

November
2022

समाचार पत्रों से चयित अंश Newspapers Clippings

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खंड : 47 अंक : 206

01 नवंबर 2022

Vol.: 47 Issue: 206

01 November 2022



रक्षा विज्ञान पुस्तकालय

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सोमवार, 31 अक्टूबर 2022

देश के अगले रक्षा सचिव होंगे IAS गिरिधर अरामने, कल संभालेंगे पद, पढ़ें किसकी लेंगे जगह

देश के अगले रक्षा सचिव आईएएस गिरिधर अरामने (Giridhar Aramane) होंगे. वो मंगलवार (31 अक्टूबर) से कार्यभार संभाल रहे हैं. वह डिफेंस सेक्रेटरी अजय कुमार के रिटायर होने के बाद उनकी जगह ले रहे हैं. साथ ही वो डिफेंस एक्सपो-2022 के दौरान विशेष कार्य अधिकारी के रूप में रक्षा मंत्रालय में शामिल हुए थे. गिरिधर अरामने आंध्र प्रदेश कैडर के 1988 बैच के भारतीय प्रशासनिक सेवा (IAS) अधिकारी हैं. वो 1 मई 2020 एवं परिवहन राजमार्ग मंत्रालय में सचिव के पद पर रहे हैं. साथ ही वह 2012 से 2014 के दौरान पेट्रोलियम एवं प्राकृतिक गैस मंत्रालय के संयुक्त सचिव के पद पर भी थे.

डिफेंस एक्सपो-2022 क्या है?

डिफेंस एक्सपो 2022 रक्षा अनुसंधान एवं विकास संगठन (DRDO) ने 18 से 22 अक्टूबर 2022 में गुजरात के गांधीनगर में आयोजित किया था. इस एक्सपो में स्वदेशी हथियारों, रक्षा उपकरणों और तकनीकों का प्रदर्शन किया गया था.

यह हुआ फेरबदल

केंद्र सरकार ने हाल ही में भारतीय राष्ट्रीय राजमार्ग प्राधिकरण की चेयरपर्सन अलका उपाध्याय को नई सड़क और परिवहन सचिव नियुक्त किया था. साथ ही वित्तीय सेवा विभाग के सचिव संजय मल्होत्रा को नया राजस्व नियुक्त कर दिया था. यह सभी कार्यभार 30 नवंबर को संभालेंगे. भारत के महापंजीयक और जनगणना आयुक्त (गृह मंत्रालय)(Registrar General of India and Census Commissioner) विवेक जोशी को संजय मल्होत्रा की जगह वित्तीय सेवा विभाग का नया सचिव बनाया गया है. बता दें कि केंद्र की मोदी सरकार ने हाल ही में विभिन्न विभागों में यह फेरबदल किया था.

<https://webcache.googleusercontent.com/search?q=cache:ZsPlhitFXJQJ:https://www.abplive.com/news/india/ias-giridhar-aramane-to-take-over-as-the-new-defence-secretary-tomorrow-special-duty-earlier-this-month-during-the-def-expo-2022-2249592&cd>

Navy Commanders to Deliberate on Roadmap for Indigenization

Top commanders of the Indian Navy are set to deliberate on a roadmap for achieving 'AatmaNirbharta' (self-reliance) in its requirement of platforms and military hardware by 2047, officials said on Monday. The commanders are going to discuss the roadmap at their four-day conclave that began here on Monday. All operational and area commanders of the Indian Navy are participating in the conference to review major operational, materiel, logistics, human resource development, and chart a future roadmap, the officials said. The conference will focus on addressing contemporary security paradigms while seeking ways to further enhance combat capability of the Navy and make operations more effective and synergistic with the other two services, they added.

"A detailed roadmap to enhance indigenisation through 'Make in India' with the aim of achieving 'AatmaNirbharta' by 2047 will be undertaken by the commanders," said an official. The conference would also dwell upon dynamics of the geostrategic situation of the region in the backdrop of recent international developments, the officials said. Defence Minister Rajnath Singh, Chief of Defence Staff Gen Anil Chauhan, Army Chief Gen Manoj Pande and Air Chief Marshal VR Chaudhari are scheduled to address the commanders on a range of subjects, including tri-services convergence and combat readiness. The conference serves as a platform for naval commanders to discuss important maritime matters at the military-strategic level through an institutionalised forum.

<https://theprint.in/india/navy-commanders-to-deliberate-on-roadmap-for-indigenisation/1189758/>



India on Path to become Leading Defence Equipment Manufacturer in the World: Report

In Vadodara, Gujarat, Prime Minister (PM) Narendra Modi laid the cornerstone for the new C295 facility on Sunday. He discussed India's strength as a defence hub during the event with the goal of raising defence manufacturing output to more than \$25 billion over the next two years, Outlook reported. The replacement for the Avro HS748 fleet for the Indian Air Force (IAF) will be built at the new Vadodara factory. The C295MW will be produced by a joint venture between Tata and Airbus, replacing the same. The agreement, which was signed by Tata Advanced Systems Ltd (TASL) and Airbus Defence and Space, is estimated to be around \$22,000 crore. Defence Secretary Ajay Kumar said it is the first time the transport planes are being produced outside of Europe. According to estimates, the aircraft will have the highest

percentage of indigenous parts—96%—ever for aircraft made in India. All of this is a part of Prime Minister Modi's "Make in India" and "Atmanirbhar Bharat" (Indian self-reliance) policies.

