नवभारत टाइम्स

Sat, 21 Sep 2019

रासायनिक-जैविक हमलों के लिये सेना का समुचित प्रशिक्षण की जरूरत : राजनाथ

ग्वालियर: रक्षा मंत्री राजनाथ सिंह ने रासायनिक-जैविक हमलों का सामना करने के लिये देश की सेनाओं को तैयार करने और उचित प्रक्षिक्षण देने की जरूरत पर जोर दिया है। सिंह शुक्रवार को यहां रक्षा अनुसंधान एवं विकास स्थापना (डीआरडीई) के एक कार्यक्रम में वैज्ञानिकों को संबोधित कर रहे थे। उन्होंने कहा कि कई इलाकों में जहां देश की सेना तैनात की जाती है वहां संभावित विरोधी इन हथियारों को इस्तेमाल कर सकते हैं। जैविक-रासायनिक हथियारों का इस्तेमाल जीवन, स्वास्थ्य, संपत्ति और व्यापार को इस प्रकार खतरे में डाल सकता है कि इसे ठीक होने में लम्बा समय लग सकता है। भविष्य के युद्ध में ऐसे हथियारों के खतरे या उपयोग के बारे में बताते हुए सिंह ने कहा कि हमारी सेनाओं को रासायनिक-जैविक हमलों के सामने प्रभावी और निर्णायक ढंग से काम करने के लिए समुचित रूप से प्रशिक्षित और सुसज्जित किया जाना चाहिए। उन्होंने कहा कि मुझे यह जानकर बहुत खुशी हो रही है कि डीआरडीई ने विषाक्त एजेंटों का पता लगाने और इनसे बचाव की कई तकनीकें विकसित की हैं। उन्होंने कहा कि 45 वर्षों की शानदार सेवा के दौरान डीआरडीई ने रासायनिक-जैविक रक्षा में राष्ट्र के सपने को साकार करने के लिए अथक प्रयास किया है। उन्होंने कहा कि वह इस बात से प्रभावित हुए हैं कि डीआरडीई को पर्यावरण और जैव-चिकित्सा के नमूनों के सत्यापन के लिये आर्गनाईजेशन फॉर द प्रोहीबेशन आफ केमिकल वेपन्स :ओपीसीडब्ल्यू: द्वारा एक मात्र नामित राष्ट्रीय प्रयोगशाला के रूप में मान्यता दी गयी है। इससे भारत को अंतराष्ट्रीय स्तर पर बढ़त मिलती है। इस मौके पर उन्होंने डीआरडीई, ग्वालियर द्वारा बनाए गए बायो-डाइजेस्टर का जिक्र करते हुए कहा कि इस सिस्टम का उपयोग भारतीय रेल कर रही है। यह बायो-डाइजेस्टर कितना उपयोगी सिद्ध हुआ है, यह सभी जानते हैं। डीआरडीई के कार्यक्रम के बाद रक्षामंत्री राजनाथ सिंह, केन्द्रीय ग्रामीण विकास मंत्री नरेन्द्र सिंह तोमर के घर गए और उनकी मां के निधन पर संवेदना व्यक्त की। इसके बाद उन्होंने पत्रकारों से बात करते हुए कहा कि भारत में बनाए गए फाइटर एयरक्राफ्ट तेजस में उनका उड़ने का अनुभव शानदार रहा। उन्होंने कहा कि देश के वैज्ञानिक और सैनिक दोनों ही देश को सुरक्षित रखने के लिए चाक-चौबंद हैं। (***डिसक्लेमर**: यह आर्टिकल एजेंसी फीड से ऑटो-अपलोड हुआ है। इसे नवभारतटाइम्स.कॉम की टीम ने एडिट नहीं किया है।)*

https://navbharattimes.indiatimes.com/state/madhya-pradesh/other-cities/rajnath-needs-proper-training-of-army-for-chemical-biotic-attacks/articleshow/71221127.cms

