SPACE TECHNOLOGY LABORATORIES, INC.
PUBLIC RELATIONS • ORCHARD 0-1311 • EXT. 2001-2-3
5730 ARBOR VITAE STREET, LOS ANGELES 45, CALIFORNIA

FOR IMMEDIATE RELEASE

RADIATION EXPERIMENTS

Man's understanding of the origin of the universe may be a step closer as the careful analysis of information relayed to earth by Explorer VI begins.

Scientists at Space Technology Laboratories, Inc., who developed the satellite for NASA, hope closely related measurements of the earth's magnetic fields and the Van Allen radiation belts will relate to ultimate verification of Einstein's time and space theory.

Knowledge obtained from the radiation experiments is of prime importance to man's future space travel plans. The dimensions and characteristics of radiation bands must be taken into consideration in trajectory course planning.

Contained in Explorer VI is a radiation detector known as a "scintillation counter." Of main concern in radiation research is the nature of charged particles which are trapped in magnetic fields, constituting radiation bands.

The number, thickness, length and positioning of these bands will be determined in succeeding passes of the satellite around the earth. This information may continue to be telemetered earthward for a year.

Explorer VI is designed to collect information of greater total significance for a longer duration than any previous Pioneer or Explorer experiment.

- more -

One important theory expected to be verified by this data is that relating the Aurora Borealis to the radiation belt. It is also felt that occasional communication interference is caused by the inter-relationship of sun spots, radiation charged particles and radiation bands.

Another assumption to be tested is that radiation bands are thinner above the earth's poles than elsewhere.

The "scintillation counter" used for the first time in Explorer VI is sensitive to both low and high energy particles. Such testing will aid in checking out two theories concerning their origin. One is that neutrons are released in the atmosphere from cosmic rays only to be trapped in pairs in the radiation bands. The other is that both electrons and protons are injected into the radiation belts by solar clouds. Both of these may be partially correct.

Radiation levels beyond the bands will also be tested. If levels are high, they will present problems in the shielding of manned space vehicles. The ionization counter on Pioneer I detected a radiation belt of 10 roentgens per hour, a level which an average man could endure for several hours. In some cases, however, radiation may be 100 roentgens per hour -- a disabling level.

The combination of two different types of magnetometers carried in the Explorer VI has never been used. Together these will help to reveal the size, shape and direction of the earth's magnetic fields at all points reached by the satellite's orbit.

Physicists presently feel that in a broad sense there is a characteristic period shift in the earth's magnetic poles. It is hoped that magnetometer tests will indicate fluctuations in the earth's magnetic field because of turbulence caused by ejection of solar plasma. Measurement

of the amplitude and period of the magnetic waves will reveal this.

It appeared from Pioneer I tests that the earth's magnetic field diverged from the theoretical picture of the field previously drawn. Test results indicated that the total field was far larger than expected. Explorer VI findings will be scrutinized carefully for further modifications.

###