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CURRENT AFFAIRS

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Indigenously Developed Ramjet Missile System Successfully Flight Tested In Odisha

Glimpse of Aero India International Seminar and Aero India 2019

2019 AERO INDIA

The runway to a billion opportunities

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CURRENT AFFAIRS

Rafale steals the show at Aero India

Bengaluru -Political row hit Rafale jet was the cynosure of all eyes as the breathtaking display of manoeuvres by military aircraft and the aerobatic team cast a spell at Aero India, Asia's premier air show here Wednesday. The city's skies dazzled with somersaults and stunts by the metal birds, which also paid tributes to the Surya Kiran aircraft pilot killed in a mishap during rehearsal on Tuesday. The might of the Rafale jet was in full flow as it roared into the skies at the Yelahanka air base, the venue for the event, giving a dazzling display with breathtaking manoeuvres. The Rafale aircraft flew at low speed to pay tribute to Wing Commander Sahil Gandhi who died in a mid-air collision between two aircraft of IAF's aerobatics team 'Surya Kiran" during rehearsal on Tuesday. The Rafale aircraft flew at low speed to pay tribute to Wing Commander Sahil Gandhi who died in a mid-air collision between two aircraft of IAF's aerobatics team 'Surya Kiran" during rehearsal on Tuesday. Three Rafale jets have landed in Bengaluru for Aero India- two for flying and one on static display. Rafale has been participating in the Aero India shows since 2011. India has signed an Inter-Government Agreement with France to purchase 36 Rafales— to form two squadrons. Congress president Rahul Gandhi has been carrying on a sustained campaign against the Modi government on Rafale, accusing it of favouring Anil Ambani's firm as an offset partner and saying it was crony capitalism. The Comptroller and Auditor General (CAG) report tabled in Parliament recently revealed that the Rafale deal negotiated by the NDA government to procure 36 fighter jets was 2.86 per cent cheaper than the UPA's 2007 offer. The Jaguar, Tejas and Sukhoi 30 aircraft flew in the 'missing man' (aerial salute) formation in honour of Gandhi. Army Chief Gen Bipin Rawat, Air Force Chief B S Dhanoa and Navy Chief Admiral Sunil Lanba were also present. Thebiennial edition of International Aerospace and Defence Exhibition - Aero India 2019 was inaugurated by Defence Minister Nirmala Sitharaman in the presence of Karnataka Chief Minister H D Kumaraswamy. Enthralling stunts were performed by Sarang aerobatics teams with daredevil crosses and spins, that has been the mainstay of the Aero India for many editions. The air display began with vintage Dakota aircraft, followed by formations of Advanced Light Helicopter (ALH) Dhruv and Light Utility Helicopter, DO-228, Hawk and HTT40 aircrafts. Then came the flypast and thrilling manoeuvres by MIG 21, Sarang team, Saras PT1, Embraer along with Sukhoi, Boeing P8I, LCA Tejas, HTT40, Sukhoi Su-30MKI, LUH, F-16 Fighting Falcon, Airbus 330 and the mighty B-52 Stratofortress bomber, among others. LCA also paid tribute to former Prime Minister Atal Bihari Vajpayee, who named it as Tejas, by performing certain sets of manoeuvres. On static display among other things at the air show are HAL's Light Utility Helicopter(PT-1), Light Combat Helicopter (TD-2), Advanced Light Helicopter (Rudra) and ALH MICU (Medical Intensive CareUnit). The Aero India official website said a total of 61 aircraft would be on display and 403 exhibitors would be part of the show.

Source //economictimes.indiatimes.com/

A Jumbo journey straddling the skies

The Boeing 747 completes 50 years of flying on February 9. Ms Ashwini Phadnis captures the extraordinary story. The Boeing 747 will complete 50 years of flying in international skies. The first flight of the 'Jumbo', so called because of its huge size, was on February 9, 1969. Since then, the aircraft has undergone various technological upgrades but it still continues to evoke nostalgia and awe among pilots who flew it in its early days and those who are flying it still. "The Boeing 747 had a tremendous and sensational impact on the Indian market. It was a twin aisle (aircraft)," says Mr Michael Mascarenhas, who retired as Managing Director of Air India. Incidentally, Air India is the only Indian carrier to operate this aircraft. The airline placed orders for the Boeing 747-100s in 1967 and got delivery of the Boeing 747-200s in 1971. Fifty years later, the aircraft has been or is being flown by Lufthansa, Thai Airways, Qantas, Virgin Atlantic and Air India. Mascarenhas recalls that the Boeing 747 aircraft was under engineering with Air India for three days when the airline decided to open it up to the public, which was allowed to enter the tarmac at the old Santa Cruz airport in Mumbai. Mr P.S. Nair, Executive Director, GMR Airports — who was lucky enough to be one of the few to get a *dekko* of *Emperor Ashoka*, India's first Boeing 747 before it was opened for public exhibition — recalls sitting on the first class seats which still had the plastic covers. Mr Ravi Menon, Executive Director of Air Works, vividly remembers the day he was invited to see the Jumbo which was undergoing a check. "There was something so graceful and majestic about this aircraft. Standing in the aircraft when the emergency exit was open and looking out at the wing and everybody saying this is equal to a football field — I loved it," recalls Menon. Improved navigation So, what is it about the Jumbo that makes it so special? First and foremost, it came with vastly superior technology compared to the other aircraft, like Boeing 707, that were flying at that time. According to Captain Mark Hoey, General Manager, Operations,

Cathay Pacific, who has flown all the variants of the Boeing 747, from the classic to the latest, "It introduced powered controls that are the basis of most aircraft today. For such a large aircraft it was agile, predictable, stable and forgiving which is why it is loved by all who fly it." A former Air India Commander, who flew the aircraft, says that the main thing was the improvements to the navigation system. "In the old days, you could only go from one radio beacon to another radio beacon. When the new system came you could just put in your position and go direct to that position…. everything was done by computer." Captain Jeremy Aeria, Chief Pilot of Boeing 747, Singapore Airlines, says that the Boeing 747-400 was the most advanced in terms of avionics and automation during his time. Aeria spent almost half his aviation career flying the Boeing 747 — 21 years operating the 747-200, 747-300 and the 747-400, including both the passenger and cargo-configured aircraft. Sunshine or storm The superior technology helped pilots immensely, particularly when they were flying in inclement weather. Aeria recalls the time he was flying from Singapore to London in winter. "Weather conditions did not improve and we were one of the few airlines that could make an approach and land into Heathrow. A safe landing was conducted and a "follow-me-vehicle" guided us to our parking bay. To this day, I dare say that the Boeing 747-400 has one of the best and most reliable automatic landing systems," he says. The availability of the TCAS warning system on the aircraft also helped avoid a fatal accident on an Air India aircraft en-route London from Mumbai. "I was flying from Mumbai to London over Karachi when the Air Traffic Controller gave an aircraft from Karachi to Dubai a climb-through me. We were lucky that the new Jumbo had the warning system TCAS which had just come. I got the warning climb, climb and I did," says a former Air India pilot. Captain Minoo Wadia, who retired from Air India, recalls that though he has flown many aircraft, "the Jumbo is the only aircraft in which no one, not even the captain, knew that it had landed because its design was solid and it was massive." "Flying became a lot easier with the Boeing 747. The stress in the cockpit came down tremendously. Navigation became really simple," adds another pilot. A lot has changed in the aircraft over the years. Pilots recall that while the original Jumbo came with the captain, co-pilot, flight engineer and navigator, as it became advanced there was no need for a navigator because of the on-board 'Initial Navigation System' and when the newer models came with the glass cockpits, there was also no need for a flight engineer. A smooth flying experience The Boeing 747 also made flying a more enjoyable experience for travellers. Being a larger aircraft of huge weight the Boeing 747 could handle weather better, making flights less turbulent. "To sit down and see an air hostess talking on the phone with someone in another zone was amazing; it was surreal in 1971," recalls Mascarenhas, who also remembers a bar on the upper deck of the aircraft — something that was unheard of then. Captain Hoey sums up the Jumbo the best when he says: "the 747 has dominated aviation for half the entire history of powered flights and has done so in such a way as to define the standards, comforts and safety which we take for granted today while shrinking the world and bringing humanity closer together."

Source: https://www.thehindubusinessline.com/

DRDO's Aero India International Seminar – 2019

The 12th edition of the Aero India International Seminar was inaugurated at Bengaluru by Member NITI Aayog Dr VK Saraswat. The inaugural function was attended by Secretary Dr. Ajay Kumar, Chairman, Indian Space Research Organisation and amp; Secretary Department of Space Dr K Sivan, Secretary, Department of Defence Research and amp; Development, Chairman, Defence Research and Development Organisation and Director General, Aeronautical Development Agency Dr. G Satheesh Reddy and President, Aeronautical Society of India Dr. RK Tyagi. Theme of the seminar is 'Emerging Frontiers in Aerospace Technologies'. The seminar will have extensive interaction and deliberations in domain of Aerospace Materials, Stealth, Hypersonics, Artificial Intelligence and Deep Learning in Aerospace, Sensors, Avionics, Propulsion and UAV/UCAV technologies. Dr Saraswat in his inaugural address applauded the work done by DRDO for bridging the technological gaps. He said that the time has come to develop different kinds of weapons particularly in the areas of low intensity conflicts and highlighted the need to bring down the cycle time from research and development to production for better assimilation and absorption of technology in a time bound manner. Dr Ajay Kumar, in his address said that the seminar of DRDO is the harbinger to the forthcoming Aero India events. He appreciated the contributions of ISRO and DRDO to the nation. He said DRDO has been playing a great role working with start-ups. DRDO and start-ups should work together to remain frontier in the technology areas. Dr K Sivan in his address highlighted the importance of DRDO's role in Gaganyaan mission and expected to have more such collaborations in future programmes. Dr G Satheesh Reddy in his address said there is a tremendous transformation in the aerospace sector. Advancements in technologies like propulsion, electronics, structures, and payloads have brought in significant reduction in the size, cost, and weight of Aerospace systems. Smart miniaturized aerospace sensor technologies will be the backbone for futuristic Defence and Aerospace Systems. We need to focus on Artificial Intelligence (AI) in a big way. AI will impact efficiency, productivity, speed and innovation in the emerging aerospace industries. Advanced

Materials, Hypersonics, Avionics, Autonomous vehicles and Engines are few of our major thrust areas. It is essential to harness the scientific capabilities in universities and industries and we have to take the lead to develop first of its kind technologies in the country. A souvenir of the event was released on the occasion. Special issue of the journal of AeSI and a Monograph named 'The Incredible Journey of Indian AWACS' was also unveiled.

Source: http://pib.nic.in

Aero India 2019: Airbus to demonstrate fuel efficient aircraft and new generation tactical airlifter C295

Airbus has planned one of its biggest-ever participation at Aero India where it will have flying and static displays of its best-in-class products to showcasing its cutting-edge aerospace services. The major attraction during the flying displays will be the A330neo – the latest addition to the leading Airbus wide body family featuring advanced materials, new optimized wings, composite sharklets and highly efficient engines that together deliver 25% reduced fuel burn and CO2 emissions. There will be demonstration flights by the new generation tactical airlifter C295 which can perform multi-role operations under all weather conditions. Company's most versatile twin-engine rotorcraft – the H135 & H145 will on static display. The H135 is known for its endurance, compact build, low sound levels, reliability, versatility and cost-competitiveness. The H145 is a member of Airbus' 4-tonne-class twin-engine rotorcraft product range – with designed-in mission capability and flexibility, especially in high and hot operating conditions. The company will also show case its commitment to supporting the growth of India's aviation, defence and space sectors, particularly in the areas of 'Make in India' and 'Startup India', through virtual and augmented reality experiences. Terming Aero India as a jewel in the crown of the world's largest defence and third-largest commercial aviation market, Anand E Stanley, President and Managing Director of Airbus India & South Asia. "Airbus' large-scale commitment to the show demonstrates that India is more than a market, it's a core base for us."
Also scale models of the C295 – medium transport aircraft; the A330 MRTT – Multi-Role Tanker Transport aircraft; the A400M – the most versatile airlifter currently available; the SES-12 – a geostationary communications satellite and a holographic display of the Hybrid SAR Earth observation radar satellite will be on static display. Scale models of the H225M– the military version of Airbus' H225 Super helicopter; the AS565 MBe – the all-weather, multi-role force multiplier; along with the H135 and H145 will be on display. Commercial aircraft scale models will include A330-900, the member of Airbus' A330neo new generation wide body, the A321neo and ATR 72-600. Along with Advanced Inspection Drone which accelerates and facilitates visual checks, considerably reducing aircraft downtime and increasing the quality of inspection reports, Airbus will also demonstrate a wide range of service offerings, including through its fully owned subsidiaries Satair and Navblue, with particular focus and demonstrations of Skywise-based digital services.

