

chutes, and, in about a 2-week period, Northrop put some additional reinforcing tapes around the canopy; we have since qualified that parachute.

The titanium alcohol incompatibility required realignment of service propulsion system tanks, so as not to expose them to alcohol, and deletion of the use of methyl alcohol in all processes.

In the Block II service propulsion subsystem, we had an engine popping problem and a dynamic instability problem earlier in the program. Through some reshaping and actually some very good analytical work by Aerojet, we were able to completely eliminate that. I think we have the most stable engine in the business right now.

New things we are getting into (slide 41): There is much greater emphasis in extravehicular activities now. As a result of the late flight of Gemini, there was a lot learned about the problems of man in space. We're in the process of some design changes with the NASA, soaking up these things that have been learned so recently in the Gemini program. We have been through one preliminary design review with NASA, and we are moving into some detailed design changes of the vehicle for handholds and foot constraints for the astronaut on the outside of the command module.

Mr. WINN. Say that again.

Mr. MYERS. These guys have trouble when they're outside the command module trying to get a purchase on something to accomplish whatever they are going to try to do.

RECENT PROBLEM & SOLUTION SUMMARY

PROBLEM	SOLUTION
DESIGN PROVISIONS FOR EXTRA VEHICULAR ACTIVITY	IN PROCESS - PRELIMINARY DESIGN REVIEW JAN 31, 1967
SUSTAINING ENGINEERING	CENTRAL RESEARCH, ENGINEERING, AND TEST SUPPORTS IN HOUSE NEEDS, SUB-CONTRACTOR ENGINEERING SUPPORT LEVELS TO APOLLO EXTREMELY REDUCED
DALMO VICTOR DEEP SPACE ANTENNA	CLOSE SURVEILLANCE BY NAA AND DALMO VICTOR MANAGEMENT ON QUALIFICATION TEST COMPLETION
AIRESEARCH COMPONENTS	COMPONENTS WHICH FAILED QUALIFICATION TEST HAVE BEEN MODIFIED OR REDESIGNED
BEECH TANK QUAL	MINIMIZE HEAT LEAKAGE BY USING VACUUM PUMP FOR MAINTAINING VACUUM BETWEEN TANK SHELLS