to fly a "dog-leg" course from Wallops Island by a guidance technique known as yaw torquing.

(2) The use of new second and fourth-stage rocket motors with improved thrust characteristics.

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(3) Test in-flight performance of improved spin motors to stabilize the fourth stage of the vehicle.

(4) Demonstrate the Scout air transportability concept by launching a vehicle which after complete assembly at Wallops, has been airlifted from and returned to the launch site in simulation of a transcontinental trip.

Although it will carry a heavy load of special engineering instrumentation, the SEV Scout will make use of a small excess payload capability by carrying a 45-pound SECOR (Sequential Collation of Range) satellite payload furnished by the U.S. Army. However, achievement of an orbit for the bonus experiment, SECOR, is not a primary objective of this mission.

Scout is the United States' only solid propellant launch vehicle with orbital capability. It is 72 feet long and weights 20 tons at lift-off.

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(END OF GENERAL NEWS RELEASE. BACKGROUND INFORMATION FOLLOWS.)

SCOUT DEVELOPMENT

NASA's Langley Research Center, Hampton, Va., developed the Scout vehicle and manages it under the overall direction of the Headquarters Office of Space Science and Applications. The Astronautics Division of LTV Aerospace Corp., Dallas, Texas, is prime contractor.

A new second-stage motor manufactured by Thiokol Chemical Corp., Huntsville, Ala., and a new fourth-stage produced by United Technology Center, Sunnyvale, Calif., will be flight tested for the first time on the Scout vehicle by the forthcoming launch.

The improved second stage motor -- Castor IIA -- is designed to deliver 58,000 pounds of thrust with a burning time of 41 seconds. The new fourth stage, designated FW-4, is intended to produce 5,600 pounds of thrust with a burning time of 31 seconds.

The concept of air transportability for the fully-assembled Scout will receive a final evaluation during the operation. On July 27, the assembled vehicle with live motors and its transporter went through the simulated airlift from Wallops. An Air Force C-133 exposed it to an airlift flight environment anticipated during delivery to a launch site. Complete launch readiness checks have been repeated since the flight.

NASA officials in charge of the Scout program hope to realize economic and reliability benefits by processing all Scout vehicles at a single location using recently improved procedures, then airlifting the complete vehicles on their transporters to any launch site. A preliminary air transportability test was made in May 1964, with a Scout fitted with dummy motors. Good results obtained in that test led to last week's flight with the complete vehicle.

The evaluation Scout will flight-test two improved fourth-stage spin rockets. The improved spin motors will be combined with two of the earlier type for the coming flight. Increased spin impulse is desirable to match the heavier payloads contemplated for future missions. Spin-up occurs six seconds before fourth-stage motor ignition.

During the flight, the Scout guidance system will be programmed to perform a yaw torquing or "dog-leg" maneuver to achieve a higher orbit inclination angle than those previously flown from Wallops Island.

The capability for yaw torquing has existed in the guidance system but has not been exercised. Present orbit inclination angles from Wallops Island are about 52 degrees.

With yaw torquing (right or left), the Scout will be capable of attaining either a 73 or a 28-degree orbit with a 100-pound payload at an altitude of 460 statute miles. Thus, orbits more nearly polar or more nearly equatorial are possible from the Wallops launch site.

The yaw maneuver will be performed by the hydrogen peroxide jet control system during the third-stage coasting period before fourth-stage spin-up and ignition.

Because engineering evaluation of the Scout system performance is the primary purpose of the flight, special instrumentation and telemetry packages have been provided for gathering a number of measurements in addition to those regularly made.

A precision velocity meter will make very accurate measurements of vehicle velocities through fourth-stage burning. Other instruments will measure vibration, temperatures, motor pressures, spin-motor performance, ignition system voltages and other quantities needed for a complete engineering evaluation of the performance of the improved Scout. Electrostatic charge measurements will be made on stages two and three.

Improved solid-state telemetry systems will be used to reduce weight and increase reliability.

Finally, a new lightweight radar tracking beacon will be carried on the vehicle.

SECOR SATELLITE

Operation of the Sequential Collation of Range (SECOR) system of satellites and overseas ground stations is a project directed by the Army Map Service, Corps of Engineers, U.S. Army.

In addition to pinpointing the locations of land bodies separated by large expanses of ocean, the SECOR system will help in determining the exact size and shape of the Earth.

The satellites and ground stations provide an all-weather system for measuring distances up to 1,000 miles to an accuracy of less than 100 feet.

Key piece of equipment on the 45-pound satellite is an eight-pound transponder, a transistorized device which receives and retransmits radio signals from four ground locations that measure the range to the orbiting satellite.

In operation, precise location of three of the stations is known. Location of the fourth is determined mathematically from the measured ranges.

Two Geodetic Explorer satellites (GEOS A & B) planned by NASA for launch this year and next will integrate use of the existing Army SECOR ground stations in support of the National Geodetic Satellite Program which has as an objective a refined mathematical determination of the Earth's size, shape, mass and variations in gravity.

The planned SECOR satellite orbit, subject to pre-launch revision, will have a peak altitude of about 1,725 statute miles and a low point of about 690 statute miles. It will be inclined about 65 degrees to the Equator.

PROJECT PARTICIPANTS

Scout is managed by NASA's Langley Research Center, Hampton, Va., under the general direction of the Office of Space Science and Applications, NASA Headquarters. Principals are:

NASA HEADQUARTERS

Dr. Homer E. Newell - Associate Administrator for Space Science and Applications

Vincent L. Johnson - Director, Launch Vehicle & Propulsion Programs

Warren A. Guild - Scout Program Manager

Jerome D. Rosenberg - Program Manager, Geodetic Satellite Program, Physics & Astronomy Programs

LANGLEY RESEARCH CENTER

Eugene D. Schult - Head, Scout Project Office

Clarence A. Robins, Jr. - Mission Manager

James D. Church - Operations Manager

WALLOPS STATION

Robert T. Duffy - Test Director

Joseph R. Duke - Project Engineer

U.S. ARMY CORPS OF ENGINEERS

Col. Ward H. Van Atta - Commander, Army Map Service

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