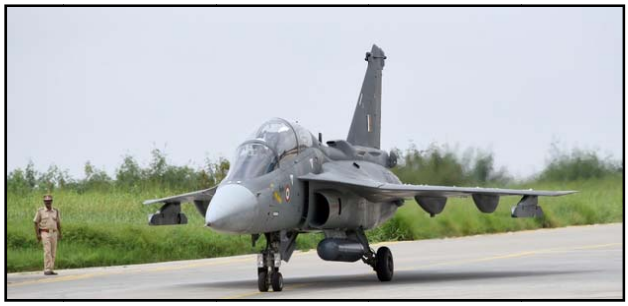
THE NEW INDIAN EXPRESS

Sat, 21 Sep 2019

LCA Tejas to level up with on-board oxygen system by early 2020, says DRDO

Tejas has been built using advanced composites with an eye on reducing its weight while enhancing the life of the components

Bengaluru: India's Light Combat Aircraft (LCA) Tejas will be graduating to the next level with the installation of the On-board Oxygen (OBOX) generating system by December or early 2020, said a scientist from Defence Electromedical & Bio-Engineering Laboratory (DEBEL), under the Defence Research & Development Organisation (DRDO).



Almost a year after a successful mid-air fuelling of the Tejas, the LCA Mark-1 (Mk-1) of the Indian Air Force, which enables aircrafts to be airborne for longer durations, DEBEL researchers have developed the onboard oxygen generating system, OBOX, to help keep the pilot fit and alert for an equally long duration with continuous supply of oxygen while on high altitude, long-distance flights.

"As of now, a fighter pilot is airborne with a bottle of oxygen, a cylinder that comes with the aircraft, which has the capacity to last an hour at the most, before coming back to base to get it replenished. However, with the OBOX, oxygen will be available throughout, as long as the engine is running," he said. The LCA Tejas is an indigenous lightweight, multi-role supersonic aircraft, developed in both fighter and trainer versions.

The IAF had initially ordered 40 LCA Tejas aircrafts with the Hindustan Aeronautics Limited (HAL), which is manufacturing the aircraft after the Aeronautical Development Agency (ADA) completed its design and development phase.

However, in 2018, the IAF placed a further order of 83 LCA Tejas aircraft at a cost of about Rs 50,000 crore. Tejas has been built using advanced composites with an eye on reducing its weight while enhancing the life of the components.

The lightweight fighter -- designed to carry air-to-air, air-to-surface, precision-guided and standoff weaponry -- successfully completed arrested landing on its naval variant in Goa and is finally expected to be assigned for operations on India's aircraft carrier Vikramaditya.

How the self-replenishing system works

The box will suck the bleed air which is being thrown out of the engine along with the exhaust, and then processes it through sieves. Nitrogen is separated through this 'absorption process' and pure oxygen is generated.

"We have successfully completed lab trials. Now it is to have flight trials. Which is expected by the end of this year or by 2020. After that, this will be fitted on the Tejas," he said.

The OBOX will flash warning lights and beeps when it detects lesser oxygen than demanded. An onboard electronic control unit on it will monitor the generation and percentage of oxygen.

The 14.5 kg OBOX has been designed for the Tejas and will be later used with small modification on Sukhoys and Hawks.

http://www.newindianexpress.com/nation/2019/sep/20/lca-tejas-to-level-up-with-on-board-oxygen-system-by-early-2020-says-drdo-2036300.html

REPUBLIC.

Sat, 21 Sep 2019

HAL beams with pride as Defence Minister flies Made in India Tejas

By Pooja Prasanna

Mumbai: 38-year-old Lakshmi had gotten to work early on Thursday and as she stood in line, alongside her other colleagues from HAL, she was beaming with pride. In the last 4 years, she had worked on the aircraft that India's defence minister would fly in and she stood waiting for him to arrive. Just a few minutes after 9 am, Defence Minister Rajnath Singh, amidst heavy security and a long line of cars, arrived at HAL airstrip in Yamalur, Bengaluru. After the brief welcome, he was taken inside by officials of HAL. A few minutes later, a photograph of the defence minister in his G-suit surfaced.

