

Use of tether for station keeping

Of considerable importance to the future was the tether exercise conducted on this mission. The experiment involved undocking the two vehicles, extending the connected tether to its full 100-foot length, and rotating the systems of two vehicles using the spacecraft thrusters. This method of multivehicle station keeping, which requires a minimum use of fuel, will be invaluable for application in future programs, since centrifugal force produced by this technique provides a radial-acceleration which may find application as a means of providing a special artificial gravity.

GEMINI XII

The Gemini XII mission commenced on November 11, 1966, and a rendezvous and docking with an Agena target vehicle was accomplished during the third spacecraft revolution.

A planned high altitude excursion using the Agena propulsion systems was deleted because of a suspected anomaly in the Agena. In lieu of this, a rendezvous with a solar eclipse on November 12, 1966, was executed by the combined Gemini Agena vehicle and eclipse photographs free from the effects of our atmosphere were obtained.

Successful extravehicular activity

For the Gemini XII mission great care was taken with EVA preparations because of the difficulties which had been experienced earlier. EVA tasks were carefully redesigned and training was intensified. The EVA was designed to provide more fundamental baseline information on man's ability to function in the space environment to insure that this constraint does not exist in Apollo and Apollo Applications.

Three separate periods of EVA were conducted on Gemini XII and all were completely successful. A special EVA report now in preparation will provide future planners and astronauts with a complete synopsis and analysis of all of the Gemini EVA experience as a base for further use of man as a worker in space.

Before continuing this discussion of the Gemini program with a review of the six Gemini objectives, I would like first to show a film which summarizes the Gemini achievements. The script for the film is attached as appendix B to this statement.

GEMINI OBJECTIVES

I would now like to turn to the six Gemini objectives; first showing how these objectives were met and then how in meeting the objectives Gemini has laid the foundation for future space activity.

INVESTIGATE LONG DURATION FLIGHT

The Gemini objectives are shown on this chart (fig. 4, M65-5187). At the close of 1965, long duration flights of up to 14 days were completed. The analysis of these flight data has opened the way for the 28- and 56-day missions planned in the Apollo Applications program and other follow-on programs for the immediate future. The total Mercury and Gemini space flights experience provide approximately 2,000 man-hours weightless exposure for evaluating predicted effects of space flight versus actual findings.