

News



LEWIS RESEARCH center

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FOR RELEASE: FRIDAY
JUNE 12, 1970

Release 70-22

Hugh W. Harris
(res: 932-3966)

CLEVELAND, Ohio, June 12 -- The unique capabilities of a facility to produce weightlessness here on earth at NASA's Lewis Research Center are being used to help pinpoint the cause of the oxygen tank failure which crippled the Apollo 13 spacecraft on its way to the moon last April 13.

The official NASA investigation board is looking into the possibility that the failure of the oxygen tank on the Apollo 13 service module occurred when teflon wire insulation inside the tank was ignited by a short circuit. Wires are present inside the high pressure oxygen tanks on Apollo to carry electrical current to fans, heaters and a quantity sensing device. The fans are used to keep the oxygen circulating in the tank and the heaters to maintain the operating pressure of 920 psi (pounds per square inch) at minus 180 degrees below zero Fahrenheit.

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The Lewis experiments are measuring the burning rate of teflon coated wires both under normal earth gravity conditions (1 G) and conditions of weightlessness. The experiments concern burning rates of wire bundles alone and in passageways through conduit to the tank and the motors inside the tank.

Lewis' Zero Gravity Facility produces five seconds of weightlessness by dropping an experiment down a 500 foot shaft in which a vacuum is created to eliminate air drag. During the drop high-speed cameras on the experiment package record what is happening. At the bottom of the shaft a large tank 20 feet in diameter by 40 feet deep filled with tiny expanded polystyrene balls catch the experiment without damaging it. Ten seconds of weightlessness can be produced by shooting the experiment up from the bottom to within a few inches of the top and letting it fall back in the normal fashion.

Initial results of the experiments show that the burning rate of teflon in the high pressure oxygen atmosphere during weightlessness ranges from less than one quarter to somewhat more than half the rate of teflon in the same atmosphere at 1 G.

The results of the tests are being evaluated by the official investigating board in making their final determination of the cause of the accident and steps necessary to prevent a recurrence on subsequent flights.

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FOR RELEASE: 3 P.M. THURSDAY
June 25, 1970

Release 70-28

Charles E. Kelsey
(res: 234-3034)

CLEVELAND, Ohio, June 25 -- An improved shroud system for the Centaur vehicle will be developed and built by Lockheed Aircraft Corp. / Lockheed Missiles and Space Co. of Sunnyvale, Calif., under a \$9,406,000 contract announced today by the National Aeronautics and Space Administration.

The cost-plus-incentive-award fee contract provides for the delivery of six shroud systems, one to be tested in ground facilities and the others to be flown on Titan IID/Centaur rockets in the future.

The new shroud will be designed as a single structure and covered by a corrugated aluminum skin. In flight jettisoning will be accomplished in one maneuver as the clamshell shroud splits in two. On the present

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