

## ASTRONAUTICS

# Mercury Capsule Fails

**Failure of the Mercury space capsule tests will not necessarily delay NASA's manned rocket, planned for 1961. Capsule design believed not at fault.**

► FAILURE OF THE TEST SHOT of the Mercury space capsule and its pilot escape system will not "necessarily" delay putting a man in space, the National Aeronautics and Space Administration reported. NASA has scheduled a manned rocket launch for 1961.

The Mercury space craft, designed to take an astronaut safely into outer space and return him to earth, failed to separate from its Little Joe rocket booster 13 miles from Wallops Island, Va., where it was launched.

"If the cause of the malfunction is a minor mechanical failure, I see no reason why the Mercury Project program should be delayed," an NASA spokesman said.

The rocket and space craft landed in 70 feet of water after rising to an altitude of 53,000 feet.

At launch, Little Joe and the Mercury capsule weighed 40,000 pounds. Together

they had the height of a building more than four stories high, about six and a half feet in diameter at the base. Even with the fuel burned out, the space team weighs more than 20,000 pounds.

Had the test been a complete success, there still would have been further test launches with animal passengers before man tried. A shot with a chimpanzee had been among those considered.

Little Joe rockets have been used with success in testing similar escape systems, but this was the first try with a Mercury craft identical to the one which is supposed to carry a Mercury astronaut aloft next year.

However, NASA, at this time, does not believe that the failure is due to a fault in capsule design. If the design should be at fault, this will be a serious setback to the United States program for manned space flight.

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## ASTRONAUTICS

# Three Men to Orbit Moon

► THE UNITED STATES has yet to launch a man into space but plans to put three men into orbit around the moon and bring them back to earth by 1968.

The design of the lunar vehicle, called Apollo, has not yet been settled, Dr. Frederick R. Riddell, specialist in space vehicle design for Avco Research and Advanced Development Division, Wilmington, Mass., reported. Avco is working on Apollo design for the National Aeronautics and Space Administration. Dr. Riddell was in Washington, D. C., to address the sixth session

of the Space Research and Technology Institute at the University of Maryland.

"The shape of the Apollo vehicle will depend upon the path it takes," he said. Dr. Riddell favors a slender, bullet-shaped design as the best shape to solve the problems of intense heat involved in re-entry from a distance as far as a circumlunar orbit.

The main obstacle to solution of the heat problems involved in the re-entry of the future Apollo is that there is no test facility on earth to duplicate temperature

conditions of re-entry from the scheduled trip around the moon and back.

Apollo will represent a "marked departure" from the Mercury capsule that will be used to launch a man in space sometime next year, according to the schedule of NASA.

"The Mercury capsule is purely ballistic. Once it is in launch, it is beyond control."

Dr. Riddell said: "The Apollo will be designed to have the maneuverability the Mercury capsule lacks."

Present plans are to supply maneuverability with small rudders.

The great problem of protecting man from the heat to which the exterior of Apollo will be exposed both in launch and return may be solved by combining in various areas of the vehicle new materials, plastic and ceramics, to draw heat away from the ship. The way to accomplish this is known, the Avco specialist said.

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## ROCKETS AND MISSILES

## Explorer VIII Launched To Study Ionosphere

► EXPLORER VIII has been launched for exploration of the ionosphere in an orbit about 258 miles up at its closest point and 1,423 miles when farthest away.

The satellite weighs 90 pounds and will be used to study the ionosphere in an attempt to find out why it changes from day to day.

The ionosphere consists of ions, atoms stripped of one or more of their electrons by radiation.

The ionosphere makes long-range television and radio possible by bouncing the long waves back to earth.

Scientists hope that information from Explorer VIII will lead to improvements in radio and television equipment.

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## AERONAUTICS

## Hawkeye Navy Plane Features "Flying Brain"

► A SCOUT PLANE, the W2F-1 Hawkeye, has been developed to protect U. S. Navy task forces from airborne attack.

The plane, built by Grumman Aircraft Engineering Corporation, Long Island, N. Y., is able to detect and evaluate attacks in time for successful interception of attacking aircraft by use of an airborne tactical data system (ATDS).

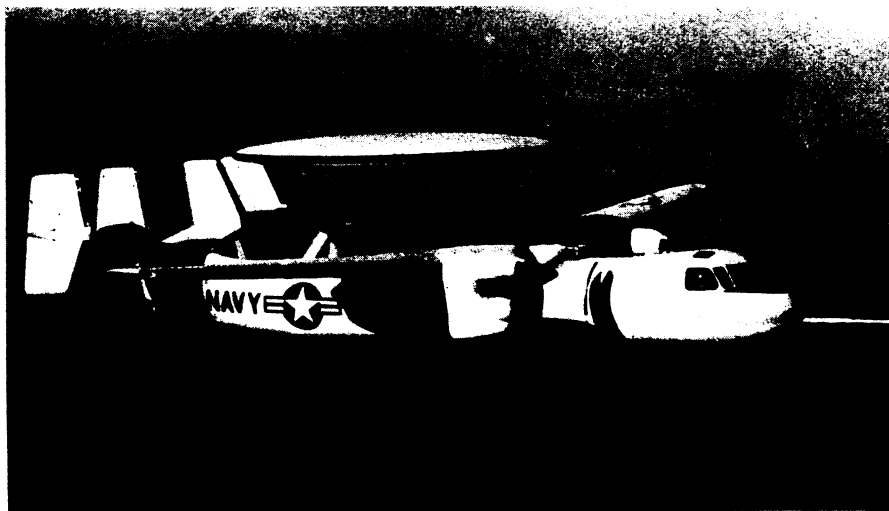
This system consists of an improved auto-detection radar and airborne computers, a memory and high speed data link system.

The automation in this system exceeds human capabilities in collection, storage and relaying of information.

However, whenever necessary, the crew can make its own command decision.

The Hawkeye features a revolving rotodome that can be raised and lowered on top of its fuselage. The dome holds the antenna for its high resolution radar.

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HAWKEYE SCOUT PLANE WITH "TABLETOP" DOME