By 9:30, flanked by pilots of the India Airforce, the defence minister emerged and walked briskly towards the LCA Tejas, readied and parked hours before. Rajnath Singh, donning a g-suit and aviators, smiled and waved at the cameras before climbing to his seat, as a co-pilot. He was assisted by pilots of the 45 Squadron Flying Daggers. The defence minister, while chatting with his copilot, took his time to get acquainted with what he could expect over the next 30 minutes and also the safety precautions. All set, he showed a thumbs up just before the glass door of the cockpit was closed.

Minute later, Air Vice Marshal Narmdeshwar Tiwari, moved towards the aircraft runway, made a 90-degree turn before disappearing from the line of sight of cameras. The strong sound a few seconds later confirmed that the light combat aircraft had taken to the skies of Bengaluru. AVM N Tiwari was chosen for this special flight because not only was he one of the senior-most pilots of IAF but is also the Project Director of the National Flight Test Centre, ADA (Aeronautical Development Agency) in Bengaluru.

While we waited for the defence minister, flown by AVM N Tiwari, to land back at the HAL airbase, we chatted with some of the close-to-hundred HAL and DRDO employees who had gathered to witness the special flight. At first hesitant to speak to media, some of them opened up about why they were there. Prashanth S said that he had briefly worked on the design of Tejas many years ago. For him, to have been a part of the team which gave India its very own light combat aircraft was a matter of pride. He said he felt ecstatic that he could witness the defence minister of India fly in the aircraft years later.

Work on developing light combat aircraft began as early as 1980 in India but took decades for the design and production. Tejas, as LCAs were christened in 2003, have been indigenously procured and produced in India-a shining example of make in India. And speaking on the same lines another employee of HAL who worked for over 8 years on Tejas, animatedly said that while the LCA has made headlines several times the last few years, the defence minister choosing to fly in a trainer version gives much impetus to the aero-scientists. Personally, he said, he felt encouraged with the attention Tejas is getting.

While defence ministers in the past have co-piloted fighter planes-Nirmala Seetharaman who flew in a Sukhoi-30 in January, 2018 and AK Antony piloting a MiG-29K in May 2013, for instance- this is the first time a defence minister has been flown in a home-grown fighter aircraft. In that sense, Rajnath Singh's familiarization sortie made history. Right after landing, amidst cheers and applause from the onlookers and pilots, the defence minister looked enthusiastic and comfortable, smiled and waved to the crowd that had gathered in an otherwise no-entry zone, to see him take to the skies in Tejas. When he, along with his co-pilot, spoke to the media, Mr Singh said the flight had been smooth and

AVM N Tiwari had not just explained the technical aspects mid-air to the defence minister but they even leisurely chatted about the IAF pilot's family. For a couple of minutes, under instructions of AVM N Tiwari, Rajnath Singh even dexterously took control of the flight, they said.

Post the press conference, while the crowd slowly dispersed, we chatted with yet another HAL employee. He had worked on making some parts of the aircraft. Sreenivasan told us that he is due to retire in a few months and couldn't contain his excitement last week when a naval version of the LCA made an arrested landing atop INS Vikramaditya off Goa's shores. And today when he witnessed the defence minister fly in Tejas, he said he would retire a proud HAL employee.

https://www.republicworld.com/india-news/general-news/hal-beams-with-pride-as-defence-minister-flies-made-in-india-tejas

The Tribune

Sat, 21 Sep 2019

New IAF Chief tested Tejas during sanctions

Bhadauria has 4,250 hrs of flying time

By Ajay Banerjee

New Delhi: When India tested a "thermo nuclear" device in May 1998, US imposed sanctions and the development of Light Combat Aircraft, the Tejas, was hit. A key stumbling block, among others, was the fly-by-wire system — the on-board computer that guides the jets and all its systems.

India was looking to get help from the US or France but with the Defence Research and Development Organisation (DRDO) and its labs put on the "entities list", it stopped any country from helping India.