The prime minister thinks that India would soon start producing larger passenger planes for the international market and cargo aircraft as well. According to PM Modi, the C295MW would improve the capabilities of the Indian Armed Forces and establish a "new ecosystem for aircraft manufacture." According to the Airbus CCO, the business plans to deliver one aircraft on average every week for the ensuing ten years. Airbus Chief Commercial Officer (CCO), Christian Scherer, told the media that the initiative to "Make in India" had inspired the company to reconsider how it did business in the nation and lead to the development of the C295MW assembly line. India has improved its business environment by opening it up to international firms, moving up five places in the World Bank's ranking of ease of doing business, from 142nd to 63rd. Foreign businesses are quickly establishing production plants in India with countries like Russia, South Africa, and Sweden partnering with Indian firms to set up manufacturing in the country.

<https://www.timesnownews.com/mirror-now/in-focus/india-on-path-to-become-leading-defence-equipment-manufacturer-in-the-world-report-article-95203396>



Mon, 31 Oct 2022

Fourth Positive Indigenisation List: Will it Make India Totally Self Reliant?

By AmitCowshish

The fourth 'Positive Indigenisation List' (PIL) of defence products was released by Prime Minister Narendra Modi on October 19 at the opening ceremony of the recently concluded five-day DefExpo 2022 at Gandhinagar. It enumerates 101 items which will be procured only from 'indigenous sources' after the expiry of the item-specific cut-off dates which stretch from the end of this year to December 2032. The previous lists, notified in August 2020, May 2021, and April 2022, had similarly proscribed import of a total of 310 items with effect from various cut-off dates between December 2020 to December 2026. The status of procurement of all the items in respect of which the cut-off date has already passed is unknown. Like the first three lists, the fourth list also includes 'highly complex systems, sensors, weapons, and ammunition' in a bid to 'further stimulate the potential of Domestic Research & Development by attracting fresh investment into technology and manufacturing capabilities', according to the official Press Release of October 19.

The items now banned for import include various types of naval vessels, electronic systems, missiles, military vehicles, robots, unmanned aerial vehicles, and ammunition. But also listed alongside these 'highly complex' systems are items like tyres, batteries, simulators, invertors, sensors, modems, radars, boiler tubes, and even 'Augmented Reality (AR) Tools for Technical

Type Training in the IAF'. It is nobody's case that these are 'low-technology' run-of-the-mill products but it's difficult to accept that the Indian industry lacked the capability to indigenise them in the past and that it will now spring into action to develop or acquire the manufacturing technology to sell the products to the armed forces once the ban kicks in.

Take, for example, aircraft tyres included in the list. These are mostly nose and wheel tyres for AN-32, Jaguar, Hawk, IL-76, IL-78, MiG-29, PC-7 aircrafts, LCA, and Mi-17 helicopters. There is no dearth of tyre manufacturers in India. At least four Indian companies -Apollo, MRF, JK, and CEAT- were among the 30 largest manufacturers in the world in 2021. These companies were either not prompted by the MoD to take up the challenge or did not consider it commercially viable to manufacture the specialised tyres whose imports are now going to be banned. In the first case, indigenisation directorates of the three services which were set up about two decades back to promote indigenisation of such items will have some explaining to do. If, however, the Indian companies took little interest because of the commercial unviability of making the tyres in India, it will require some explaining on MoD's part as to what has now changed to make it viable for them. In fact, this question is relevant in relation to most of the items on the PILs.

In a broad sense, commercial viability of developing a new product, manufacturing a product with transfer of technology from the foreign equipment manufacturer (OEM), or indigenising foreign-origin components incorporated in any equipment, weapon system or platform depends on many factors like the quantum of requirement to be met, visibility about the specifications of the product, the cost of development or indigenisation. Above all, there has to be some assurance of sustained orders for the Indian company that invests in indigenising the products with the expectation of good and quick returns on investment. It becomes further complicated when more than one company is vying for the same pie. This issue assumes significance because defence is a monopsony with MoD being the major or, in most cases, the only buyer.

It's axiomatic that no such assurance can be given by the MoD. In fact, in view of the official statement that the 'orders would be placed on the Indian industry in the next 5-10 years', there can be no certainty about when the listed products will be procured and, more importantly, no procedural complexities will come in the way after the tender is issued. This is not the only elephant in the room. As alluded to earlier, the armed forces can be expected to buy a product only if it meets the stringent qualitative requirements (QRs), which the vendors normally get to know about only when the tenders are issued. Many tenders fall through because of unachievable QRs. This has been the bane of many acquisition programmes in the past. It remains unexplained how this issue is going to be addressed in relation to listed items. One can only hope that while the PILs are just a manifestation of the MoD's resolve to involve the Indian industry in defence production, that there is a lot of less-publicised activity going on behind the scenes to make sure that these lists serve the intended purpose of achieving self-reliance in defence which is not only an unexceptionable but also an essential goal India must pursue.

<https://www.financialexpress.com/defence/fourth-positive-indigenisation-list-will-it-make-india-totally-self-reliant/2759707/>



Mon, 31 Oct 2022

Is C-295 a Turning Point in India's Defence Self-Reliance? Check Specification, Features of Versatile Military Transport Aircraft

C-295 aircraft deal - Story so far: As Prime Minister Narendra Modi lay the cornerstone for the construction of the European C-295 military transport aircraft on Sunday, he urged big international defence corporations to produce military equipment and platforms in India for the rest of the globe. In his speech, PM Modi asserted that his government's "stable, predictable and futuristic" policies are putting India on a higher trajectory of economic growth and that the nation is going forward with the motto of "Make in India and Make for the Globe." It is the first initiative of its sort in which an Indian private enterprise will produce a military aircraft. The C295 aircraft will be produced outside of Europe for the first time.

What is the deal?