Source: https://www.financialexpress.com/

India's Air Force to Receive 4 More Tejas Light Combat Aircraft in March 2019

India's Ministry of Defense (MoD) announced on February 11 that state-owned Hindustan Aeronautics Limited (HAL) will deliver four more Tejas light combat aircraft (LCA) to the Indian Air Force in March 2019 bringing the total number of Tejas fighters operated by the service to 16. All the Tejas aircraft delivered are in initial operational configuration or capability (IOC), which means the fighter jet meets the minimum requirements for operational deployment by the IAF. "Till date, out of total 16 IOC fighter aircraft, 12 fighters have been delivered to IAF," the MoD said in a statement. "HAL plans to deliver the balance 4 IOC fighter aircrafts by March, 2019." The MoD placed an order for 40 Tejas LCA Mark-I with HAL including eight tandem two-seat LCA trainer aircraft divided up into two batches in 2006 and 2010 respectively. While the first batch of Tejas aircraft is to consist of IOC fighters, the second batch of aircraft are expected to be delivered in final operational clearance (FOC). However, to date the Tejas LCA FOC status has not been cleared by the Indian Aeronautical Development Agency. Notably, HAL and Israel Aerospace Industries (IAI) subsidiary Elta Systems signed a contract for the purchase of 83 ELM-2052 active electronically scanned array (AESA) radars and ELL-8222WB electronic warfare (EW) suites to be integrated with the Mark-IA in October 2018. The IAF is also considering placing an order for 83 additional Tejas LCA, including 73 single-engine Tejas LCA Mark-IA, and 10 tandem two-seat LCA trainer aircraft. HAL announced in November 2018 that it will set up a new production facility at Nashik in Maharashtra by 2020 to increase its annual output of Tejas aircraft from eight to 16 per year. To date, HAL has not met the eight aircraft per annum quota agreed to with the MoD. HAL is also working on another more advanced Tejas variant, designated Tejas Mark-II. The IAF could order as many as 200 aircraft of this latest version of the light fighter jet. However, the Tejas Mark-II will not be ready for its first test flight for at least another five years while foreign aircraft makers are pushing into the Indian military aircraft market offering cheaper and more capable alternatives.
Source: https://thediplomat.com/

India All Set To Launch Its First Mission That Will Put 30 Satellites In 3 Different Orbits

The space race is on and India is not one to lag behind. After all, with Chandrayaan-1 and Mars Orbiter Mission India has proved that it is one of the forerunners in the race and knows exactly what it is doing. In a historic move, India is all set to launch its first 3-orbit mission with PSLV-C45. The launch that will take place on March 21, 2019, will put 30 satellites into three different orbits. Out of these 30 satellites, one is meant exclusively for electronic intelligence. ISRO Chairman Dr K Sivan told ANI, "On March 21 we will have PSLV C-45 launch. It is going to launch an electronic intelligence satellite and 29 customer satellites from other countries. The speciality of this mission is that for the first time PSLV will launch satellites in 3 different orbits." Sivan also said that Chandrayaan-2, India's second mission to the moon is scheduled for April end this year. Earlier this year, in January, India created history by launching the world's lightest satellite - Kalamsat, that was made by students from Space Kidz India in Chennai. As a gesture of appreciation and motivation, ISRO had launched the satellite for free. Kalamsat - named after Dr A.P.J. Abdul Kalam - was launched successfully and with this India became the first country to use the fourth stage of a space rocket as an orbital platform

Source: https://www.indiatimes.com/

Modified Saras To Make Flying Debut At Aero India 2019; Rs 500 Crore Funding, However, Still In The Pipeline

The light transport aircraft (LTA) Saras, developed by National Aeronautics Laboratory (NAL), will make its flying debut at Aero India in Bengaluru in a hope to cash in on the popularity of the show to further the programme, The project was conceived of in 1989 but got shelved after the crashing of a Saras prototype aircraft in March 2009. The crash had killed all three crew members. However, the Modi government gave the project a second chance in late 2016, when its revival was announced in 2017 air show. "The project was dumped by the previous government, after the crash despite the Directorate General of Civil Aviation exonerating the aircraft from any design flaw or poor-quality production. The credit for reviving the project goes to the present government," Union minister Harsh Vardhan was quoted as saying at the 2017 air show. However, the Centre's Rs 500 crore fund, which NAL needs for starting work on the three proposed limited series production aircraft, is still awaited by the laboratory. "We have been told that it is in the pipeline and clearance is at advanced stages. We are likely to get the money soon," an official aware of the developments was quoted in the report as saying. According to the report, Saras was expected to be at least 20-25 per cent cheaper than the same category of imported aircraft. Its unit cost was estimated at about Rs 40-45 crore compared to Rs 60-70 crore which imported ones are priced at.

Source: https://swarajyamag.com/

IISc, Boeing help startups take to the skies

Even though India's aerospace industry, which includes civil aviation and defence industries, has grown exponentially over the years there is a clear dearth of startups. This is primarily due to long gestation periods for product development and certification hurdles. Within these constraints, the Indian startup ecosystem has evolved over a period of time to come up with aerospace startups with innovative products and services. Besides Indian public sector enterprises and research establishments, Indian aerospace startups are supported by big manufacturing houses who are finding big business opportunities in this space. Talking to DH, IISc Entrepreneurship Cell Chairman Mr C S Murali said it is relatively an unexplored area by Indian businesses. "But now we have been witnessing advances in space technologies and there are few startups who have come up with homegrown solutions," he said. Astrome, a space technology company, incubated at Indian Institute of Science (IISc), Bengaluru provides high-speed broadband internet from space for flying objects and ground stations, even to homes. According to Mr Murali, Bellatrix Aerospace is developing innovative technologies in the field of rocket and aircraft propulsion, defence and energy. "The company has come up with a technology to use water as a fuel in further thrusting the satellites into outer space. Dr Kota Harinaraya founded General Aeronautics designs and makes unmanned aerial vehicles or drones focused on security and civilian applications," he said. Boeing's India Engineering & Technology Centre (BIETC) along with T-HUB launched Boeing HorizonX India Innovation Challenge in 2018. The initiative has selected three aerospace startups — Merxius (develops an extended reality (XR) authorising software for noncoders), HuviAir (unmanned aircraft services and software solutions for surveying and workflow management) and ZestIOT (provides airport and airplane IOT technologies). India remains a country which has made a remarkable contribution to the aerospace field and space research. In recent years many

new companies are emerging in the aerospace field and many top aerospace companies in the world are starting up their offices in India. The boom in the aerospace industry gives a boost to a lot of new promising projects in this field. "In the aerospace sector, this value chain is evolving and it will take time. The maturity of Indian startups in this space will also take time and there are lots of hawkish international regulatory hurdles preventing its growth," said an industry analyst. According to a recent study by India Brand Equity Foundation (IBEF), India is expected to become the third-largest aviation market by 2020 and the largest by 2030. In addition to low-cost carriers, project UDAN will create infrastructure in 100 airports so that aerospace startups can provide solutions, hardware, and services to the sector. Omnipresent Robot Tech founder Mr Akash Sinha said Indian aerospace startups should focus on ancillary services they can deliver. "Our startup is focusing on drone-related services delivery and now we have tied up with more than six states. Our mapping solutions are used in crop lifecycle management, pest control, security monitoring, and township development among others," he said.

