A second approach is replacement of the glycol in the cabin by water while leaving the mixture of water and glycol in the Service Module. This can be accomplished by adding heat exchangers and additional pumps.

A third approach involves the examination of the flammability characteristics of other mixtures of water and glycol. In any event the thermal characteristics of the Apollo spacecraft are quite delicately balanced and care must be taken in evaluating tradeoff studies that any changes do not decrease the possibility of success not only of the mission but of the performance of the environmental control system, since the safety of the astronauts depends directly upon its successful operations.

Finally, the design of the environmental control system is being reviewed with a view to improving its maintainability and serviceability.

HARDWARE DEVELOPMENT

Uprated Saturn I launch vehicle

The three successful unmanned missions in 1966 verified the design of the uprated Saturn I vehicle and the use of liquid hydrogen as a fuel in the upper stage. In September, a Design Certification Review Board was convened to assess the maturity of the design of the uprated Saturn I for manned flight. Based on the results of this review and successful completion of qualification testing, the uprated Saturn I is considered man-rated.

1st stage

During 1966 the 1st stage of the uprated Saturn I performed well (fig. 28, MA66–10,267). Five stages have been delivered to KSC. Three of these performed nominally in flight and two are being readied for flights in 1967. The remaining seven flight stages are in various conditions of fabrication, assembly,

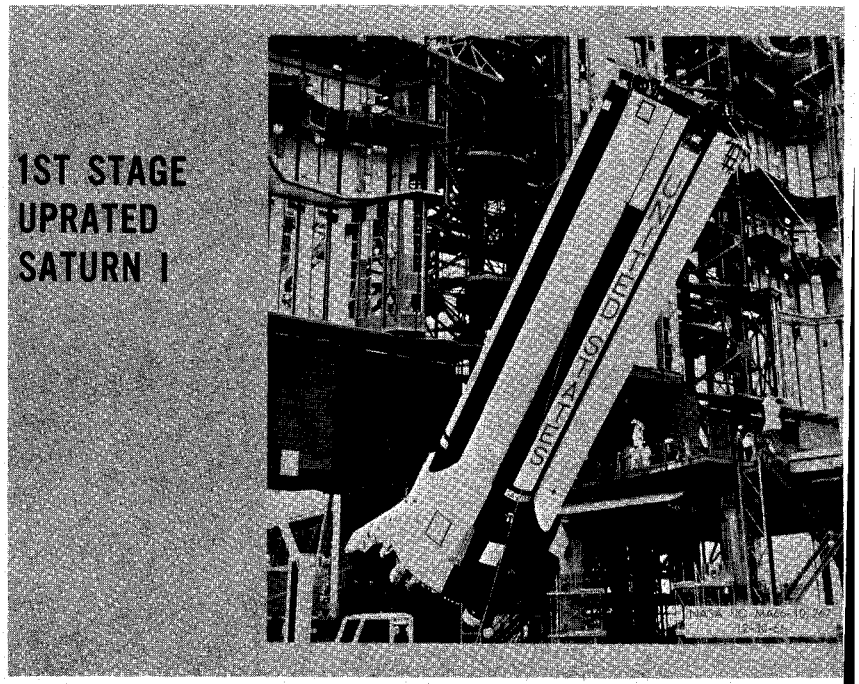

FIGURE 28