

1966 TECHNICAL PROBLEM & SOLUTION SUMMARY

PROBLEM	SOLUTION
ZERO-G WATER GLYCOL EVAPORATOR OPERATIONS	REDESIGN OF WICKS, WETNESS SENSOR & CONTROLS (BLOCK II)
CONTAMINATION OF ECU DISTRIBUTION PLATE	REDESIGN OF DISTRIBUTION PLATE & FILTER (BLOCK IIA)
TITANIUM-N ₂ O ₄ INCOMPATIBILITY	GREEN N ₂ O ₄ (ADDITION OF 0.4 TO 0.8% NITRIC OXIDE)
SERVICE PROPULSION SUBSYSTEM HELIUM INGESTION (SP-009 MISSION)	REDESIGN OF STANDPIPE
ASTRO-SEXTANT DOOR MECHANISM	PASSIVE ASTRO-SEXTANT THERMAL PROTECTION
POTENTIAL RECONTACT OF APEX COVER AFTER JETTISONING	ADDITION OF SEPARATION CHUTE IN APEX (BL I) DUAL POSITIVE EXPULSION (BL II)
SERVICE MODULE REACTION CONTROL SYSTEM PROPELLANT CAPACITY & GAGING ACCURACY	FOUR-ON-DOOR QUAD CONCEPT PVT GAGING CONCEPT

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some of these are not major in themselves, but caused some real scrambling on our part to catch back and not have an impact on the schedule. For example, we concluded with the NASA, after a lot of soul searching, that the water glycol evaporator in our environmental control system couldn't be proven to work at zero G. It would work at one G in a laboratory, and it would work upside down, but you couldn't prove it would work at zero G. So after a lot of analytical work and some studies of the possibilities of it failing in zero G, we changed to a design which would work under any conditions of operation.

We had a contamination problem in the ECU distribution plate and had to redesign the distribution plate with larger holes; this is within the ECU.

Mr. CABELL. ECU?

Mr. MYERS. Actually, it is the environmental control unit of the overall cabin conditioning system of the spacecraft.

We had a problem with titanium and nitrous oxide, an incompatibility that caused a stress corrosion, and by adding four-tenths to eight-tenths of 1 percent of nitric oxide to the oxidizer, we got away from that problem and conclusively proved that it was a stress corrosion problem due to the interaction of very pure oxidizers.

Mr. WINN. Dale, what shows up? You're talking about stress corrosion?

Mr. MYERS. This particular one was a very interesting story. We were running a life test back at the Bell Aircraft Co., who supplied these tanks, and we popped 20 tanks in a period of 2 days—a sudden rash of failures of tanks. We couldn't understand it because we had