The purpose of this contract is to replace the 56 outdated Avro aircraft that the Indian Air Force purchased in the 1960s. Under the agreement, the Tata Group will manufacture 40 C-295 medium transport aircraft at the Vadodara facility in cooperation with global aerospace major Airbus under the provisions of a Rs 21,935 crore deal. The deal was sealed in September last year to supply the planes to the Indian Air Force. The contract with the government is for supplying 56 aircraft and Airbus will deliver the first 16 planes in 'fly-away' condition from its final assembly line in Spain between September 2023 and August 2025.

Impact on India's defence sector

Vadodara will give "Make in India, Make for the Globe" a new boost as the factory is now equipped to accept orders for export to other nations due to the rising demand for passenger and freight aircraft globally. Vadodara, known for being a center of culture and learning, will take on a new identity as a hub for the aviation industry, said PM Modi. On Sunday, the prime minister highlighted that, in the past, it was common wisdom to concentrate on the service sector since manufacturing was seen as something beyond reach, but today, the nation is boosting both the services and manufacturing sectors. By taking this attitude, India may increase its defence exports and reduce its reliance on foreign suppliers of military hardware. It can be considered the beginning of a long journey towards military industry independence.

“The project offers a unique opportunity for the Indian private sector to enter into the technology-intensive and highly competitive aviation industry,” the Ministry of Defense said. “It will augment domestic aviation manufacturing resulting in reduced import dependence and expected increase in exports.” With more than 42.5 lakh man-hours of work in the aerospace and

defence sector, the project is anticipated to create 600 highly skilled jobs directly, over 3,000 indirect jobs, and an additional 3,000 medium-skill employment prospects, as per PTI report.

C-295 Aircraft Specifications

The C-295 is utilised for tactical transport of up to 71 infantry or 50 paratroopers and for logistic operations to regions that are inaccessible to current heavier aircraft because of its demonstrated ability to operate from short or unprepared airstrips.

Air-to-Air refueling

The C-295 can be converted into an air tanker that can deliver up to 6,000 kg of gasoline to fixed and rotary wing receivers by adding a detachable refueling kit.

Airborne Early Warning (AEW)

The C-295 has a cutting-edge radar with 360-degree coverage to give a complete picture of the airspace in its Airborne Early Warning variant.

Water-Bomber

The C-295 can be transformed into a powerful water bomber that can put out forest fires with up to 7,000 litres of water due to a flexible roll-on/roll-off system.

Armed/Ground ISR (Intelligence Surveillance and Reconnaissance)

A close-air-support operation that uses an ISR with a multi-mission radar that can also be weaponized. The aircraft can be utilised for casualty or medical evacuation as well as airdropping loads and paratroopers.

It is equipped to handle special missions, disaster relief operations, and maritime patrol responsibilities.

<https://www.zeebiz.com/india/news-explained-is-c-295-a-turning-point-in-indias-defence-self-reliance-check-specification-features-of-versatile-military-transport-aircraft-deal-price-airbus-casa-205447>



Tue, 01 Nov 2022

Australia Sends Warships for Joint Indo-Pacific Drill with Indian Navy

Royal Australian Navy ships HMAS Adelaide and Anzac arrived in Visakhapatnam on Monday for Exercise 'Indo-Pacific Endeavour' with the Indian Navy. The Australian Defence Ministry in a statement said, "Indo-Pacific Endeavour (IPE), one of Australia's key regional engagement activities, returns to Southeast Asia and the Northeast Indian Ocean from September to November this year, visiting a record 14 countries in this iteration." Australian ships have embarked helicopters, and around 1,500 personnel. Their India visit began on October 30 and will continue till November 2. The Australian High Commission, New Delhi, said in a statement,

“IPE will pave the way for deeper and more sophisticated operational cooperation between our defence forces.”

Meanwhile, the Indian Navy is holding its Commanders Conference in New Delhi which will also be addressed by Defence Minister Rajnath Singh. According to PRO, Navy, the conference will focus on addressing contemporary security paradigms while seeking ways to further enhance combat capability of the Navy and make operations more effective and synergistic with the Indian Army and Indian Air Force. “A detailed roadmap to enhance indigenisation through ‘Make in India’ with the aim of achieving ‘AatmaNirbharta’ by 2047 will be undertaken by the commanders. The conference would also dwell upon dynamics of the geostrategic situation of the region in the backdrop of recent international developments,” said the PRO on Monday.

IPE 2022 will see engagements with the Maldives, Timor-Leste, Vietnam, the Philippines, Bangladesh, Sri Lanka, Laos, Cambodia, India, Thailand, Malaysia, Singapore, Brunei and Indonesia, it said. IPE began in 2017 as an annual activity coordinated by the Australian Defence Force to deliver on the promise of the 2016 Defence White Paper to strengthen Australia’s engagement and partnerships with regional security forces. “Aiming to promote security and stability in Australia’s near region through bilateral and multilateral engagement, training and capacity building.

<https://www.newindianexpress.com/nation/2022/nov/01/australia-sends-warships-for-joint-indo-pacific-drill-with-indian-navy-2513692.html>

THE ECONOMIC TIMES

Mon, 31 Oct 2022

Ransomware Hackers Hit Australian Defence Communications Platform

Hackers have targeted a communications platform used by Australian military personnel and defence staff with a ransomware attack, authorities said on Monday, as the country battles a recent spike in cyberattacks across businesses. The ForceNet service, one of the external providers the defence department contracts to run its websites, has come under attack but so far no data have been compromised, assistant minister For Defence Matt Thistlethwaite said. "I want to stress that this isn't an attack or a breach on defence (technology) systems and entities," Thistlethwaite told ABC Radio. "At this stage, there is no evidence the data set has been breached - that's the data that this company holds on behalf of defence."

But some private information such as dates of birth and enlistment details of military personnel may have been stolen, the Australian Broadcasting Corp reported, citing an unidentified source with knowledge of the investigation. Thistlethwaite said the government will view the incident "very seriously" and all defence personnel have been notified, with suggestions to consider changing their passwords. A Defence department spokesperson said the department was examining the contents of the impacted data set and what personal information it contained. Ransom software works by encrypting victims' data and hackers typically will offer

the victim a key in return for cryptocurrency payments that can run into the hundreds of thousands or even millions of dollars.

Some of Australia's biggest companies, including number 2 telecoms company Optus, owned by Singapore Telecommunications Ltd, and the country's biggest health insurer, Medibank Private Ltd, have had data hacked recently, likely exposing the details of millions of customers. Technology experts said the country has become a target for cyber attacks just as a skills shortage leaves an understaffed, overworked cybersecurity workforce ill-equipped to stop it.

<https://economictimes.indiatimes.com/tech/technology/ransomware-hackers-hit-australian-defence-communications-platform/articleshow/95194087.cms>



Mon, 31 Oct 2022

China Slams Reported Plan for U.S. B-52 Bombers in Australia

The United States is preparing to deploy up to six nuclear-capable B-52 bombers in northern Australia, a news report said on Monday, prompting China to accuse the U.S. of undermining regional peace and stability. The U.S. is preparing to build dedicated facilities for the long-range bombers at Royal Australian Air Force Base Tindal in the Northern Territory, national broadcaster Australian Broadcasting Corp. reported. Tindal is south of the coastal city of Darwin, where thousands of U.S. Marines Corps troops have spent about half of each year since 2012 under a deal struck between then-U.S. President Barack Obama and then-Prime Minister Julia Gillard. Prime Minister Anthony Albanese did not directly respond when asked at a news conference on Monday if the United States is preparing to deploy bombers in Australia.

“We engage with our friends in the United States alliance from time to time,” Mr. Albanese said. “There are visits to Australia, including in Darwin, that has U.S. Marines on a rotating basis stationed there,” he said. The U.S. Air Force told *ABC* the ability to deploy U.S. bombers to Australia “sends a strong message to adversaries about our ability to project lethal air power.” Asked about U.S. nuclear bombers being positioned in Australia, Chinese Foreign Ministry spokesperson Zhao Lijian said defence and security cooperation between countries should “not target any third parties or harm the interests of third parties.” “The relevant U.S. behaviors have increased regional tensions, seriously undermined regional peace and stability, and may trigger an arms race in the region,” Mr. Zhao told reporters at a regular briefing in Beijing.

“China urges the parties concerned to abandon the outdated Cold War and zero-sum mentality and narrowminded geopolitical thinking, and to do something conducive to regional peace and stability and enhancing mutual trust between the countries,” Mr. Zhao added. Australian Opposition leader Peter Dutton, who was Defence Minister when his conservative government was voted out of office in May, welcomed the prospect of B-52 bombers having a regular presence in Australia. “It would be fantastic to have them cycling through more regularly,” Mr. Dutton

said, referring to the bombers. “It bolsters our security position in an uncertain time.” While in office, Mr. Dutton said he had discussed with U.S. authorities rotating all aspects of the U.S. Air Force through sparsely populated northern Australia. “To defend that (northern Australia) and to deter anybody from taking action against us is absolutely essential,” Mr. Dutton said. “We have a vulnerability and it’s important for us to have a very strong relationship with the United States ... and all of our allies,” Mr. Dutton added.

ABC said U.S. tender documents showed that the U.S. Defence Department is planning to build an aircraft parking apron at Tindal to accommodate six B-52s. There were detailed designs for the construction of a U.S Force “squadron operations facility” at Tindal as well as a maintenance center, jet fuel storage tanks and an ammunition bunker, the *ABC* reported. “The RAAF’s ability to host USAF bombers, as well as train alongside them, demonstrates how integrated our two air forces are,” the U.S. Defence Department told the *ABC*. The *ABC* did not provide a timeframe for the Tindal upgrade.

<https://www.thehindu.com/news/international/china-slams-reported-plan-for-us-b-52-bombers-in-australia/article66078145.ece>



Sun, 30 Oct 2022

Lockheed ‘Unveils’ Tailless, 6th-Gen Fighter Aircraft Concept; New Design could Further Decrease Radar Signature – Experts

By Sakshi Tiwari

As envisioned by Lockheed Martin, the potential human-crewed NGAD aircraft features a diamond-shaped wing with straight leading and trailing edges. The wing and the long, extended fuselage, which has a single conspicuous chine line and abruptly tapers toward the nose, are intimately integrated. Tailless designs, for one, have appeared frequently in NGAD-adjacent concept art since they would offer extremely low observability (stealth), significant internal volume for fuel, weaponry, and sensors, and a high level of efficiency. Additionally, two somewhat shallow ‘bulges’ that seem to be related to the propulsion system can be seen on either side of the fuselage’s center section.

According to a senior fellow at the Institute of Peace and Conflict Studies (IPCS), Abhijit Iyer Mitra, “This is generally in line with some of the previous renders we have seen which indicated a twin-engine design. However, it is surprising that it seems much smaller than the previous render designs of the NGAD. It also confirms that the level of total signature management is so high that it does not have to depend on maneuverability which is why it has done away with vertical stabilizers.” Mitra further says, “the smallness of the size also seems to indicate it is an optional pilot aircraft as the pilot might be quite cramped in it, which is unusual for a twin-engine aircraft but the relative ratio compared to the tanker

rendering seems to indicate that the fighter jet could fly completely autonomously without a pilot as well.” What’s surprising is that the infrared management from the exhaust is there, but it is not as extreme as we thought it would be to prevent the need for maneuverability completely.” The plane’s design resembles several earlier renderings of the fighter jet that Lockheed Martin is allegedly working on for the US Air Force’s Next Generation Air Dominance program.

Two of these designs have so far been made public: one with a V-tail resembling the Northrop Grumman YF-23 prototype from the 1990s in general, and the other possibly related to the US Navy’s F/A-XX program from the early 2010s, noted Aerotime Hub. The latter is eerily similar to the triangle jet seen in Lockheed Martin’s most recent illustration, suggesting that the company is still developing the concept. Since the engine air intakes are hidden, they are likely positioned below the airframe, as is expected of sixth-generation models. On August 19, the US Air Force (USAF) announced the awarding of contracts totaling around \$4.9 billion to five companies for the prototype development of an adaptable engine for the sixth-gen fighter, as previously noted by EurAsian Times.

This is not a vast airframe compared to the refueling boom, but the NGAD envisions a larger manned combat aircraft design with increased internal fuel and weaponry carriage. The service has also mentioned the potential for two different aircraft types, one with a longer range better suited for operations in the Indo-Pacific and one with a lower range that is more suited for European theatres. Therefore, the size cannot be estimated for now.

Aviation analyst Prashant Prabhakar told EurAsian Times: *“A tailless design could induce less parasitic drag and good stealth characteristics although, on the flip side, it could have a potential sensitivity to trim. The engines of stealth aircraft are often located deep inside the fuselage, which seems to be the case here as well. Stealth is an inevitable characteristic of 6th gen fighters. I think the overall objective would still be to reduce the radar signature reflected from the fighter to the enemy radar.”*

The concept art was released a day after another defense contractor Northrop Grumman announced the public unveiling date of America’s next-gen stealth bomber, the B-21 Raider. Like the NGAD, the B-21 is a very closely guarded program with an aircraft built into a flying wing design.

Is The NGAD Coming Soon?

According to the US Air Force secretary, the next-generation fighter platform is still in the design phase. It has not yet officially reached the engineering, production, and development stages. Lockheed Martin is one of the many companies working on the NGAD. This “family of systems” includes new sensors, weaponry, networking, and battle management capabilities. Secretary of the Air Force Frank Kendall stated in June that there was still competition within the project but provided no further details. Besides the sixth-generation fighter jet, the NGAD also envisions the concept of Cooperative Combat Aircraft (CCA), which will fly together with the sixth-generation fighter jet in potentially a manned-

unmanned teaming format. Due to their autonomy, CCAs can execute directions given by a pilot just as a formation pilot executes directions given by the formation lead.

That being said, the 6th generation fighter that will be a part of the NGAD has not yet determined its capabilities. Even if the technologies employed in the (NGAD) fighter aircraft were advanced enough to allow entrance into the engineering and manufacturing development (EMD) phase of the NGAD program's acquisition timetable, the US Defense Department has yet to take a call to go further. The NGAD will cost several hundreds of millions of dollars, Kendall stated in a hearing before the House Armed Services Committee in April 2022. The NGAD is the most expensive aircraft program in history, though he did not provide a number.

<https://eurasianimes.com/lockheed-martin-teases-the-design-of-tailless-sixth-gen-fighter/>



Mon, 31 Oct 2022

Russia is Bench-Testing its New Izdeliye RF Engine for PAK-DA Strategic Bomber as Moscow Focusses on Hypersonic & Stealth

By Vijaiinder K Thakur

A source in the military-industrial complex told TASS that the results of the tests showed that the engine conformed to design parameters.

“Several engine prototypes have already passed part of the bench tests. Now the tests are ongoing. Based on their results, we can say that the engine confirms the parameters laid down in it,” the TASS source said.

UEC-Kuznetsov is developing the Izdeliye RF engine. The Deputy General Director-Managing Director of the Kuznetsov plant, Alexei Sobolev, told journalists in December 2020 that the engine assembly had started. “The first engine” in iron “has already been manufactured, is now being assembled, and will be ready for bench tests by the end of the year. We plan to start them at the beginning of next year,” he said. Russia has recently made significant breakthroughs in engine technology with the development of its commercial PD-14 high bypass turbofan engine – the first 5th-generation jet engine developed in Russia. Engine technology advances include:

- Monocrystalline blades for high-pressure turbines
- Turbine blade cooling system for operation at the gas temperature to 2000 ° K
- Hollow wide-fan blade made of titanium alloy
- Low-emission combustion chamber of the intermetallic alloy

- Sound-absorbing structures made of composite materials
- Ceramic coatings on the details of the hot part
- Hollow blades of low-pressure turbine

It's not surprising, therefore, that the Izdeliye RF engine will support 30 hr flight endurance.

PAK-DA Features

The PAK-DA is a new long-range strategic bomber under development in Russia. The low observable (LO) flying wing design bomber is reportedly capable of carrying a hypersonic missile in its internal bomb bay and can collaboratively operate with drones. In a flying wing design, the fuselage is not distinct from the wings, and the aircraft does not feature a tail surface for stability and maneuvering. The design minimizes radar signature. Stability and maneuverability are achieved by the flight computer using electrically activated wing-mounted aerodynamic surfaces, such as flaps.

