ROCKETS AND MISSILES

Probe Magnetism in Space

A U. S. interplanetary probe will carry out two experiments for the first time in the interest of manned space flight. The total magnetic field and solar wind will be measured.

➤ THE UNITED STATES will soon launch an interplanetary space probe carrying a new device able to measure the total magnetic field, never done before in deep space.

The second major purpose of the probe is an experiment to measure the solar wind, the first attempt of its kind. The solar wind experiment is conducted by Massachusetts Institute of Technology.

The probe, P-14, is designed to find out more about the environment in space in the interest of safer manned space flight, the National Aeronautics and Space Administration reported in Washington, D. C.

The P-14, a magnetic field-solar radiation probe, will travel 140,000 statute miles into space to investigate magnetic fields and solar radiation and their interaction with each other in interplanetary space. Both magnetic fields and radiation are believed to constitute hazards to man's survival in space.

A three-stage Thor-Delta rocket will be used to launch the probe that will carry a very sensitive device, a rubidium vapor magnetometer.

This magnetometer can measure the total magnetic field instead of merely the two components, vertical and horizontal, previously measured.

The rubidium vapor magetometer is considerably more sensitive and accurate than any flown before, NASA said.

The probe is also expected to aid scientists in designing communications satellites.

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OUTER SPACE RADAR—In a space radar for orbiting satellites the light from an optical maser (top) pulses out to a distant target and is reflected and collected by mirror in telescope (below). Hughes Aircraft Company, Culver City, Calif., developed the device.

ROCKETS AND MISSILES

Space Capsule Loop Helps Ocean Rescue

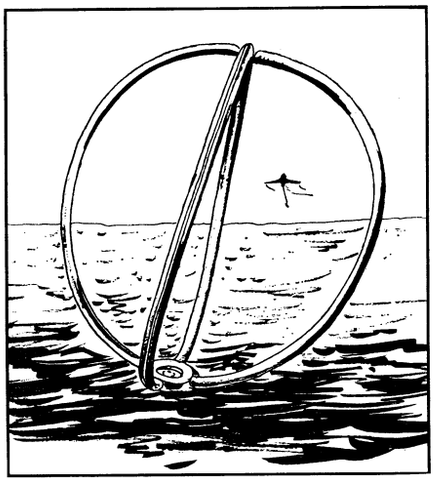
➤ INSTRUMENTED payloads splashing into an ocean from outer space in the future will have giant protruding loops which can be hooked onto by a retrieving airplane.

This latest convenience in space exploration was reported to the American Rocket Society meeting in Los Angeles by two U. S. Navy engineers, Royal C. Schendel and Frank J. Brennan.

The loops are part of an 11-pound rescue package that makes possible easy retrieval of space capsules weighing from 50 to 300 pounds.

The package will be carried in the nose cone, and will make contact with a coupling package attached to the centerline bomb rack of a tactical aircraft.

The retrieval unit on the capsule of metalized Mylar construction can be located easily by radar and visual sighting. It is looped around the capsule with nylon straps. The package has two 12-foot high circular loops for an easy pick-up by an aircraft-borne "flying hook" and a 50-foot length of undrawn nylon rope connecting the hook to the aircraft.



SPACE CAPSULE LOOP

When in operation, this equipment will eliminate the need for range ships spotted over the dispersion area, the Navy engineers predicted; and pick-up can be achieved in a matter of minutes.

The equipment is so simple to handle that the retrieval can be accomplished by any naval aviator who has had even brief experience flying a recovery test. Expertly trained crews will not be needed.

The method of air-sea retrieval has another advantage in that it can be used any time that it is desired to transfer data or material from ship to shore swiftly and easily.

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ROCKETS AND MISSILES

Dummy to Ride in Space

➤ ANOTHER SPACE SHOT is scheduled before an astronaut takes a leap into space. It will be an unmanned Mercury-Redstone rocket that will not go into orbit.

The success of the next trial with a dummy payload may mean a Mercury astronaut then will take a sub-orbital ride. At this time, manned orbital flight is anticipated "before the year is out," Dr. Abe Silverstein, director of space flight programs for the National Aeronautics and Space Administration, told a Congressional committee.

An accurate timetable for manned space flight is not possible yet because of "the tremendous complications of the overall system," Dr. Silverstein explained to the House Committee on Science and Astronautics.

One of these complications is the Mercury spacecraft escape system scheduled for another test. The system consists of a Little Joe 60,000-pound, solid-propellant rocket on top of the upper neck of the spacecraft.

An electronic brain built into the Redstone launch vehicle can sense impending malfunctions and trigger the escape system automatically. The escape device in Mercury is designed to carry both craft and pilot safely clear of a faltering launch vehicle.

This will be the sixth test of the Little Joe. Four of the previous tests were successful. Little Joe V did not fulfill all test objectives. The purpose of the test was to qualify the system during and after an escape maneuver under the most severe conditions anticipated during an Atlas launch for orbital flight. The escape rocket ignited but the craft and entire escape system did not separate from the Little Joe V.

If Little Joe VI is successful, then manned orbital flight scheduled for this year is more likely to be achieved.

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