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## EARTH-MOON TRANSPORTATION STUDIED

A study to investigate various methods of manned transportation between the earth and moon has been assigned to the Martin Co. of Baltimore. The \$75,000 contract is for the study of launch vehicle systems for lunar exploration beyond the initial Project Apollo flights.

The earth-lunar transport project, under the supervision of the Marshall Space Flight Center, covers transportation systems for these three basic missions: (1) A lunar landing and immediate return to earth for three men, (2) A 30-day stay on the moon for three men, and (3) A permanent moon base which would accommodate 10 to 12 men.

The study contract covers a wide variety of problems, including those of boosting the vehicles into space; soft-landing them on the moon and returning them to earth again; and providing for man's extended existence in space and lunar environments.

A shelter will have to be provided on the moon itself for protection against violent temperature changes - from 244°F in the daytime to -213°F at night. Each lunar day or night is as long as 14 earth days.

Since no life suitable for nourishment is expected to be found on the moon, food, water, and air will have to be taken along.

The Lewis Research Center is interested in and has been working on the problems of a manned lunar landing mission for over two years. (continued on page 2)

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### ORBIT

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Editor.....Theresa Horvath  
Art Director.....Mary Brady  
Staff Artist.....Robert Barron  
Reporters.....NASA employees

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Activities here have involved: (1) Participation on NASA program planning committee; (2) Investigation of rocket engine performance in a lunar environment; (3) A lunar landing propulsion program to investigate problems of effecting a soft landing; (4) Storage of cryogenics in space; (5) Mission and trajectory analyses; and (6) Guidance and control studies, and tests of control motors.

A growing interest in this mission, as a follow-on to Project Mercury, is evidenced by the Martin study contract. Based on the research activities above, it is anticipated Lewis will play a predominate role in the propulsion aspects of this program.