In April 2021, Russia Beyond quoted Vadim Kozulin, an Academy of Military Science professor, saying, "The onboard equipment of the aircraft is automated as much as possible. Engineers now experiment with using it in unmanned mode. It is also assumed that the bomber will be able to control groups of unmanned aerial vehicles and will be able to use the entire range of air-to-air missiles." Russia, which already has two supersonic bombers, Tu-160 and Tu-22M, has chosen a fuel-efficient subsonic design for the PAK-DA to increase its flight endurance rather than high speed. High penetration and escape speeds are required when a bomber has to approach close to adversary shores to deliver its ordnance.

It's interesting to note that the latest US strategic bomber, B-21, is also of subsonic flying wing design and has the ability to collaborate with unmanned flying assets. Similarly, China's new bomber H-20 is likely a flying wing design. Kozulin says, "Today, Russia's air force has received the powerful Kh-555 and Kh-101 long-range missiles that can fly 5,000 kilometers (3,106 miles), which is why there is no more need for long-distance bombers. Now the strategic bomber can carry out its mission without leaving Russian borders and remaining under the protection of air defense systems."

Kozulin estimates that the PAK-DA, like other contemporary bombers, will be able to carry 40 tons of weapons. According to reports, PAK-DA will replace the aging Tu-95 strategic bomber and operate in parallel with the Tu-160 and Tu-22M3. Russia recently restarted the production of its Tu-160 bomber using modern digital production techniques, signaling its continued commitment to the supersonic bomber. Russian defense industry sources say the PAK-DA will feature a defensive suite that relies heavily on electronic warfare to thwart adversary missile attacks.

Development History

Preliminary work on the design of the PAK-DA in the design bureaus and the formation of requirements for the aircraft by the Air Force began in 1999. The Russian Air Force set its requirements for the bomber in December 2007. The Russian Ministry of Defense signed a research contract for the PAK-DA program with Tupolev OJSC in 2009, and the draft design of the bomber was completed in 2013. In December 2019, Deputy Defense Minister of

Russia Alexey Krivoruchko said in an interview that the design project of the PAK-DA had been approved, and the Tupolev design bureau began developing working design documentation.

In May 2020, TASS sources disclosed that production of the first experimental model of the new strategic bomber had begun. At the end of August 2021, the then-head of the Ministry of Industry and Trade of the Russian Federation, Denis Manturov, announced the start of the assembly of experimental models of PAK-DA bombers. Several prototypes are being assembled, he indicated. The aircraft is planned to be put into service by 2027. In August 2021, TASS reported quoting an industry source, that a demonstration model of the PAK DA long-range aircraft would be assembled by 2023. "Currently, the experimental model is being built. The demonstration model will be ready by 2023," the source said. In August 2022, Tupolev PJSC specialists published a patent, which most likely reveals the new Russian strategic bomber's appearance and main technical characteristics. Patent number RU209424U1 is a "utility model of an aircraft engine air intake" and contains a new advanced long-range aviation complex (PAK-DA) diagram.

<https://eurasianimes.com/russia-testing-izdeliye-rf-engine-for-pak-da-strategic-bomber/>

Science & Technology News

THE ECONOMIC TIMES

Mon, 31 Oct 2022

Tech for Good: Building an Ecosphere for Innovators

Global change and economic growth are driven by technology and innovation. Technology enables organisations in the private, public, and non-profit sectors with opportunities to increase productivity, develop new products or services, and inevitably improve lives. Although we are still uncovering ways to forecast the range of possibilities from technology, there have been business leaders who have managed to garner a competitive edge. The 3rd Edition of The Economic Times Best Tech Brands 2022 held at the Vivanta Bengaluru, honoured businesses that overcame all obstacles and advanced through their vision, tenacity, bravery, and market insights. Apart from a convene of tech-influenced firms, the summit featured leading industry experts delivering their views and perspectives on the far-reaching impact of technology across sectors.

To give an overview of the roadmap to reaching a Trillion Dollar Digital Economy, a panel of experts discussed globalizing emerging technologies. "DRDO is doing its bit to contribute towards the Trillion Dollar Economy that India has been vying for. The country has been stepping up its Indian defence production through Atmanirbhar Bharat. The Indian industry has matured enough to take up large-scale defence R&D and manufacturing," said Y Sreenivas Rao,

Director, Naval Science & Technological Laboratory (NSTL), Defense Research and Development Organization (DRDO). Adding to this, Dattatri Salagame, CEO, President & Managing Director, Bosch Global Software Technologies (BGSW) took us through evolving consumer space, “The motivation for Bosch is a new consumer space. We are now looking at how we can create an unmatched experience for our consumers.”

The Cyclone Man of India, Mrutyunjay Mohapatra, Director General, India Meteorological Department delivered the keynote address. He gave a new perspective on tackling natural calamities through Precise Projections, "With the growth of the economy, there are lots of chances to adopt technological sensors for weather forecasting and radars. We aim to provide an early warning along with accurate & real-time data to each household by 2025 so that there is no loss of life or property." This was followed by a brief robotics presentation by ‘Nina’ and ‘Nino’ that represented and exemplified the Indian scientific and the Atmanirbhar spirit in its true sense. A quick interactive session ensued where the audience asked a few questions about the AI-enabled robots. To give Karnataka’s overview on becoming a technology decade or Techade, Sanjeev Kumar Gupta, Chief Executive Officer, Karnataka Digital Economy Mission (KDEM) shared how the state intends to become a global innovation powerhouse by 2047. "The Karnataka state economy is driven by the digital economy. We are on to becoming a leader in R&D and a patent hub here in Karnataka. 40% of India's unicorns are from Karnataka, and its ranking in the global start-up ecosystem is 10th in the world!"

