

8. Demonstrated restart capability on AS-203.

H-1 Engine:

1. Uprated from 188,000 to 200,000 to 205,000 pounds thrust.
2. Developed a method of furnace brazing critical parts, a much better and more economical system of production.
3. Improved turbopump and injector performance (specific impulse increased from 255 to 263 seconds).
4. Successfully completed Saturn I flight program and demonstrated one engine out capability.
5. Successfully completed three uprated Saturn I flights.
6. Successfully completed man rating of the H-1 engine at 205,000 pounds thrust level.

RL 10-A3:

1. This engine was the first turbopumped hydrogen-oxygen engine to be developed.
2. Successfully completed flight rating tests qualifying for flight.
3. Successfully completed six Saturn I flights and demonstrated the first flight use of a hydrogen-fueled rocket stage.
4. Successfully powered Centaur flights, including engine restart in space.

Question 9. What work will be accomplished within the engine development program in fiscal year 1968? Has part of the costs of this effort been transferred to other parts of the budget? If so, where and how much?

Answer 9. Engine development project funding for fiscal year 1968 provides propellants and test support to continue performance and reliability verification, J-2 engine restart capability assurance and related efforts. All effort by the prime contractor after engine qualification is carried in the appropriate launch vehicle account (Saturn IB for H-1 and Saturn V for J-2 and F-1). H-1 funding for supporting activities involved \$4.1 million for fiscal year 1967. Saturn V funding for fiscal year 1967 includes \$38.9 million for supporting work.

In fiscal year 1968, funding for engines within the vehicle projects covers production and test of engines plus supporting activities such as the following:

1. Flight support of the launch program.
2. Improved engine reliability.
3. Flight worthiness verification. This is a series of tests to verify that the engine reliability has in no way deteriorated as a result of shipping and handling, environmental conditions, and elapsed time from manufacture to flight.
4. Investigation and reduction in material rejection costs.
5. Continue elimination of possible failure modes to increase reliability.
6. Effective cost savings in refurbishment programs.

Question 10. What is the composition of the Advanced Missions program, by study area, and cost, for fiscal year 1968? How does this differ from fiscal year 1967?

Answer 10. Requested fiscal year 1968 funding for Advanced Missions, by study area, and comparable data for fiscal year 1967 is shown below: