

D.5.2 Thor and Thor-Boosted Failure Narratives

The following narratives provide information about flight failure of Thor weapons system and Thor-boosted space vehicle launches beginning with the first Thor launch in January 1957. The narratives are numbered to match the flight-sequence numbers in Section D.5.1.

1. 101, 25 Jan 57, Response Mode 1, Flight Phase 1: Failure of fuel-system valve resulted in loss of thrust. Missile fell back on pad after reaching an altitude of only 9 inches.
2. 102, 19 Apr 57, Response Mode 4, Flight Phase 1: Missile was apparently performing normally until destroyed by the RSO at 34.7 seconds. Erroneous DOVAP beat-beat plot showed missile heading uprange.
3. 103, 21 May 57, Response Mode 1, Flight Phase 1: Missile was destroyed on the pad at T - 5 minutes. A faulty fuel-tank regulator and relief valve resulted in over-pressurizing and bursting of fuel tank.
4. 104, 30 Aug 57, Response Mode 4T, Flight Phase 1: Spurious signals in the main-engine yaw feedback circuit resulted in missile breakup shortly after 92 seconds.
5. 105, 20 Sep 57, Response Mode 4, Flight Phase 1: Premature propellant depletion resulted in impact some 400 miles short of target.
6. 107, 3 Oct 57, Response Mode 1, Flight Phase 1: Main fuel valve closed 1.25 seconds after liftoff. Missile fell back on pad after reaching an altitude of about 17 feet.
7. 108, 11 Oct 57, Response Mode 4, Flight Phase 1: Due to a mechanical failure, an abnormal main-engine shutdown (one second early) resulted in loss of the vernier solo phase.
9. 112, 7 Dec 57, Response Mode 5, Flight Phase 1: An electrical-system failure at 107 seconds produced an abnormal loading on the missile converter. The missile began deviating at 110 seconds and finally broke up at about 224 seconds (well after MECO at 156 seconds). Missile impacted 200 miles downrange and 40 miles left of flight line.
10. 113, 19 Dec 57, Response Mode 4, Flight Phase 1.5: Flight was regarded as successful although there was no vernier solo operation and impact was 6 miles from target.
11. 114, 28 Jan 58, Response Mode 5, Flight Phase 1: Guidance system failure at 95 seconds resulted in erroneous steering commands causing the vehicle to yaw left and pitch down. Divergence began about 110 seconds and continued until the