A panel discussion ensued, delving into the speed with which technology is advancing and its impending influence on the evolution of the economy. Vedanarayanan Vedantham, India Marketing Leader, Microsoft India took a deep dive into the extensive impact of cloud computing, “We, as a company, began by launching operating systems that bridged the gap between hardware and software, till the era of Cloud Computing. We are not only focussed on customer centricity but on stakeholder centricity.” “The power of content is in the hands of the customer. The brands must understand the problems of a customer. Brands are built by creating shared value," said Prashant Jain, Chief Marketing Officer, HP India sharing the far-reaching impact of expanding content on customers. Dr Saurabh Gaur, Secretary, IT, Electronics & Communications, Skill Development & Training and CEO APCFSS, Government of Andhra Pradesh on India’s Tech Awakening- Paperless Governance and Data Empowerment gave the Guest of Honor Address. "The digital adoption in the government is phenomenal. We, as a government, wish to serve our citizens with the best of services.”

The event also included the launch of the Coffee Table Book titled, ‘The Economic Times Best Tech Brands 2022.’ Following a thorough research process, 200 brands were identified that met the knowledge partner’s criteria of the Best Tech Brands, and these firms were asked to share their inspiring stories. The brands that agreed to participate were honoured during the event.

- 3i Infotech, Adobe India, Aurionpro Solutions, BetterPlace, Bosch Global Software Technologies, and Brillio Technologies
- Capgemini Technology Services India, Cisco, CitiusTech, Coforge, Consilio, Dell Technologies, and Euronet
- Exotel Techcom, FIS Global, GS Lab | GAVS, Hexaware Technologies, Honeywell, HP, IBM India, and Icertis
- IDBI Intech, Infogain, Infosys, Intel India, Karnataka Digital Economy Mission, Kyndryl, and Lenovo India

- Microsoft India, Mphasis, NTT Ltd., Nvidia, OneSpan India, Open Weaver, Oracle India, and Qualcomm India
- Seshaasai Business Forms, Tech Mahindra, TP-Link India, Velocis Systems, and Western Digital

<https://economictimes.indiatimes.com/news/international/business/tech-for-good-building-an-ecosphere-for-innovators/articleshow/95204319.cms>



Tue, 01 Nov 2022

GM Mustard: A Win for Science and the Farmer

The Department of Agriculture (DoA) and ICAR need to move forward fast and provide an enabling environment to test the available seed of Hybrid DMH 11 in the current rabi season. Scientists at ICAR institutes must also be encouraged to develop new GM Mustard hybrids on a mission mode. The recent clearance by the government for the release of GM Mustard Hybrid DMH 11 — based on the recommendations of GEAC under the Ministry of Environment, Forests and Climate Change — is a bold decision in the best interest of our farmers and the nation. The decision to remove the unscientific ban on GM crops reflects the determination of the government to move towards Atmanirbhar Bharat. It also meets the aspirations of our scientific community and farmers can derive the benefits of innovative technology.

The fear and reservations expressed in some quarters are scientifically unfounded. In fact, such objections are not new. They were also expressed when we imported the dwarf miracle seeds of wheat and rice to achieve food self-sufficiency through the Green Revolution. I came up against the same concerns as the head of ICAR when Bt Cotton was being released. Science-led revolutions have given India self-respect and global recognition. We are today a major exporter of agricultural produce, including cereals and cotton, fetching more than \$50 billion annually. All this is possible due to the right policy decisions by the government, the establishment of the best institutions, the building of capable human resources, taking along progressive farmers, and strengthening global partnerships.

To meet our current challenges — over-exploitation of natural resources (soil, water, biodiversity), declining factor productivity, urgency to achieve sustainable development goals, especially ending poverty and hunger, and addressing timely the adverse effects of climate change — the best option is scientific innovations and their scaling. The adoption of GM food crops is in our broader national interest. Genetically modified maize, soybean, cotton, tomato and canola are grown across the world and the area currently under GM crops is about 200 m ha. Besides India, these have been grown for many years in the US, Brazil, Argentina, Canada, Australia, Philippines, Pakistan, Bangladesh, and China. To meet the existing deficit in edible oils (about 55-60 per cent), India is currently importing around 13 million tonnes at a cost of Rs 1.17 lakh crore to the exchequer. Interestingly, of this, 2.0-2.5 mt soybean oil and 1.0-1.5 mt canola oil is already GM. Hence, we are consuming GM oil already, besides, the 1.5 mt of GM cotton oil produced domestically.

Moreover, it is scientifically proven that the consumption of refined oil does not allow any protein to enter the human system. Thus, the consumption of GM oil is completely safe from a health point of view. A major concern of our farmers is that yields of mustard are low and have stagnated for a long time at around 1,260 kg/ha, much lower than the global average of 2,000 kg/ha. Yields of canola in Canada, China and Australia are almost three times higher than in India since they use GM hybrid technology. Mustard is a very important oilseed crop, grown in 6.0 -7.0 million hectares, mostly in Rajasthan, Haryana, Punjab and Madhya Pradesh. Thus, the government's decision to allow the production of GM Mustard hybrids will go a long way in increasing our yields, while reducing the use of pesticides.

The Department of Agriculture (DoA) and ICAR need to move forward fast and provide an enabling environment to test the available seed of Hybrid DMH 11 in the current rabi season. This needs to happen on several farmers' fields in the mustard belt. It must also encourage public-private partnerships to produce quality seeds to cover more area next year. Also, scientists at ICAR institutes must be encouraged to develop new GM Mustard hybrids on a mission mode. Allowing the production of GM Soybean and GM Maize going forward will also be a positive step, increasing both the productivity and profitability of these crops and doubling farmers' income — a goal envisioned by the Prime Minister. It is interesting that Australia has recently released herbicide-tolerant GM Indian mustard, using similar technology, whereas they do not grow Indian mustard. Obviously, they aim to meet the growing demand of mustard oil in South Asian countries.

