

OFFICE OF THE UNITED STATES COMMISSIONER GENERAL
CANADIAN WORLD EXHIBITION, MONTREAL, 1967.
800 VICTORIA SQUARE, SUITE 2022
MONTREAL 3, P.Q., CANADA.

LUNAR ORBITER

The Lunar Orbiter program runs concurrently with the Surveyor program. The Lunar Orbiter spacecraft provide extensive photographic coverage of large specified areas of the moon's surface for suitable manned landing sites, while in continuous orbit around the moon. The first two Lunar Orbiters were sent up in August and November of 1966. Lunar Orbiter III was successfully launched in February of this year. Lunar Orbiter IV went up May 4, 1967, and began returning photos on May 11, 1967. Lunar Orbiter IV went into a North/South Polar orbit. The last spacecraft is scheduled for launch later in 1967. This will complete the Lunar Orbiter program.

The Lunar Orbiter spacecraft is an 850 lb. flying photographic laboratory. It is 5' in diameter and 5.5 feet tall, excluding the solar panels and antennas. During launch the solar panels are folded up under the base and the antennas held against the side. A nose shroud of 5'5" in diameter houses the entire spacecraft. With antennas and solar panels extended, the spacecraft measures 13'5" by 12'2". The camera has 2 lenses, a 24 inch long-focal-length lens and a 3 inch focal length wide-angle lens. The exposed film is developed in the spacecraft into a damp negative and stored on a take-up reel. To return the photographs to earth, a beam of light 1/20 the thickness of a human hair scans the image on the negative. The resulting electrical signal is transmitted to the deep space stations on earth in line-of-sight with the spacecraft. At the receiving deep space station, the photograph shows line by line on a kinescope and cameras then photograph the kinescope display on 35 m.m. film.

LUNAR ORBITER 2.

To determine height and slope of lunar mountains and craters photography must be done shortly after the lunar sunrise, when shadows are near maximum. Photos of thousands of acres of surface in the zone in which the U.S. plans a manned landing have been returned as well as photos of millions of acres on the hidden side of the moon. The four photographs on the two space hardware cases are from Lunar Orbiter II and III and reveal the amazing detail the cameras are recording.

Besides pictures of the lunar surface, Orbiter has sent back data revealing that the moon, like earth, bulges upward at the North Pole and is flattened at the South Pole, as well as information on lunar gravitation, radiation and micrometeoroids.