APOLLO APPLICATIONS - MISSION CONCEPTS

ALTERNATE MISSIONS

USE OF BASIC LUNAR MISSION SPACE VEHICLES WHICH MAY BECOME AVAILABLE FROM THE APOLLO PROGRAM FOR APOLLO APPLICATIONS MISSIONS.

FOLLOW-ON MISSIONS

USE OF MODIFIED APOLLO SPACECRAFT WITH STANDARD SATURN LAUNCH VEHICLES FOR LONG DURATION MISSIONS IN EARTH AND LUNAR ORBIT AND ON THE LUNAR SURFACE.

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FIGURE 65

ALTERNATE MISSIONS

Alternate missions to the basic Apollo program in 1968–1969 will use those basic lunar mission space vehicles which may become available from the Apollo program (fig. 66, MC67–5409). By that time, it is very possible that the mainstream of manned flights in the Apollo program will have shifted to the Saturn V launch vehicle and the remaining four uprated Saturn I launch vehicles and their associated spacecraft may become available for these alternate missions.

Apollo Applications operations during 1968–1969 will involve three kinds of missions. The first is qualification in earth orbit of the Apollo-developed Lunar Mapping and Survey System which will ultimately be used in Apollo Applications lunar orbit flights to map and survey the entire lunar surface. The second is long duration flights from 28–56 days, with associated experiments to be performed utilizing the orbital workshop facility. The third mission category is astronomical observatons to acquire solar data during the period of maximum solar activity. These missions also would develop the techniques of manned astronomical observations in space and assess their value and future possibilities.

Lunar Mapping and Survey System Test

The alternate Apollo mission program will be utilized to test in earth orbit the Apollo-developed Lunar Mapping and Survey System which will be used in follow-on Apollo Applications missions to study the moon in great detail. This system will be used in the 1970's in manned lunar orbiters to collect data for the purpose of compilation of complete lunar topographic map series at various scales from 1:2,500,000 to 1:250,000 with selected areas at still larger scales. Complete camera systems will be operated utilizing optical, infrared and other multi-spectral sensors. In addition to topographic maps, synoptic and detailed geologic maps of the total lunar surface will be prepared. The remote sensing equipment will also collect data on the gross compositional characteristics of lunar surface material for geochemical purposes and measure geophysical parameters from depths of microns to several kilometers.

The Lunar Mapping and Survey System tests may permit us to carry out at least elementary earth observations which will provide us with an early base of practical space flight experience to shape our long range earth resources program. In addition, data gathered in earth orbit by the multi-spectral cameras will be