July 2001 onwards altered the course for the Tejas. Wing Commander Rakesh Kumar Singh Bhadauria was selected as project director of the National Flight Test Centre for testing the LCA as its Chief Test Pilot. Having commanded the Jaguar squadron at Ambala during the Kargil war (May to July 1999) the officer's task was cut out — India wanted the plane to fly at any cost and make the fly-by-wire system on its own.

Wg Cdr Bhadauria (Now Air Marshal, the second highest post in the IAF), had the task to test out the systems that were being made for the first time in India.

"Major development of the Tejas took place under his tenures (July 2001-March 2005 and another one in 2007)," recalls Air Vice Marshal SJ Nanodkar (retd), who is one year junior in service to Air Marshal Bhadauria, the IAF Chief-Designate.

He was the one testing the fly-by-wire system being built from scratch by scientists. Inputs of a test pilot are vital, besides the inherent risk to the pilots own life as the system was being tried out, recalls AVM Nanodkar.

With more than 4,250 hours of flying time across 26 different fighter jets and transport aircraft, as Deputy Chief of the Indian Air Force, Air Marshal Bhadauria acted as chairman of the Indian negotiating team for the purchase of the 36 Rafale jets.

Both his children — a son and a daughter — are pilots but in the civil aviation sector.

https://www.tribuneindia.com/news/nation/new-iaf-chief-tested-tejas-during-sanctions/835614.html

THE TIMES OF INDIA

Sat, 21 Sep 2019

Obscured by headlines such as Rajnath Singh flying the Tejas, defence research is in terrible shape

By Manmohan Bahadur

Defence minister Rajnath Singh flying the Tejas has sent a good signal that indigenous endeavours would be encouraged by the government. While his stint in the cockpit made for good optics, popping flash bulbs should not cloud the reality.

The naval variant of the indigenous Tejas also made news recently when it made a successful 'trap'– the video showing its tail hook engaging the arrestor wire went viral, and rightly so, as the next step is a carrier landing. This naval Tejas Mk1 is a technology demonstrator, as the navy needs a twin engine fighter; that would be a totally new design and hopefully would not go the way of countless DRDO projects that have been advertised with much fanfare, bagged scarce R&D funds, only to deceive in the final analysis – as they don't get delivered in time and with the right specifications for operational use.

It is time that claims of defence public sector undertakings (DPSUs) and DRDO are put through public professional enquiry; in the private sector, heads would have rolled. Last month, the front page story of a national daily, quoting defence sources, stated that "the Tejas Mk2 fighter being developed for the air force would fly by 2022 and be *in production* by 2025-26," a claim repeated in an aerospace seminar in Delhi recently. If ever there was to be a fairy tale with a happy ending, it would be this!

As is known, the Tejas programme started in 1983 with the first technology demonstrator flying in January 2001. It would be another 14 years before the first Tejas Mk1, with just the initial operational clearance (IOC), entered IAF service. The final operational clearance (FOC), which is the standard that the IAF wants, was obtained four years later, in February 2019.

As on date, the IAF has only 12 odd Tejas Mk1, a sad delivery story of these in five years. Yes, a tweet from HAL on 31 March, the last day of the financial year, did claim that eight aircraft had been 'produced' that year. The gullible lapped it up but professionals know that 'production' of an aircraft by HAL is not the same as 'acceptance' by the IAF! Forty of these Tejas Mk1 IOC and FOC variants have to be delivered followed by 83 of Tejas Mk 1A – which has *yet to fly* but DRDO/HAL have gone to town announcing that the follow-on Tejas Mk2 would be in production, six years hence!

The Tejas Mk2 would be a totally new aircraft with a more powerful GE-414 engine requiring significant changes to its design – and when the engine and fuselage change, it calls for extensive flight testing. Its production in six years, with it *presently being on the drawing board*, is stuff for the movies.

The list of such claims, of overstating capability to bag R&D money and not meeting quality and time schedules, is very long; and one has not talked of basic trainers, radars, encrypted radios, missiles et al – as also about the army and navy projects. The MoD, now under an experienced administrator, must demand a true picture. Three things are recommended.

