

major segment of the earth that this orbit offers. This combination of a low-earth-orbit station and a synchronous station could provide a capability for approximately 50,000 experimental man-hours per year.

We have concluded from our mission studies that a long duration space station provides a critical connection between current plans and such major future decision as manned planetary exploration. There are a number of optional experimental paths being considered for the development of the space station. Inherent in each path is the introduction into the Apollo Applications program of a low-cost test article involving no new development, thus allowing basic exploration of space station requirements within a reasonable funding level. This type of approach will provide the necessary assurance that the ultimate space station design will meet all the experiment requirements and will resolve basic questions such as the desirability of artificial gravity.

Orbital workshop

One of the attractive alternatives utilizes a spent Saturn S-IVB stage as an orbital workshop (fig. 112, MC66-8987). The objective of this S-IVB experiment module would be to establish the feasibility of exploiting launch vehicle and spacecraft hardware placed into orbit for purposes beyond its basic function. Existing subsystems are used to provide and control the atmosphere. The additional advantages of the successful completion of the experiment would include (1) an early capability for a large, controlled environment to evaluate human performance and secure engineering data for future subsystem designs; (2) low-cost design validation and checkout of equipment requirements for long-term habitability in zero g; and (3) large protected volume in space which can supplement a more sophisticated system for special purposes such as biological experiments. Initial flights would require assembly of S-IVB orbital workshop components while in earth orbit; later missions of increased capability would be ground assembled.

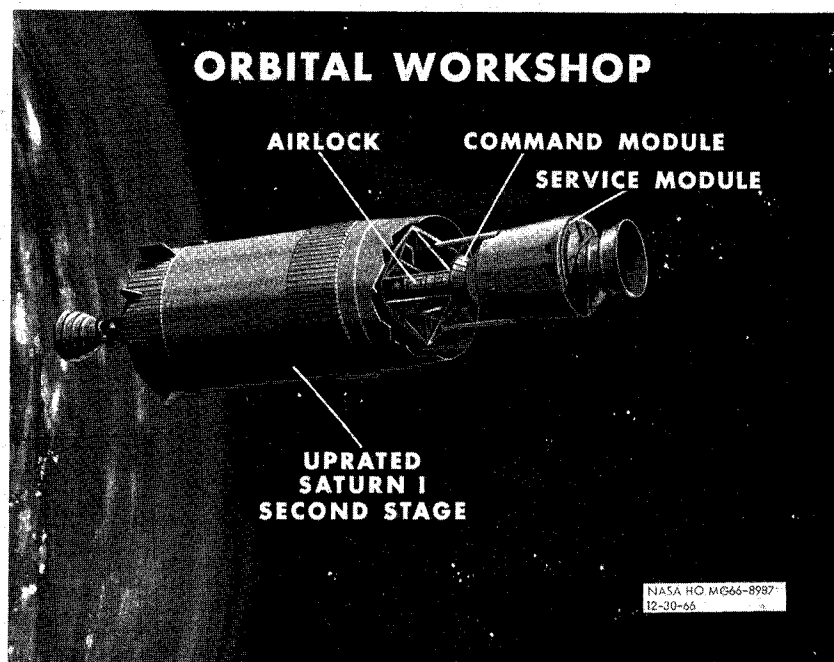


FIGURE 112