

What is the TV-D1 Mission?

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About TV-D1 Mission

- Test Vehicle Abort Mission-1 (TV-D1) will evaluate the crew module's readiness for the Gaganyaan mission.
- It is a single-stage liquid rocket developed specifically for this abort mission.
- The payloads consist of the Crew Module (CM) and Crew Escape Systems (CES) with their fast-acting solid motors, along with CM fairing (CMF) and Interface Adapters.
- This flight will simulate the abort condition during the ascent trajectory corresponding to a Mach number of 1.2 encountered in the Gaganyaan mission.

What is the test all about?

- The abort and crew escape system operates on a similar principle to an ejection seat found in fighter jets, with the primary goal of safeguarding the lives of crew members in the event of in-flight anomalies.
- The Crew Escape System is engineered to automatically function across various altitudes should the onboard computer detect any malfunctions.
- This test flight will simulate an abort condition during the ascent trajectory.

- Objective: To test a crucial system to be deployed on the Gaganyaan mission that will ensure the safety of the Indian astronauts in case of an emergency in the initial phase of the launch.
 - CES with CM will be separated from the Test Vehicle at an altitude of about 17 km.
 - Subsequently, the abort sequence will be executed autonomously commencing with the separation of CES and deployment of the series of parachutes, finally culminating in the safe touchdown of CM in the sea, about 10 km from the coast of Sriharikota.
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Q1) What is Gaganyaan mission is?

The Gaganyaan mission is India's ambitious human spaceflight program aimed at sending Indian astronauts into space. The Indian Space Research Organisation (ISRO) is responsible for developing and executing the mission, which was officially announced in 2018.

Source: [Hundreds of tests planned, working to get crew module from outside India: ISRO's Somanath on Gaganyaan](#)

Source: <https://vajiramandravi.com/current-affairs/tv-d1-mission/>

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