First, the defence minister should ask DRDO and DPSUs for a report of foreclosed projects (with reasons) as also the status of ongoing projects with reference to timelines and budgetary requirements that were *originally* forecast; professional inefficiency should not be hidden behind the smokescreen of failures that are otherwise normal in professionally run R&D establishments. This government prides itself in taking tough decisions, the one on CDS being the latest. Demanding and fixing responsibility should be the cornerstone of the review; maybe the CDS could be given a say in channelling funds for R&D agencies.

Second, funding for R&D by private entities should be made liberal, as they are as Indian as DRDO – that's the way it happens elsewhere. And lastly, it would help greatly if a lid is put on premature media publicity that only serves to give a false sense of pride in the populace at large. It's time to hunker down and produce results in time. Real pride would come only when the dubious distinction of being the largest arms importer in the world is substantially diluted.

(Disclaimer : Views expressed above are the author's own)

https://timesofindia.indiatimes.com/blogs/toi-edit-page/obscured-by-headlines-such-as-rajnath-singh-flying-the-tejas-defence-research-is-in-terrible-shape/

THE ECONOMIC TIMES
WWW.ECONOMICTIMES.COM

Sat, 21 Sep 2019

How military drones are becoming deadly weapons across the globe

In recent years, (UAV) or drones can now be programmed to destroy things remotely

By Shelley Singh

Something once equivalent of a do-it-yourself kit was enough to blow up half of Saudi Arabia's crude oil output on September 14. The 18 low-cost drones (along with cruise missiles), supposedly deployed by Houthi rebels in Yemen to attack the Saudi oil facilities, caused oil prices to jump more than 10 per cent in a day.

In recent years, unmanned aerial vehicles (UAV) or drones that used to improve our daily lives with logistics and mapping support can now be programmed to destroy things remotely. What makes them lethal and effective for warfare are advancements in video-camera techniques, precision operations with improved GPS, stealth operations and faster speed. In fact, capability improvements can be seen from India's own drone procurement and manufacturing.

Back in the 1990s, the Indian Army bought Israeli drones for recce and surveillance. But this year, an order was placed for more than 50 Harop attack drones from Israel. Meanwhile, state-run Defence Research and Development Organisation (DRDO) and a clutch of private Indian companies are making drones and developing UAV technologies.

ALL About Military Drone

TECH

The software is like an auto pilot linked to onboard motors, propellers, payload activators and weapons

TASK

Security, surveillance, attack

SPEED

Mach* 0.18 (222 kmph)-

Mach 1 (1,234 kmph)

*Ratio of a drone's speed to speed of sound

PRICE

Rs 50 lakh+

Run On

Lithium polymer batteries, hydrogen fuel cells, jet fuel

Drones Faster Than Sound?

Companies are developing hypersonic weapons — missiles that can dodge air defence system by flying up to five times faster than sound. Thus, combat drones moving at hypersonic speeds (beyond Mach 5) could bypass detection systems making them more lethal

India's Harop Defence

India has a fleet of around 100 drones and it plans to add 54 Harop attack drones from Israel to enhance unmanned warfare capability. These drones have electro-optical sensors to loiter over high-value military targets like surveillance bases and radar stations before attacking them.

Project Rustom

DRDO is developing MALE drones that can travel at 200 kmph and fly at altitudes of 6,000-10,000 feet

Types

MALE or Medium Altitude Long Endurance drone:

Can fly up to an altitude of 30,000 feet and travel over 200 km

HALE or High Altitude Long Endurance drone:

Can go beyond 30,000 feet and has a range of a few thousand

Flying Business

Likely size of Indian UAV market by 2021

$886 million

Estimated global size of market by 2021

$21 billion

Global market for drone applications by 2020

$100 billion

No. of drones operating illegally in India before 2018 rules

50,000

No. of Indian firms in drone business

>50

https://economictimes.indiatimes.com/news/defence/how-military-drones-are-becoming-deadly-weapons-across-the-globe/articleshow/71236124.cms