Source: https://www.deccanherald.com

India's Tejas Light Combat Aircraft Is Combat Ready

More than three-and-half decades after the Tejas Light Combat Aircraft (LCA) Mark-I was conceived, the fighter jet was accorded final operational clearance (FOC) by India's aviation certifying authority this week. FOC certification means that the Tejas fighter jet is now ready to be deployed in combat operations by the Indian Air Force (IAF). The Tejas Mark-I was awarded FOC status by the Indian Aeronautical Development Agency (ADA) on February 20, according to a Ministry of Defense (MOD) press statement. The Tejas achieved initial operational clearance (IOC)—the minimum set of requirements for operational deployment of the aircraft by the IAF—in 2013 with the first Tejas Mark-I IOC squadron stood up in July 2016. "FOC involves addition of key capabilities to the [IOC] aircraft which are beyond visual range missile capabilities," the MoD statement reads, including "air-to-air refueling, air-to-ground FOC earmarked weapons and general flight envelope expansion." The Tejas LCA's main air-to-air weapon system is the I-Derby BVR missile, which has been tested on several occasions over the past two years. State-owned Hindustan Aeronautics Limited (HAL) will deliver four more Tejas LCA to the IAF in March 2019, bringing the total number of Tejas aircraft operated by the service to 16. The Tejas aircraft will be delivered in IOC configuration. "HAL plans to deliver the balance 4 IOC fighter aircrafts by March 2019," reads a MoD statement from earlier this month. The MoD has ordered 40 Tejas LCA Mark-I aircraft from HAL, including eight tandem two-seat LCA trainer aircraft in two batches in 2006 and 2010. The first batch of 20 consists of Tejas LCA IOC, while the second batch of aircraft will be in FOC configuration. As I noted repeatedly in the past, the IAF has time and again emphasized that the Tejas Mark-I variant does not meet the service's specifications and operational requirements. Overall, the IAF demanded over 43 improvements and upgrades of sub-systems of the aircraft. Given the Tejas Mark-I FOC status, it appears that these deficiencies have now been addressed, although details remain murky. FOC aircraft are set to enter production this year. HAL will also set up a new assembly facility at Nashik in Maharashtra by 2020 to increase annual production from eight to 16 aircraft per year. Additionally, the IAF is expected to place an order for 83 additional Tejas LCA, including 73 single-engine Tejas LCA Mark-IA, and 10 tandem two-seat LCA trainer aircraft. The Indian MoD will issue a request for proposal (RFP) for the aircraft soon, according to Indian defense officials. ADA revealed a model of the Tejas Mk 2 Medium Weight Fighter at Aero India 2019 this month. "The IAF could order as many as 200 aircraft of this latest version of the light fighter jet," I wrote earlier this month. "However, the Tejas Mark-II will not be ready for its first test flight for at least another five years while foreign aircraft makers are pushing into the Indian military aircraft market offering cheaper and more capable alternatives."

Source: https://thediplomat.com/

Tejas gets final clearance for induction into Indian Air Force

India's Light Combat Aircraft (LCA) Tejas has received the final operational clearance (FOC) from military aviation regulator Cemilac for induction into the Indian Air Force (IAF) as a weaponised fighter jet. It is a major milestone for the LCA to get the final operational clearance. The aircraft could fly in many sorties and has demonstrated the precision with which it can deliver weapons. The aircraft performed air-to-ground attacks and air-to-air refuelling at IAF's Vayu Shakti air display at Pokhran in Rajasthan on February 16. State-run Hindustan Aeronautics Ltd Chairman and Managing Director Dr R. Madhavan said HAL had responded to the request for proposal (RFP) floated by the IAF for 83 LCA Mk-1. The FOC involves addition of capabilities to the initial operational clearance (IOC) aircraft which are beyond visual range missile capabilities. The regulator's document provides capabilities, features and technologies that FOC standard

aircraft will have on induction into the IAF. The FOC standard aircraft drawings have been handed over to HAL to start production after incorporating changes over the IOC. The regulator gave IOC to the combat aircraft in 2013 and inducted it into the IAF 45 Squadron in July 2016. HAL plans to give 16 Tejas fighter aircraft by year-end.

Source: https://economictimes.indiatimes.com/

BEML and Lockheed Martin partner for aerospace equipment

This step opens up avenues for collaboration between the two companies to explore manufacturing of support equipment opportunities in aerospace. BEML Ltd. a leading Public Sector Undertaking, under Ministry of Defence and US based Lockheed Martin Aeronautics Company, signed a 'Certificate of Partnership' at the ongoing Aero India 2019 at Bengaluru. This step opens up avenues for collaboration between the two companies to explore manufacturing of support equipment opportunities in aerospace. The certificate of partnership was inked by Mr Deepak Kumar Hota, Chairman & Managing Director, BEML and Dr. Vivel Lall, Vice President Business Development, Lockheed Martin Aeronautics Company, India. BEML has designed and developed various ground handling and ground support equipment for the prestigious LCA 'Tejas' project. BEML also manufactures Aircraft Towing Tractor, Crash-fire Tender, Aero-bridges and intricate varieties of installation and removal equipment for usage in airports. The BEML Aerospace Division has the state-of-the-art manufacturing facilities such as Precision Machining, fabrication of exotic alloys. The Division boasts NABL accredited Metrology, testing and inspection facilities. Airborne sheet metal structure and is equipped with CNC router, Elasto form press, solutioning furnace and related assembly infrastructure. BEML is exploring global and domestic opportunities and benefit from the offset policy laid down for defence procurement by GOI. The Aerospace Division of BEML Limited in Mysuru and the upcoming aerospace facility at SEZ near Bengaluru is to take advantage of the domestic and global opportunities in the ever-expanding aerospace market and benefit from the 'Off set' policy laid down for defence procurement by Government of India.

Source: https://www.indiainfoline.com/

Saab inks MoUs with 3 Indian Aerospace Firms for Gripen Aerostructures

Saab AB has signed Memorandums of Understanding (MoUs) with three Indian aerospace manufacturers — Dynamatic Technologies Limited, CIM Tools Private Limited and Sansera Engineering Private Limited. The MoUs with CIM Tools and Sansera expand the existing working relationships with Saab on commercial aerostructures to the Gripen fighter and other defence-related products in the Saab portfolio. The MoU with Dynamatic is a starting point to explore future joint opportunities in commercial and defence-related aerostructures work, including Gripen. "Saab's Aerostructures business unit has had a successful relationship with CIM Tools and Sansera for several years. Based on that experience we see these two companies can add great value to our Gripen 'Make in India' offer," says MR Mats Palmberg, VP Industrial Partnerships and Head of Gripen for India. "The MoU with Dynamatic adds the capabilities of complex airframe assembly to Saab's 'Make in India' offer for Gripen." "I am pleased that the fruitful co-operation we have established over several years with CIM Tools and Sansera can be further developed for the Gripen fighter. The MoU with Dynamatic has the potential to further develop our ecosystem for commercial aerostructures as well as Gripen," said MR Lars Jensen, Managing Director and Head of Saab Aerostructures. "The new MoUs announced today will enable Saab to work with these Indian companies to establish an indigenous, efficient, tailor-made manufacturing system that will develop, deliver and support state-of-the-art Gripen fighters in India for the Indian Air Force," read a communiqué by the company.

