



# India's 5G Fighter Aircraft and LCA Tejas

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## Why in News?

The [Cabinet Committee on Security \(CCS\)](#) approved a Rs 15,000 crore project to design and develop India's [fifth-generation fighter](#) multirole jet, the [Advanced Medium Combat Aircraft \(AMCA\)](#).

- In a related incident, a Court of Inquiry has been initiated to investigate the cause of an Indian Air Force Light Combat Aircraft (LCA) Tejas crash during an operational training sortie in Rajasthan.

## What are the Fifth-generation Fighter Jets?

### ▪ About:

- **Fifth-generation (5G) fighters** are aircraft capable of operating in **heavily contested combat zones**, characterised by the presence of the most advanced air and ground threats, both current and anticipated.
- 5G fighter jets have **stealth capabilities** and can [cruise](#) at **supersonic speeds** without engaging afterburners.
- It stands out from fourth-generation (4G) peers due to its **multi-spectral low-observable design**, self-protection, radar jamming capabilities, and integrated avionics.
- **5G jets** are possessed by **Russia (Sukhoi Su-57)**, **China** (Chengdu J-20), and the **US** (F-35).

### ▪ Need for India:

- The IAF currently **has around 30 fighter squadrons** against the **sanctioned strength of 42**.
  - The squadrons of MiG-21s, MiG-29s, Jaguars, and Mirage 2000s are scheduled to be phased out by the middle of the next decade.
- India must enhance its air defences against **China and Pakistan**, with China possessing 3,304 aircraft, while India and Pakistan have 2,296 and 1,434 aircraft, respectively.
- India aims to **enhance its self-sufficiency in defence**, focusing on strengthening its air force and replacing ageing aircraft, albeit with the recognition that acquiring fighter jets and other equipment is a time-consuming process.
- India is developing the **Advanced Medium Combat Aircraft (AMCA)**, with five prototypes to be collaboratively manufactured by **ADA, HAL, and private industries**, building on the success of the [LCA Tejas](#).
  - Once it acquires these fifth-generation fighters, India will join a select group comprising the **US, Russia, and China**.

## What are the Features of Advanced Medium Combat Aircraft (AMCA)?

- **Nodal Agency:** The [Aeronautical Development Agency \(ADA\)](#) under the [Defence Research and Development Organisation \(DRDO\)](#) will be the **nodal agency** for executing the programme and designing the aircraft.
  - **Manufactured By: State-owned Hindustan Aeronautics Limited (HAL).**
- **Features:**
  - **Stealth:** The **25-tonne twin-engine aircraft** is set to surpass current Indian Air Force

fighters in size, and will feature **advanced stealth to outmatch global 5G stealth fighters.**

- **Fuel and Weapon:** The aircraft will have a **large, concealed internal fuel tank** of 6.5-tonne capacity, and an **internal weapons bay** for a range of weapons, including indigenous weapons.
- **Engine:** The **AMCA Mk1** will feature the **US-built GE414 engine** (90 kilo Newton class), while the more advanced **AMCA Mk2** will use a more powerful **110 kN engine** developed by **DRDO's-Gas Turbine Research Establishment (GTRE)** in collaboration with a foreign defence major.
- **Development Timeline:** The **ADA** aims for the **aircraft's first flight in 4-5 years**, with full development expected to take around 10 years; five prototypes will precede HAL's manufacturing, involving the private industry.

## What are the Features of Light Combat Aircraft (LCA) Tejas?

- **About:**
  - The **Light Combat Aircraft (LCA) programme** was started by the Government of India in 1984 when they established the ADA to manage the LCA programme.
    - It replaced the ageing Mig 21 fighter planes.
- **Designed by:**
  - ADA under the **Department of Defence Research and Development.**
- **Manufactured by:**
  - State-owned Hindustan Aeronautics Limited (HAL).
- **Features:**
  - The **lightest, smallest, and tailless** multi-role supersonic fighter aircraft in its class.
  - Designed to carry a range of **air-to-air, air-to-surface**, precision-guided, weapons.
  - Air-to-air refueling capability.
  - Maximum payload capacity of 4000 kg.
  - It can attend the **maximum speed of Mach 1.8.**
  - The range of the aircraft is 3,000km
- **Variants of Tejas:**
  - **Tejas Trainer:** 2-seater operational conversion trainer for training air force pilots.
  - **LCA Navy:** Twin- and single-seat carrier-capable for the Indian Navy.
  - **LCA Tejas Navy MK2:** This is phase 2 of the LCA Navy variant.
  - **LCA Tejas Mk-1A:** This is an improvement over the LCA Tejas Mk1 with a higher thrust engine.

## UPSC Civil Services Examination, Previous Year Question:

### Prelims

**Q. Which one of the following is the best description of 'INS Astradharini', that was in the news recently? (2016)**

- (a) Amphibious warfare ship
- (b) Nuclear-powered submarine
- (c) Torpedo launch and recovery vessel
- (d) Nuclear-powered aircraft carrier

**Ans: (c )**

**Q. In the context of the Indian defence, what is 'Dhruv'? (2008)**

- (a) Aircraft-carrying warship
- (b) Missile-carrying submarine
- (c) Advanced light helicopter
- (d) Intercontinental ballistic missile

Ans:( c )

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