assembly, checkout, and delivery of the remaining five Instrument Units required for Apollo Saturn I vehicles.

Ground support equipment

The automatic checkout system used to verify the launch readiness of the vehicles is designed to maximize the level of reliability and efficiency and to minimize the time and cost involved in checking out the hardware. Engineering support is provided by the General Electric Company for the electrical support equipment and by the Chrysler Corporation Space Division for the mechanical support equipment.

We are requesting $6.5 million in fiscal year 1968 to cover operation and updating of stage and vehicle ground support equipment to meet specific mission requirements. Operational requirements for the Marshall breadboard facility, which is used to validate the computer programs for each mission, are also included.

H–1 and J–2 engines

The fiscal year 1968 request includes requirements of $5.2 million for H–1 engines and $.9 million for J–2 engines. The liquid oxygen-refined kerosene H–1 engine is used in a cluster of eight to power the first stage of the Saturn I, and a single hydrogen-fueled J–2 engine is used in the second stage. Both engines are produced by the Rocketdyne Division of North American Aviation, Canoga Park, California.

Fiscal year 1966 was the last full year of funding the H–1 contractor field and engineering support under the "Engine Development" project. Following completion of H–1 qualification in June 1966, funding of the contractor's work on flight evaluation and problem-solving, maintenance of test engines in a configuration for rapid response to problems encountered during flight, and periodic verification on flight worthiness was transferred to this account.

The FY 1968 funds required for the H–1 and J–2 engines cover continued support of the flight program, evaluation of flight results for use in subsequent missions, and rapid response to flight problems that may arise.

Vehicle Support

The final line item under the uprated Saturn I project is Vehicle Support, which provides for studies, services and equipment that are common to more than one stage of the vehicle. Our FY 1968 requirements are $53.4 million, covering the support requirements during a period of intensive launch activity. During FY 1968, heavy emphasis will be placed on uprated Saturn I prelaunch and launch support and postlaunch pad refurbishment at the Kennedy Space Center. The funds also cover component and subsystem failure analyses, postflight reliability reports, and guidance and control system studies. In addition, the requirements include transportation of stages and instrument units via barge or aircraft.

Saturn V

Next we come to the fiscal year 1968 funding requirements for the most powerful of the Saturn family of launch vehicles—the three-stage Saturn V. We are beginning to come down the curve on Saturn V funding, as shown in this chart (fig. 131, MP 67–5436). In addition to the intensive ground test program that has been underway, FY 1967 marks the peak year for Saturn V hardware production to meet the scheduled flight missions. The funding requested for FY 1968, amounting to $1,108.5 million, is critical to sustaining the production rate, consistent with hardware need-dates at Kennedy. Equally important is the funding that provides for vehicle support activities, including static test support at our Mississippi Test Facility, checkout support at the Kennedy Space Center, systems integration to assure proper interface control, and reliability and flight evaluation programs. Fiscal year 1968 will be a decisive one in moving us closer to the immediate goal of manned lunar landing and return.

Let me go into the detail of the Saturn V requirements for FY 1968, beginning with the 1st Stage (S–IC).

1st stage (S–IC)

We are requesting $174.7 million in fiscal year 1968 to carry forward the manufacture, test, and checkout of Saturn V 1st stages on a time-scale consistent with the planned flight schedule.