Source: https://medium.com/

AMCA, India's first stealth fighter, likely to be airborne before 2025

The Advanced Medium Combat Aircraft (AMCA) project of India has gone deep into the detail design phase now. Along with the Aeronautical Development Agency (ADA), hundreds of scientists spread across at least 20 Defence Research and Development Organisation (DRDO) labs are now engrossed in critical work to find solutions to a number of gen-next technologies that need to be proven. With the Project Definition Phase (PDP) getting over in 2017, scientists have already walked some distance designing the AMCA, India's stealth fighter. ADA, the designers of Light Combat Aircraft (LCA), is spearheading the AMCA mission. The AMCA will be propelled by a GE-414 engine with a thrust of 90 kN and this will be an interim step by the makers till a higher thrust engine of 110 kN is finalised. The GE-414, set to

power Tejas Mk-II, will power AMCA as well, till India develops a 110 kN engine possibly in collaboration with a foreign partner. India's stealth fighter project picks up momentum The current plan is to fly AMCA with GE-414 engine for the first six-seven years, what the designers now term as an 'interim engine' for India's 5th-generation stealth platform. While the design phase has already been sanctioned to commence activities, the final approval for AMCA from the government (Cabinet Committee on Security) is in process. The plan is to build four prototypes and fly the first one before 2025, which is seven years from now. The Indian Air Force (IAF) is said to be working out the exact numbers for this future fighter, while the AMCA Directorate at ADA is ensuring a robust foundation for this big-ticket desi project.

Loaded with features

Detailed R&D on materials, paints and structures are being undertaken by various labs now. Study is also underway on flight control, avionics, aerodynamics, composite structure and general systems like brakes, hydraulics and fuels systems. "We hope to have the first flight of AMCA before 2025 with all the stealth features being established by then. With reduced IR (Infra Red), we are working on the super cruise abilities that give the aircraft capability to fly at supersonic speeds without the afterburner," says the official. Passive sensors, internal weapon bay, advanced integrated avionics, next-gen AESA (Active Electronically Scanned Array) radar, 360-degree enhanced situation awareness, IVHM (Integrated Vehicle Monitoring System), serpentine air intake, IRST (Infra Red Search and Track), MAWS (Missile Approach Warning System) and Diverterless Supersonic Intake (DSI) are some of the features being claimed by Indian scientists that will make AMCA a powerful fighting machine. Added features like SEAD (Suppression of Enemy Air Defence) and DEAD (Destruction of Enemy Air Defence) will also give more teeth to its BVR (Beyond Visual Range) characteristics. "Parallel efforts to camouflage the aircraft to achieve visual and IR stealth will continue in the next few years," adds the official. Aero India 2019 special report jettisons into the web space, the AMCA backroom boys are initiating the Full Scale Engineering Development (FSED) plans for AMCA. India's home-grown fighter programmes are on inspiring flightpath now with the scientists gaining confidence in converting dreams into reality at a relatively faster pace. The lessons from LCA will probably act as a ready-reckoner.

Source: https://defenceupdate.in/

AERO INDIA: Tejas Mk2 gets canards, big payload boost

India's Aeronautical Development Agency (ADA) has detailed a number of improvements for the planned Hindustan Aeronautics (HAL) Tejas Mk2 fighter. The Mk2 benefits from Indian Air Force experience with the Mk1, says an ADA official. A prototype of the new aircraft, which features the addition of canards behind the cockpit, will likely fly in late 2023. Key changes the Air Force asked for were additional range and the ability to carry advanced standoff weapons, he adds. The maximum all-up weight will grow to 17,500kg, up from 13,500kg for the baseline Tejas, and the aircraft is 1.35m longer. The longer fuselage allows for more fuel behind the cockpit, and the Mk2 will be able to carry more drop tanks. The extra length changed the fighter's center of gravity, requiring the addition of a forward lifting surface. The ADA looked at a number of options, including leading edge extensions, but finally decided on canards, which also help with maneuverability. The new aircraft also sees improvements made to the fighter's delta wing. "The forward canards help in other areas too," says the official. Other improvements include an upgraded engine, the General Electric F414-INS6, of which four examples have already been obtained. The related, but less powerful, F404 powers the Tejas Mk1 and Mk1A. The Mk2 will be able to accommodate 6.5t of external stores, up from 3.3t for the baseline jet. The new fighter will have wingtip hardpoints added for air-to-air missiles, as well as two cheek stations for stores or sensors. To highlight the Mk2's differences from the Mk1, a company brochure labels it the Medium Weight Fighter (MWF), whereas the Mk1 was labeled as the Light Combat Aircraft (LCA). The Mk2 also receives an internally mounted infrared search and track (IRST) sensor, a missile approach warning system (MAWS), and an improved cockpit. Separately, the Tejas Mk1 appeared in the static display with a locally developed active electronically scanned array (AESA) radar installed. The radar, developed by India's Electronic Research Development Establishment (LRD), was visible through a special clear nose cone. The radar has undergone both mechanical integration on the jet and avionics integration in the lab. Though mounted on a test aircraft that flew to the show, the radar has yet to be powered up in the aircraft. This is due to take place in the next month. The LRD expects that two years of testing will ensue, followed by half a year of proving work. The new radar will eventually replace the mechanically scanned Elta EL/M-2032 now used on the fighter. "[The radar] is capable of tracking multiple targets with high accuracy suitable for firing missiles and interleaved air-to-air, air-to-ground, and air-to-sea modes for all terrain solutions and high mission reliability," says LRD.

