

GEMINI EXTRAVEHICULAR ACTIVITY CONCLUSIONS

- KEY FACTORS FOR SUCCESSFUL EVA
 - BODY RESTRAINTS
 - TASK SEQUENCE
 - WORKLOAD CONTROL
 - VALID SIMULATIONS
 - THOROUGH TRAINING
- SPACESUIT MOBILITY IS LIMITING FACTOR
- GASEOUS COOLING SYSTEM UNDESIRABLE FOR HIGH WORKLOADS
- UNDERWATER SIMULATION IS HIGH FIDELITY DUPLICATION OF ZERO-g
- LOOSE EQUIPMENT MUST BE SECURED
- HHMU PROMISING - NEED FURTHER EVALUATION

FIGURE 11

restraint system whenever the task to be performed is a two-handed, or even a one-handed task. In general we found that the foot restraints were superior to the waist tethers but the waist tethers provided a greater flexibility in their attachment points. We found that task sequence was extremely important for a successive EVA. It was highly advisable to have a brief period of familiarization for the pilot to get used to the EVA situation. We wanted to start out with simple tasks and allow plenty of time between these time periods.

Workload control, we found to be very important. In order to establish a workload control we had to have simulations that would let us establish a time line, and we could examine the workload that was needed during this time line and intersperse frequent rest periods.

We found thorough training for the crewmembers was extremely important to provide them the necessary equipment familiarization; to let them work out the procedures; and to establish the checklists that were used, both in the EVA preparation and also during the hard suit operation.

We found that space suit mobility was a rather limiting factor in the amount of work a person can perform. We, as you have just seen, have taken steps to insure that we have greater suit mobility in the Apollo program.

The gaseous cooling system, we found, is generally undesirable for rather high workloads, so we have gone to a liquid-cooled garment for the Apollo suit.

The underwater simulation gives us a high fidelity duplication of the zero-G situation. One of the more difficult things to attain in under-