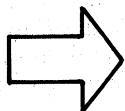


PROGRAM PARAMETERS

✓ HARDWARE

COMMONALITY
OF
MODULES



- EARTH ORBIT SPACE STATION
- LUNAR SHELTER
- LUNAR ORBITING STATION
- PLANETARY MISSION MODULE

✓ STEP-BY-STEP PROGRAM DECISIONS

- ESTABLISHMENT OF PLANETS AS "GOAL" DOES NOT REQUIRE EARLY DECISIONS FOR LONG-TERM COMMITMENTS
- EACH STEP COMPLETE--AND OF SIGNIFICANT NATIONAL VALUE--BY ITSELF

SLIDE 50. PROGRAM PARAMETERS

Mr. TINNAN. There are two aspects to your question, I believe, and we have examined both of these extensively. One is what happens when failure occurs in orbit; that is, can we remove a failed component and replace it with a spare that we have carried along? Yes. Our studies have indicated that such can be done, and usually some technical debate occurs on whether the "spare" should be built in so that the man simply throws a switch from the bad unit to the good one, or whether he should physically remove the failed unit and put the new one that's carried as a spare in its place. Our analyses have shown that both approaches are possible. In fact, some previous studies which we reported on to your committee previously have indicated that the Apollo spacecraft is nominally defined as a 14-day mission vehicle. In fact, we don't know how to design the equipment for just 14 days. We qualify it for 14-day missions, we believe it is good for many more days. Our early estimates were that the spacecraft could operate for well over a month without failure of many of the systems. In summary, the answer to your question is that the best solution is a function of the mission duration that you expect.

Mr. CARROLL. And you carry the expendables on board?

Mr. TINNAN. Yes. The mission duration may tend to be more limited by the oxygen, the food, the chemicals which remove the carbon dioxide that the astronauts expel, and the other on-board expendables, rather than the equipment life.