Source:- Flight Global

India goes to an old friend for fighter aircraft

India is turning to old military partner Russia as it scrambles to close gaps in its combat aircraft strength with top officials confirming that procurement of a new squadron of Su 30 MKI jets is under process, besides advanced talks on an additional squadron for MiG 29 UPG fighters. With the squadron strength coming dangerously low – it is expected to dip below 30 this year against the sanctioned 42 – these additional jets will be vital for the air force that is retiring all its older generation MiG 21 fighters."We have got an official request from the Indian side to supply 18 more kits of the Su 30 MKI. This request came in January and now we are preparing our commercial offer," Mr Anatoly G Punchuk, Deputy Director of the Russian Federal Service for Military Technical Cooperation said. He added that advanced talks were on for the upgradation of the already ordered fleet of 272 Su 30 MKI jets. On the additional MiGs, the Russian side said that commercial proposal has been sent to India and the two sides will take things forward after a response from New Delhi. "We have got an official request for the supply of 21 planes from the Indian side, two of which are trainers. We have forwarded the commercial proposals and are waiting for a response. The planes have all necessary infrastructure and support in India as well as pilots who are very familiar with it," the Russian official said. As reported by ET, the plan to acquire 21 additional aircraft to make a new squadron of MiG 29 jets that were first purchased in the 1980s is expected to cost the Indian exchequer less than `6,000 crore. This would come to `285 crore per jet that would include weapon systems, training and other supporting equipment required for a new squadron. The negotiations are being carried out under the government-to-government pact with Russia. The Air Force currently operates three squadrons of the Russian fighter jets that are being upgraded in house at its Base Repair Depot. While the multi-role jets have been operating since the 1980s, the air force had signed a `3,850 crore deal in 2008 to upgrade the entire fleet and give it a life extension.

Source:- TNN

Air Force's Unmanned Indian "Wingman" Drone Could Redefine Air Warfare

In a decade from now, Indian Air Force (IAF) fighters deployed deep inside Pakistani or Chinese air space could be accompanied by three or more "unmanned wingmen", armed stealth drones which will fight alongside IAF fighters to hit high-value enemy targets. "These platforms will be the first line of offense in operations against heavily defended, integrated air defence networks" says one of the key designers involved in the project being led by Hindustan Aeronautics. An Indian defence startup is also a part of the mission team. Each drone will initially be armed with a single precision-guided weapon, such as an air-to-surface missile or a laser-guided bomb. Future versions of the platform will also be able to fire air-to-air missiles to target enemy fighters. In simple terms, the unmanned wingman will be connected to a heavily-upgraded IAF Jaguar fighter bomber (called the Jaguar Max); pilots onboard which will assign specific tasks to each of the unmanned drones which fly alongside the fighter. "Unmanned wingman platforms can target enemy airfields, army installations, radar sites and enemy surface-to-air missile launchers," says the key designer of the design team, tasks which are assigned to each drone through an indigenously developed two-way data-link. "Not only do they increase the spread of offensive firepower in each and every mission, they also reduce potential casualties because they are unmanned aircraft," the design team member said. "Each drone is also equipped with its own radar and sensors, data from which is transmitted back to the Jaguar fighter through the data-link so that the pilots get a comprehensive situational picture of all the targets and threats in the area." The concept of stealthy "unmanned wingman" drones come at a time when the Indian Air Force is struggling with an acute shortfall in its fighter squadrons. Some reports suggest that the IAF needs at least 200 more fighter jets to be effective in countering the threat of the Chinese Air Force and a resurgent Pakistan Air Force which has significantly upgraded its capabilities since the 1999 Kargil war where it could not compete with the Indian Air Force because its fighters lacked long-range air-to-air missiles. Each HAL designed unmanned wingman is projected to cost under $5 million, a fraction of the cost of modern fighter aircraft like the Rafale which cost upwards of $92 million for a basic fighter without weaponry and support systems. Still, for the unmanned wingman concept to be successful, there are important technological breakthroughs that need to be achieved. The drone is meant to be powered by the PTAE-7 turbojet engine which powers the indigenous Lakshya high speed target drone system. Designers of the unmanned wingman say a new engine needs to be acquired for the drone to improve its flight performance. Similarly, software for the command algorithms meant to control the unmanned drones and the design of the cockpit displays in the Jaguar fighter used to control the drones needs to be developed as well. For Hindustan Aeronautics, the project to develop and deploy the unmanned wingman is a race against time. In June last year, China, considered a world-leader in drone technology, showcased its 'Dark Sword' unmanned stealth fighter for the first time, a supersonic fighter which has been described as a potential nightmare for US defences. The 'Dark Sword' is thought to have been under development for at least a decade.

Source:-NDTV

LCH at striking distance from being inducted in large numbers – Limited Series Production Initiated

The Light Combat Helicopter (LCH) is at striking distance from being inducted into the armed forces. The designers and test crew at Hindustan Aeronautics Ltd (LTD) vouch for the LCH's might, with four prototypes having completed the pre-induction trials as mandated by the users—the Indian Air Force (IAF) and Indian Army. During a recent visit to the Rotary Wing Research and Design Centre (RWRDC) of HAL, Onmanorama was briefed by the officials about the future flightpath of the combat helicopter programme. The Defence Acquisition Council (DAC) had cleared the proposal to induct an initial batch of 15 LCHs. Notwithstanding the final orders to formally come, HAL had gone ahead and began the process of manufacturing the limited series production (LSP) platforms. Of the 15 LSPs, 10 are for the IAF and the remaining five for the Indian Army. There's an additional projection of 65 LCHs for the IAF and 97 for the Indian Army. The LSP of LCHs was launched in August 2017 by Mr Arun Jaitley, when he was holding the additional portfolio of defence. Post-completion of all trials, HAL officials now say that they are confident of the LCH becoming one of the most resourceful and potent helicopters for high-altitude missions. The programme has already got initial operational clearance (IOC). The officials said that during firing trials, the LCH performed excellently, meeting accuracy requirements. "This is the first attack helicopter with us, which has aerial combat capabilities. A moving UAV can be taken on easily with an air-to-air missile or with the front gun. This was a capability gap the services had and LCH will fill it now," an official said. When asked about the 'many firsts' the LCH offers the user, the HAL official said, "LCH has an efficient navigation system that enables delivery of weapons with accuracy measured in milliradians. Be it day or night, you can rely on LCH autopilot, while the optical devices ensure you pick up the target with ease." Last month, the LCH had successfully fired the Mistral-2 air-to-air-missile (ATAM), hitting a moving aerial target, during the weapon trials held at the Integrated Test Range at Chandipur in Odisha. LCH is the only attack helicopter in the world capable of landing and take-off with considerable payload at high altitudes such as the Siachen Glacier. The need for a dedicated combat helicopter, which can operate effectively at high altitudes with considerable payload, in terms of weapons and ammunition, was an immediate fallout of the Kargil War in 1999. Subsequently, the requirement for a dedicated combat helicopter was provided by the IAF in August 2003. At present, the Indian armed services have dedicated weapon platforms of Russian origin, which have limitations for operations at the high altitudes and LCH is expected to fit in that role.

