

PRESENTATION OF LT. COL. EDWIN E. ALDRIN, EXTRAVEHICULAR  
ACTIVITY

Congressman Teague, members of the Subcommittee for Manned Space Flight, Dr. Gilruth, my briefing this afternoon will concern itself primarily with a summary of the Gemini EVA experiences, some conclusions we can draw from these experiences, and the status we find ourselves in, in regard to EVA at the present time.

I think you will find in the latest issue of Aviation Week some summaries that come very close to some of my remarks. In essence, they managed to scoop me very nicely; of course, they didn't dwell on and emphasize perhaps, Gemini 12 as much as I might do this afternoon.

The development of our present EVA capability has been characterized by an iterative or step-by-step, building block, process, you might say. The novel characteristics of extravehicular activity environment in space and the lack of any comparable prior experience has made, many times, intuition or the normal design approaches occasionally inadequate, and actually we have been forced to an experimental, trial and error, type of a step-by-step process.

We feel that the flight experience we have accumulated up to now has led to a reasonably good appreciation of the problems that we face for extravehicular activity. The objectives of Gemini EVA (fig. 1) were to develop a basic EVA capability, to use EVA to increase the basic capability of the spacecraft, and to develop operational techniques and evaluate advanced equipment in support of EVA for future programs.

To the first of these, certainly we have demonstrated that man can operate outside the spacecraft. For the second objective, we have retrieved equipment from outside the spacecraft; we have moved back into the adapter section and performed various tasks there; we have conducted experiments (what we call a standup EVA or open hatch environments); and we have attached vehicles together with tethers to extend the capabilities of these spacecraft.

On the last objective, as we have progressed through the Gemini program, we found that we wanted to shift our emphasis somewhat more from transport type of devices to the basic understanding of work productivity of the EVA pilot.

We have established the need for body restraints in conducting EVA work; we have evaluated to some degree various maneuvering devices; we believe we have an understanding of the workload capabilities of a pilot outside the spacecraft; and, certainly, we have gained a better understanding of simulation requirements that are needed.

In reviewing the Gemini flights (fig. 2), we find that we have actually performed EVA on five flights; we have trained for six. We now have four pilots who have experienced EVA, and we have eight who are intimately familiar with the EVA problems because of their work either as command pilots or on backup crews.