

TABLE 6-I.—Planned and Actual Flight Conditions

Cutoff conditions:	
Altitude, ft.....	528, 381
Velocity, ft/sec.....	25, 730
Flight-path angle, deg.....	-0. 047
Orbit parameters:	
Perigee altitude, nautical miles.....	86. 92
Apogee altitude, nautical miles.....	140. 92
Period, min:sec.....	88:29
Inclination angle, deg.....	32. 54
Maximum conditions:	
Exit acceleration, g units.....	7. 7
Exit dynamic pressure, lb/sq ft.....	982
Entry acceleration, g units.....	7. 7
Entry dynamic pressure, lb/sq ft.....	472

TABLE 6-II. Sequence of Events During MA-6 Flight

(All times are Eastern Standard)

Event	Planned time ^a , hr:min:sec	Actual time, hr:min:sec
Booster-engine cutoff.....	00:02:11. 4	00:02:09. 6
Tower release.....	00:02:34. 2	00:02:33. 3
Escape rocket firing.....	00:02:34. 2	00:02:33. 4
Sustainer-engine cutoff (SECO).....		00:05:01. 4
Tail-off complete.....	00:05:03. 8	00:05:02
Spacecraft separation.....	00:05:03. 8	00:05:03. 6
Retrofire initiation.....	04:32:58	04:33:08
Retro (left) No. 1.....	04:32:58	04:33:08
Retro (bottom) No. 2.....	04:33:03	04:33:13
Retro (right) No. 3.....	04:33:08	04:33:18
Retro assembly jettison.....	04:33:58	(^b)
0.05g relay.....	04:43:53	^c 04:43:31
Drogue parachute deployment.....	04:50:00	04:49:17. 2
Main parachute deployment.....	04:50:36	04:50:11
Main parachute jettison (water impact).....	04:55:22	04:55:23

^a Preflight calculated, based on nominal Atlas performance.^b Retro assembly kept on during reentry.^c The 0.05g relay was actuated manually by astronaut when he was in a "small g field."

Because of the complexity of the entire operation and the critical time element of powered flight, it was felt and borne out by flight experience that such a set of rules were an absolute necessity. Of course, it is impossible to think of everything that can happen but if most of the contingencies have been anticipated along with the procedures to handle these situations, the time available can be used to concentrate on the unexpected. The occurrence of the heat shield deploy signal in this flight is an example of one of these unforeseen circumstances.

Flight Test Results

The rest of this paper deals primarily with the flight test results and flight control problems which developed throughout the three-orbit mission. The observations made by the astronaut and his evaluation of the mission are presented in paper 12 by Astronaut John H. Glenn, Jr.

After separation of the spacecraft from the launch vehicle, the astronaut was given all the pertinent data involved with orbit parameters