

9. 3B, 19 July 58, Response Mode 4T, Flight Phase 1: Random failure of yaw rate gyro caused violent maneuvers resulting in rupture of LO<sub>2</sub> tank, engine shutdown, and a fire near the lube oil drain. Missile broke up about 42 seconds with impact about 2 miles downrange and 0.4 miles crossrange left.
11. 5B, 28 Aug 58, Response Mode 4, Flight Phase 2.5: Missile was normal to SECO. After SECO, failure of hydraulic system caused loss of vernier engine control. Warhead impacted close to intended target.
12. 8B, 14 Sep 58, Response Mode 4, Flight Phase 2.5: Warhead impacted close to target although control was lost after SECO due to failure of vernier-engine hydraulic system.
13. 6B, 18 Sep 58, Response Mode 4, Flight Phase 1: Except for a late-opening sustainer fuel valve, flight was apparently normal until 80.8 seconds, when the B1 turbopump failed. Performance of the B1 engine and the axial acceleration dropped sharply at about 81.7 seconds, and the B2 system shut down about 0.1 seconds later. The sustainer and vernier engines continued to operate normally until 82.9 seconds, when the missile exploded. Impact was about 25 miles downrange and about 0.6 miles right of the flight line.
14. 9B, 17 Nov 58, Response Mode 4, Flight Phase 2: The flight was terminated at 227.6 seconds by premature fuel depletion caused either by failure of the propulsion utilization system or by a tanking error. Missile impacted near the flight line about 2300 miles downrange, some 850 miles short of target.
18. 13B, 15 Jan 59, Response Mode 5, Flight Phase 1: The vehicle appeared normal for the first 50-60 seconds, at which time it was obscured by clouds. It was probably normal until about 100 seconds, but prelaunch removal of the mainframe telemetry system prevented a precise determination. Beginning about 101 seconds, various erratic pitch, yaw, and roll rates and oscillations were noted with accompanying drops in acceleration and velocity. These rates become excessive at 106.6 seconds. At 121 seconds, the nosecone telemetry system showed that yaw and pitch rates abruptly increased, and this condition existed until reentry at 281 seconds. All thrusting apparently stopped between 121 and 123 seconds. The missile impacted about 170 miles downrange and 7.5 miles left.
19. 4C, 27 Jan 59, Response Mode 5, Flight Phase 2: Since the guidance system was inoperative throughout, the flight path was controlled by the pre-programmed flight control system. Impact was about 80 miles long and 30 miles left of target point.
21. 5C, 20 Feb 59, Response Mode 4, Flight Phase 2: After a normal booster phase, missile exploded at 173 seconds (BECO at 149.2 sec) apparently due to loss of fuel-tank pressure and subsequent rupture of LOX/fuel-tank bulkhead. Impact was about 1000 miles downrange and 6 miles left.