

3.0 COMPUTER CAPABILITY

The computer sciences are newly emerging, and consequently, the terms, symbols, measures, and power ratings are either tentative or nonexistent. To compensate for this handicap, the questionnaire used during the collection phase of the computer-systems survey was designed to accumulate a great deal of descriptive information for each computer system and is compiled in a catalog of computer capability (MSF Computer Systems Study, Volumes II to IV). A narrative description of the contents of the catalog is presented in this section. An inventory of MSF computers is included in the appendix.

The large number of computers installed and the wide variety of their use in the MSF program have led to a classification of computer hardware that recognizes modality. Today, the large proportion of MSF computers operates in a single mode; however, recent advances in computer technology make possible multi-modal operations at sizeable savings in cost and manpower. The description of computer capability is arranged in consonance with the modes of computer operation.

3.1 MISSION CONTROL

The scope of activity and the role of computers in the launch and mission phases of manned flight are illustrated in figure 3-1. The function of mission control and of the computers that support the missions is included in this broad outline.

Computers installed in the RTCC of the MCC at Houston are integrated into a larger overall system which is not basically computational in nature. The RTCC consists of a variety of electronic data processing equipment, some of which is general-purpose equipment by nature of its manufacture, while other equipment has been manufactured for and is used for this special purpose, such as the System Selector Unit, Plotting Display Control Unit, Systems Status Display, Time Standard Unit, Computer Monitor and Control Console, Control Area Junction Unit, Standby Digital Driver Unit, and Computer Controller Multiplexor Unit. All of the equipment, both general purpose and special purpose, is integrated into the Ground Operations Support System (GOSS). The function is to acquire data from the spacecraft, transmit the data to a central control point, and convert the data to engineering units which can be displayed for flight controller use in making decisions concerning Gemini and Apollo mission control. The RTCC does not perform an independent data processing function.