

## Gaganyaan G1 mission

### Why in News?

The Indian Space Research Organisation (ISRO) began the 'stacking,' or assembly, of HLVM3 at the Satish Dhawan Space Centre, Sriharikota.

- It is the 1<sup>st</sup> of 3 un-crewed test missions that will lead up to India's maiden human spaceflight.
- **Aim** - To mimic - end to end - the actual flight and validate critical technologies and capabilities including the Human-rated Launch Vehicle Mark-3 (HLVM3).
- **Activity** - It will place the orbital module in a 170 km x 430 km elliptical orbit around the earth.
- Once the orbital module de-orbits, the crew module will separate for controlled re-entry into the earth's atmosphere and splashdown in the Bay of Bengal

December 18, 2024 coincides with the 10<sup>th</sup> anniversary of the sub-orbital Crew Module Atmospheric Re-entry Experiment (**CARE**) mission of 2014.

- **HLVM3** - Human rated launch vehicle, HLVM3, is derived from LVM3 and designed with enhanced reliability to meet human safety considerations.
- It is a 3-stage vehicle with a payload capacity of about 10 tonnes to LEO.
- The vehicle is 53 meters tall and weighs 640 tonnes.
- **Orbital module components** - The service module and the crew module together make up the orbital module
- The crew module is progressing at the Vikram Sarabhai Space Centre, at Thumba in Kerala.
- Once the crew module is ready, it will be transferred to the U.R. Rao Satellite Centre (URSC), Bengaluru, for integration with the service module.
- After a series of tests including thermo-vacuum tests at the URSC, the orbital module will be transported to Sriharikota to be placed aboard the launch vehicle.
- The crew module is connected to the crew escape system which is placed at the very top.

Orbital Module Components	Launch Vehicle components
<ul style="list-style-type: none"> <li>• Service Module</li> <li>• Crew module</li> </ul>	<ul style="list-style-type: none"> <li>• S200 solid rocket boosters</li> <li>• L110 liquid stage</li> <li>• C32 cryogenic stage</li> </ul>

### References

1. [The Hindu| Integration of Components of Gaganyaan G1 Mission](#)
2. [ISRO| HLVM3](#)

