

*Ground support equipment*

We are requesting \$35.8 million for the Saturn V ground support equipment in FY 1968. This equipment consists of electrical and mechanical support equipment required to test and check out the stages, instrument units, and associated hardware. The checkout procedures developed for the Saturn V are based on the concept that improved vehicle reliability and minimum time at the launch site can be attained by using a computer-controlled system in which the operational soundness of components is automatically verified.

The General Electric Co. is under contract for design, fabrication, checkout, and logistic support of the Saturn V electrical support equipment, and the Boeing Co. is responsible for the integration and logistic support of all mechanical support equipment. The Radio Corporation of America is providing the computer system and Sanders Associates the display systems.

Fiscal year 1968 funds support preparation and verification of computer tapes for Saturn V missions. In addition, these funds cover completion of Saturn V-related ground support equipment for the third launch umbilical tower, high-bay, and firing room at Launch Complex 39.

*F-1 and J-2 engines*

The FY 1968 Saturn V engine requirements are \$105.3 million for the F-1 and \$78.5 million for the J-2. Produced by the Rocketdyne Division of North American Aviation, a cluster of five F-1 engines powers the Saturn V 1st stage; a cluster of five J-2 engines is used to power the 2nd stage; and a single J-2 engine, with re-start capability, powers the 3rd stage.

The last full year of funding the contractor development effort under the "Engine Development" project line item was FY 1966. After completion of qualification (October 1966) for the F-1 and January 1967 for the J-2, the contractor effort for field and engineering support was transferred to this account.

Fiscal year 1968 funds provide for continued delivery of F-1 and J-2 flight engines required for the Saturn V stages. A total of 34 F-1 engines and 36 J-2 engines are scheduled for delivery during this period. The FY 1968 funds also support flight evaluation, maintaining test engines in a configuration for quick analysis and solution of problems, component and engine system testing, and periodic verification of flight worthiness.

*Vehicle support*

As I indicated earlier, the Vehicle support line item covers studies, services, and equipment that are common to more than one stage of the vehicle. In the case of the Saturn V, the fiscal year 1968 funding requirements, amounting to \$242.0 million, provide for an intensive support effort at the test and launch sites. These funds cover a wide range of activities that support test, checkout, transportation, launch readiness, and post-flight analysis. Included are systems integration, engineering services, quality control and inspection services, reliability assessments, and contract administration. Major emphasis will be placed on support of static testing at our Mississippi Test Facility, where we will be heavily involved in acceptance testing of Saturn V 1st and 2nd stages. In addition, the workload at the Kennedy Space Center will increase in support of the Saturn V launches.

*Engine development and mission support*

My last chart on Apollo funding includes engine development and mission support (fig. 132, MP67-5439). We are requesting \$24.5 million in fiscal year 1968 for Engine Development, a significant drop from FY 1966 and 1967 requirements, since all three of our major vehicle engines are now qualified. Upon completion of engine qualification, funding of contractor effort was transferred to the respective engine account of the Saturn launch vehicles.

The FY 1968 funds requested will provide for government-furnished propellants, reimbursement to the Department of Defense for contract administration and quality assurance services, and a continuing program of evaluation and analysis of engine hardware. The major activity in this area is the J-2 engine environmental test program conducted at the Air Force Arnold Engineering Development Center, Tullahoma, Tennessee.

Mission support requirements for FY 1968 are \$281.0 million and reflect the increasing tempo of flight activity, since this line item provides for the overall