7 LSPs getting ready ::

Seven LSP platforms are at various stages of manufacturing at the assembly hangars of HAL currently. "This is the new thought process as we are sure to get the orders and our idea is to deliver the choppers at the earliest. We are confident to hand over the first LCH well within the contractual schedule," the official claimed. He said LCH, with the versatile features built in for combat missions, had tremendous export capability. "We have the capability to customise and integrate systems and weapons as per the customer requirement. HAL has now obtained the NOC (no objection certificate) from the ministry of defence to explore the possibilities to export LCH to Malaysia, Myanmar, Thailand, Vietnam, Angola, Egypt, Indonesia, Ecuador and Nigeria," the official added. The designers have learnt many lessons from the Advanced Light Helicopter (ALH) programme of HAL that came in handy for the LCH project as well. Today, the ALH Dhruvs are being used widely by the Indian Army in addition to the IAF and the Indian Navy. "The development issues and resolutions for integration of critical systems—such as rotor, transmission, engines and controls system—all were lessons from ALH. Even the implementation of schemes for vibration reduction and enhancement of handling qualities too came from our past experience. The knowledge of weapon system integration and maintainability optimisation too were chapters from the past," the official said. The LCH has a narrow fuselage with tandem seating, crash-worthy fixed tricycle type with tail wheel landing gear, reduced infrared(IR) and radar signature, armour protection, aerofoil-type armament wing and directional control by push-pull cable and is capable of day/night operations. It is the first helicopter to have NVG III-equivalent standard for night flying in India. To make the LCH meaner, based on user inputs, the designer had worked on shaping and sizing of the platform, including making the fuselage sleek, reducing the frontal area with aerofoil-type armament wing and embedding stealth features by reduced visual, aural, IR and radar signatures. To up the lethal capability, the weapons and mission systems have now been provided self-protection systems. Presently, the LCH is integrated with a 20-mm turret gun, 70-mm rockets and air-to-air missiles. Plans are afoot to integrate the LCH with air-to-surface missiles, iron/cluster bombs and anti-radiation missiles.

Source:- The Week

After 18 Sukhoi's ,IAF to take up offer of 21 MiG-29s to boost strength from Russia

Faced with a depleting strength, the Indian Air Force (IAF) is in talks with Russia to buy 21 MiG-29 fighter aircraft that are lying with Moscow since the late 1980s. Top IAF sources told ThePrint that the Russians will upgrade the aircraft to the standard that India wants."The price offered by the Russians is good. Even though it was built at the same time when we bought the earlier MiG-29 squadrons, they have never flown," a source said. India currently has three squadrons of MiG-29 — a twin-engine single-seat air superiority fighter aircraft. One squadron comprises 18 aircraft. These aircraft are currently being upgraded in-house by the IAF. "The Russians will upgrade the 21 aircraft to the standard of the upgraded ones here. We are in talks to see how and at what price the deal can be done," a source said. Sources said this also rules out any additional orders for Su-30 MKI to the Hindustan Aeronautics Ltd (HAL) except for the nine aircraft that the IAF might order to replace the ones that crashed. A high-level IAF team was in Russia last month to check on the fighter aircraft and it has submitted a favourable report to the Air Headquarters. India was the first international customer of Russia for its MiG-29s.

Upgraded aircraft

The MiG-29 aircraft is currently going through structural as well as overall avionics upgrade, besides getting a new weapons package. With the new air-to-air refuelling feature, an upgraded MiG-29 can cover larger distances compared to the previous legacy aircraft, something the IAF is keen on, keeping in mind the possibility of a two-front war scenario. The upgraded MiG-29s have all the latest features, including a glass cockpit with digital screens. The upgraded aircraft can also do air-to-ground, air-to-air and even anti-shipping operations, with the removal of several restrictions of the legacy aircraft. Of IAF's three MiG-29 squadrons in operation, two are at the Adampur Air Force Station while the other one is based in Jamnagar.

Depleting strength

The situation is so bleak that, according to IAF projections, even if all existing orders for 36 Rafale jets, six squadrons of Tejas (including Tejas Mark 1A) and two more squadrons of Su-30 MKI are taken into account, IAF's squadron strength will reduce to 27 by 2032 and a mere 19 by 2042. The IAF has a squadron strength of 30 at present. On the drawing board are plans for the Tejas Mark 2, the indigenous Advanced Medium Combat Aircraft (AMCA) and 114 fighter aircraft, for which a Request For Proposal is still awaited. But, sources said, even if these are included, the IAF's squadron strength will only be 37 by 2042 — as against its sanctioned strength of 42 squadrons.

Source:- The Print

HAL's Light Utility Helicopter to prove its mettle at plane carnival

The Light Utility Helicopter (LUH), the youngest rotary wing sibling flying out of Hindustan Aeronautics Ltd (HAL) hangars, is all set to strut its stuff during the upcoming 12th edition of Aero India. This will be the second outing for LUH during the plane carnival. Aero India is set to take off at Air Force Station, Yelahanka, on February 20.During a recent visit by Onmanorama to HAL's Rotary Wing Research and Design Centre (RWRDC) here in Bengaluru, the designers and flight test crew confirmed that LUH is back after successfully completing the cold weather trials at Leh, last month. "During the high-altitude weather trials at Leh recently, LUH was cold-soaked for 48 hours at minus 20 degrees. It had a very successful engine start and we recorded flawless performance of all systems," Mr Arup Chatterjee, Director Engineering and R&D, HAL, said. Among the flight test crew who were part of the Leh mission were Wg Cdr Unni Pillai (Retd), Wg Cdr Anil Bhambhani (Retd), Gp Capt Pupinder Singh (Retd), N C Karnic and Cdr V S Kumar, both Flight Test Engineers. Leh is at 3 km above sea level and LUH's cold-soaking trials were held at a height of 4.5 km. The three prototypes of LUH cumulatively have logged in close to 200 flights so far. HAL says the design concepts adopted in LUH make it a versatile platform, meeting various needs of both military and civil sectors. "LUH is designed to perform the required missions from sea level to high altitude. LUH has the growth potential to accommodate additional equipment in future based on emerging needs. These features make LUH to stand out in comparison to other contemporary helicopters in its class," says an HAL official. The first prototype (PT1) of LUH flew on September 6, 2016, the second one (PT2) on May 22, 2017 and the third prototype (PT3) on December 14, 2018.

High, hot weather trials next

At Leh, the test crew achieved the engine start with 70 per cent battery charge. HAL had already carried out the sea-level trials of LUH near Chennai and the hot weather trials at Nagpur.The platform will now be subjected to high and hot weather trials in Leh during the months of July and August later this year when the temperature soars around 30 degrees. Designers say that months of July and August are the stringent periods of helicopter performance, both from operational and certification point of view. Ahead of the Leh trials, LUH had crossed a key milestone in December 2018

in Bengaluru, by flying at 6 km altitude. “The December trial at 6 km altitude was a critical requirement towards the certification of LUH. We had satisfactory feedback from the pilots with exceptional handling qualities. The flight was part of the envelope expansion tests and flying. HAL now hopes to have the basic version of this utility helicopter certified by September this year and the mission role version, subsequently. The designers are also not ruling out the possibility of an armed version in future.

