



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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