

# ISRO Latest Launch: GSLV Rocket

The Indian Space Research Organisation (ISRO) has recently launched the INSAT-3DS meteorological satellite, aimed at enhanced monitoring of the Earth's surface, atmosphere, oceans, and environment. The focus of attention during this launch was not only the satellite but also the GSLV-F14 rocket, which successfully delivered the satellite to its intended geostationary orbit.



# GSLV Rocket's Track Record

## 1 High Failure Rate

GSLV had flown 15 times before this, and four of the flights were unsuccessful, resulting in a very high failure rate for any rocket.

## 2 Recent Failure

GSLV's most recent failure was in August. Its problems have mainly been with the cryogenic engine that powers the third and final stage of the flight.

## 3 Technology Challenges

The GSLV uses a cryogenic engine that is reverse-engineered on a Russian design, which has caused a few headaches for ISRO.

# PSLV and LVM3 Rockets

## PSLV

PSLV has failed only twice in its 60 launches, including the first time it was tried way back in 1993.

## LVM3

LVM3's seven flights have been without any trouble. It has an entirely Indian design and uses a different process to burn the fuel.

# Cryogenic Engine Challenges

1

## Recent Failure

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2

## Technology Transfer

The Russians had won a deal to supply cryogenic engines and technology to ISRO in the late 1980s, but that deal had come under pressure from the United States.

3

## Indigenous Development

India has managed to develop its own cryogenic engine as well, a result of decades of research and development.



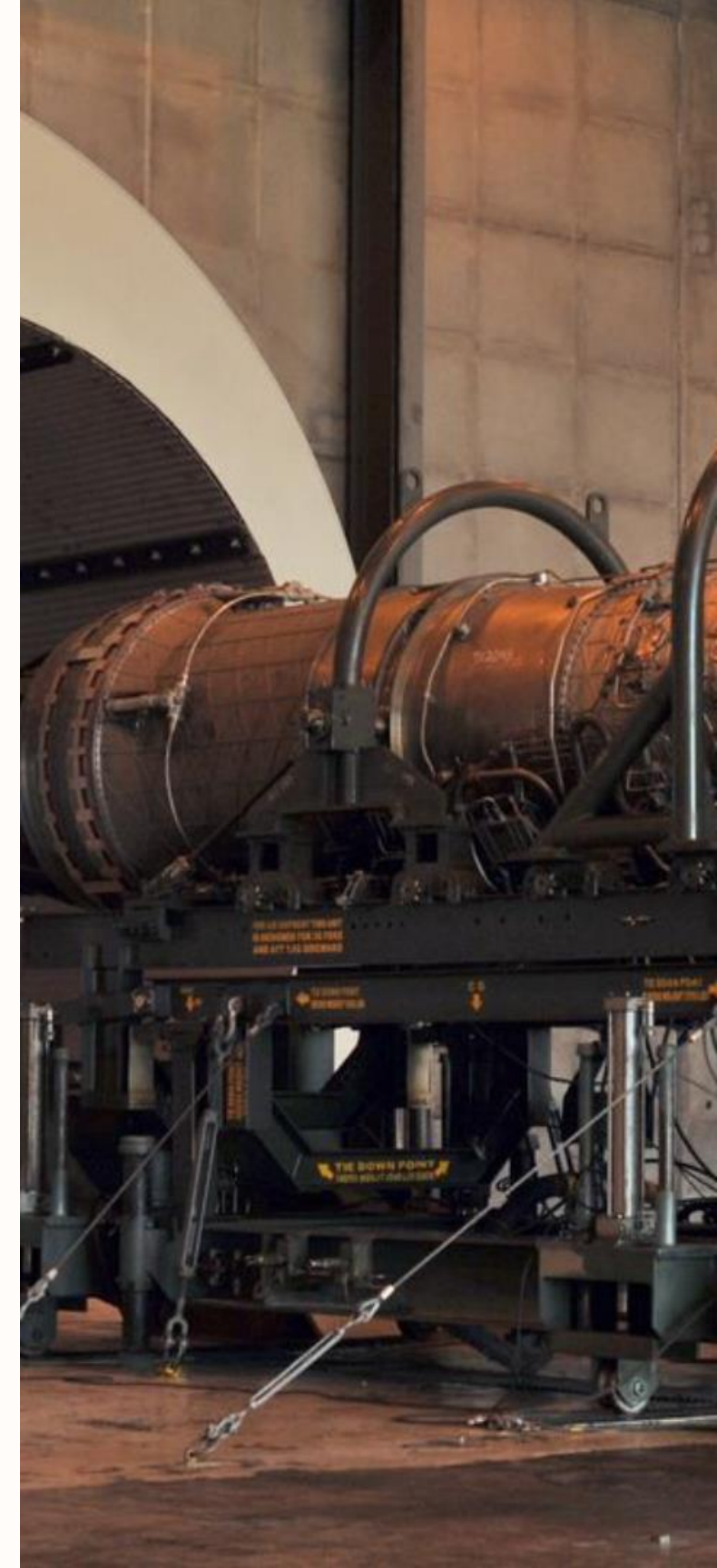
# Indigenous Cryogenic Engine

## Indian Design

This engine has an entirely Indian design, developed within ISRO, and uses a different process to burn the fuel.

## Successful Deployments

This indigenously developed cryogenic engine has been deployed in LVM3, ISRO's most powerful rocket so far, which carried the Chandrayaan-2 and Chandrayaan-3 missions, among others.



# Challenges and Achievements

1

## Challenges

GSLV's most recent failure was in August. Its problems have mainly been with the cryogenic engine that powers the third and final stage of the flight.

2

## Achievements

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# Future of ISRO's Rockets

**60**

## PSLV Launches

PSLV has failed only twice in its 60 launches, including the first time it was tried way back in 1993.

**7**

## LVM3 Flights

LVM3's seven flights have been without any trouble.

# Conclusion: Advancements in Space Technology

GSLV

Had a rather patchy track record thus far, but made a flawless flight on Sunday.

LVM3

Uses an entirely Indian design and has been deployed in ISRO's most powerful rocket so far.