

2.0 USE OF COMPUTERSTHE MANNED SPACE FLIGHT PROGRAM

The utilization of computers, both technical and administrative, extends into every phase of manned space flight operations. Computers are used to design, develop, test, and launch complex flight systems, and are, therefore, an integral part of manned projects. To meet the needs for computational capability, the MSF program has tended to use available commercial computer hardware wherever possible and to modify that hardware, as necessary, for special purposes. This has allowed MSF to remain abreast of the rapidly changing computer technology at a reasonable cost and to remain in a position to share hardware and software experience with many users. Further, the use of commercial systems has fostered multiprogram utilization, also with inherent advantages of flexibility and economy. In the following sections, the use of computers in the MSF program will be discussed on a center-by-center basis.

2.1 GEORGE C. MARSHALL SPACE FLIGHT CENTER2.1.1 Huntsville, Alabama

The George C. Marshall Space Flight Center at Huntsville, Alabama, has a heavy computation need for data reduction and general scientific and administrative data processing. This need primarily stems from the computation required for research and development relating to launch vehicles and data processing necessary for the efficient administrative management of a large center. Facilities for simulation, while smaller in comparison to other computer functions at MSFC, play an important role in the development of vehicle simulation techniques required in the development of large launch vehicles.

In the data-reduction area, telemetry is received from static tests, launch vehicles, and satellites for preflight, real-time, and postflight analysis. A large amount of processing is required in decommutating data, and in calibrating, smoothing, and formatting measurements. For this purpose, an analog-to-digital converter system converts analog signals to sampled digital input form. A receiving and recording station receives and records telemetry and video signals via radio and microwave links from satellites, launch vehicles, and captive tests.