<https://indianexpress.com/article/opinion/columns/gm-mustard-a-win-for-science-and-the-farmer-8241413/>



Wed, 01 Nov 2022

China Launches Third and Final Space Station Component

China's third and final module docked with its permanent space station on November 1 to further a more than decade-long effort to maintain a constant crewed presence in orbit, as its competition with the U.S. grows increasingly fierce. The Mengtian module arrived at the Tiangong station early Tuesday morning, state broadcaster *CCTV* said, citing the China Manned Space agency. Mengtian was blasted into space on Monday afternoon from the Wenchang Satellite Launch Center on the southern island province of Hainan. It was expected to take about 13 hours to complete the flight and docking mission. A large crowd of amateur photographers, space enthusiasts and others watched the lift-off from an adjoining beach.

Many waved Chinese flags and wore T-shirts emblazoned with the characters for China, reflecting the deep national pride invested in the space program and the technological progress it represents. "The space program is a symbol of a major country and a boost to the modernization of China's national defense," said Ni Lexiong, a professor at Shanghai University of Political Science and Law, underscoring the program's close military links. "It is also a boost to the confidence of the Chinese people, igniting patriotism and positive energy," Ni said. Mengtian, or "Celestial Dream," joins Wentian as the second laboratory module for the station, collectively known as Tiangong, or "Celestial Palace." Both are connected to the Tianhe core module where

the crew lives and works. Like its predecessors, Mengtian was launched aboard a Long March-5B carrier rocket, a member of China's most powerful family of launch vehicles.

Tiangong is currently populated by a crew of two male and one female astronauts, according to the China Manned Space Agency. Chen Dong, Cai Xuzhe and Liu Yang arrived in early June for a six-month stay on board, during which they will complete the station's assembly, conduct space walks and carry out additional experiments. Following Mengtian's arrival, an additional uncrewed Tianzhou cargo craft is due to dock with the station next month, with another crewed mission scheduled for December, at which time crews may overlap as Tiangong has sufficient room to accommodate six astronauts. Mengtian weighs in at about 23 tons, is 17.9 meters (58.7 feet) long and has a diameter of 4.2 meters (13.8 feet). It will provide space for science experiments in zero gravity, an airlock for exposure to the vacuum of space, and a small robotic arm to support extravehicular payloads. The already orbiting 23-ton Wentian, or "quest for the heavens" laboratory is designed for science and biology experiments and is heavier than any other single-module spacecraft currently in space.

Next year, China plans to launch the Xuntian space telescope, which, while not a part of Tiangong, will orbit in sequence with the station and can dock occasionally with it for maintenance. No other future additions to the space station have been publicly announced. In all, the station will have about 110 cubic meters (3,880 cubic feet) of pressurized interior space, including the 32 cubic meters (1,130 cubic feet) added by Mengtian. China's crewed space program is officially three decades old this year, with the Mengtian launch being its 25th mission. But it truly got underway in 2003, when China became only the third country after the U.S. and Russia to put a human into space using its own resources. The program is run by the ruling Communist Party's military wing, the People's Liberation Army, and has proceeded methodically and almost entirely without outside support. The U.S. excluded China from the International Space Station because of its program's military ties.

Despite that, China is collaborating with the European Space Agency on experiments aboard Mengtian, and is cooperating with France, Germany, Italy, Russia, Pakistan and the UN Office for Outer Space Affairs (UNOOSA) on a range of projects from aerospace medicine to microgravity physics, according to the Chinese Academy of Sciences. Prior to launching the Tianhe module, China's Manned Space Program launched a pair of single-module stations that it crewed briefly as test platforms. The permanent Chinese station will weigh about 66 tons — a fraction of the size of the International Space Station, which launched its first module in 1998 and weighs around 465 tons. With a lifespan of 10 to 15 years, Tiangong could one day find itself the only space station still running, if the International Space Station adheres to its 30-year operating plan. China has also chalked up successes with uncrewed missions, and its lunar exploration program generated media buzz last year when its Yutu 2 rover sent back pictures of what was described by some as a "mystery hut" but was most likely only a rock. The rover is the first to be placed on the little-explored far side of the moon.

China's Chang'e 5 probe returned lunar rocks to Earth for the first time since the 1970s in December 2000 and another Chinese rover is searching for evidence of life on Mars. Officials are also considering a crewed mission to the moon. The program has also drawn controversy. In October 2021, China's Foreign Ministry brushed off a report that China had tested a hypersonic missile two months earlier, saying it had merely tested whether a new spacecraft could be reused. China is also reportedly developing a highly secret space plane. China's space program has proceeded cautiously and largely gone off without a hitch. Complaints, however, have been

leveled against China for allowing rocket stages to fall to Earth uncontrolled twice before. NASA accused Beijing last year of “failing to meet responsible standards regarding their space debris” after parts of a Chinese rocket landed in the Indian Ocean.

China's increasing space capabilities also featured in the latest Pentagon defense strategy released Thursday. “In addition to expanding its conventional forces, the PLA is rapidly advancing and integrating its space, counterspace, cyber, electronic, and informational warfare capabilities to support its holistic approach to joint warfare,” the strategy said. The U.S. and China are at odds on a range of issues, especially the self-governing island of Taiwan that Beijing threatens to annex with force. China responded to a September visit to Taiwan by U.S. House Speaker Nancy Pelosi by firing missiles over the island, holding wargames and staging a simulated blockade.

<https://www.thehindu.com/news/international/china-launches-third-and-final-space-station-component/article66079556.ece>