Best chopper brains

HAL has in principal order for 187 LUH that includes 126 for Indian Army and 61 for IAF. This 3-ton class chopper is set to replace the ageing Cheetah and Chetak fleet widely used by Indian armed forces. HAL is working towards the same. During Leh trials, LUH became the first helicopter to cross 120 knots speed operating at such high altitudes when compared to some of the existing platforms,” an official added.

Source:- Manorama Online

First batch of four Chinook helicopters for IAF arrives in Gujarat

In a big boost for Indian defence forces, the first batch of four Chinook helicopters for the Indian Air Force (IAF) arrived at the Mundra airport in Gujarat. ANI reported that 15 Chinook helicopters are procured by Indian government from the United States. These helicopters are manufactured by Boeing and Indian Air Force will induct these helicopters in its arsenal after thorough flight tests. The Indian Air Force is currently using Mi-17 and Mi-26 helicopters, which are manufactured by Russia. It is to be noted that Indian government has already spent USD 3 billion to buy 15 Chinook and 22 Apache attack helicopters and New Delhi has also the option to buy six more Apaches already approved by the US. The Chinook helicopters will be stationed at Chandigarh air base, which takes care of providing necessary items to Siachen and Eastern Ladakh sectors. The Chinook helicopters are the newest models of the aircraft and their arrival will defintiely help in modernizing the helicopter fleet of IAF. The Chinook helicopter is also used by 18 other defence forces around the world. In October of 2018, 4 pilots and 4 flight engineers of IAF were trained by Boeing for operating Chinook helicopters. The pilots and flight engineers were trained in Delaware USA. On February 2, India was officially handed over first of the Chinook helicopters during ‘India-Chinook Transfer Ceremony’ at Boeing’s facility in Philadelphia. The handover took place in the presence of Indian ambassador to US Harsh Shringla.

Source: https://defenceupdate.in/

Indigenously Developed Ramjet Missile System Successfully Flight Tested In Odisha

The second indigenously developed “Solid Fuel Ducted Ramjet (SFDR)” propulsion-based missile system was successfully flight tested in Odisha by the Defence Research and Development Organisation (DRDO). “The success of SFDR propulsion technology is a significant milestone and will pave the way for development of long-range air-to-air missiles in the country,” a Defence statement said. The ground booster, separation of ground booster and nozzle-less-booster performance were found satisfactory during the trial conducted in the Integrated Test Range (ITR) at Chandipur in Balasore district, it said. The missile system was guided to high-altitude to simulate aircraft release conditions and subsequently nozzle-less-booster was ignited. The SFDR-based missile accelerated to achieve the ramjet Mach number successfully, the statement said. The trajectory was tracked by telemetry and radar stations till touchdown and all the mission objectives have been met. Defence Minister Nirmala Sitharaman congratulated the DRDO and associated team members for this “stupendous mission”.

Source:-City Today

Curtains came down on the Aero India – 2019

Bengaluru: Curtains came down on the Aero India – 2019 at Air Force Station Yelahanka in Bengaluru today. Having evolved over the years, the 12th edition of the event drew large crowd that bear testimony to the premier Air Show of Asia having come of age. The highlights of this year’s show have been: More than 600 Indian Companies and 200 Foreign Companies participated and witnessed the largest Air show of Asia. The total area of the show has grown from 27,678 sq m to 28,398 sq m this year. A total of 61 aircraft participated in the event. Several seminars were conducted by a host of agencies including Ministry of Civil Aviation, Skill Development Ministry, State Governments and Industrial

Associations in addition to Ministry of Defence. The first three days at the show, earmarked exclusively for business visitors saw a foot fall of approximately two lakh. The air show saw a lot of activity from business point of view and witnessed several round table meets. The show was a shot in the arm for the 'Make in India' campaign of the Government of India by virtue of its sheer magnitude and presence of stake holders from across the globe. The current edition of Aero India had many firsts to its credit and was the right platform to showcase growth of aerospace in sector. Also for the first time a 'Drone Olympics' was held with 58 entries. There was a specific theme for each day of the show. Start-ups, technology and women were featured on each of the business days of Aero India – 2019. The Raksha Mantri Smt Nirmala Sitharaman presided over a CEO conclave attended by 13 CEOs from overseas companies and 11 from Indian firms and exchanged views about the development of the sector. As many as 500 B2B meetings were held and many 50 MoUs were signed indicating the tag line of the show 'The Runway to a Billion Opportunities'. A special event highlighting the achievements of women in Indian Aerospace Industry was held as part of Aero India on Saturday. Several women working in the aviation, science and research sectors were felicitated during the event for their contribution to the Aerospace sector. Showcasing women achievers in the aerospace sector, and leading with the theme 'Saluting the Queens of the Skies', Chief Post Master General (Karnataka circle) Charles Lobo released a commemorative stamp. The awe-inspiring manoeuvres by various types of aircraft and formations enthralled the audience – young and old alike, every single day. The flying displays was appreciated by one and all with immaculate precision painting a colourful aerial symphony in the clear Bengaluru skies twice every day. Earlier in the afternoon today, Valedictory Function was conducted at the hall wherein Honourable Governor of Karnataka Shri Vajubhai Vala addressed the gathering. In his address the Governor said that while the people of India have exhibited exemplary valour and have the necessary intelligence, the need of the hour is getting them the right opportunities. On behalf of the Govt. of Karnataka he thanked all the people involved in the organisation of the show. He handed over the awards to the winners in categories of photography contest, Instagram contest and best Students project. The Visvesvaraya Institute of Technology, Bangalore got the first prize in Drone Olympics for GANNET: The Amphibious Drone. There was a fire incident at the parking area of Aero India on 23rd Feb which resulted in burning of over 270 vehicles however this couldn't dampen the spirit of the public as the last two days at the event saw a very high foot fall of local public swarming in to the venue to catch a glimpse of these wonderful men and women in their magnificent flying machines. The Ministry of Defence, through their social mediahandles and regular press releases ensured timely updates and wide outreach to enthusiasts around the globe. A user friendly mobile application had specially been prepared for the ease of the public. An e-magazine was also published in Aero India website on a daily basis to keep the people abreast with the happenings at the Aero India 2019. Finally the curtains were drawn with a final display by the Sarang Helicopter Display Team biding adeau to Aero India – 2019 and with a wish for meeting again in the next edition.

Source:- http://orissadiary.com/

TECHNOLOGY

ISRO working on ground-based Pseudolites to improve navigation

After its success with the satellite-based Indian Regional Navigation Satellite System — renamed Navigation Indian Constellation (NavIC) — the Indian Space Research Organisation (ISRO) is working towards developing a Pseudolite Based Navigation System (PBNS) that aims to benefit the aerospace industry in navigation. The navigation system will be based on Pseudolites or pseudo satellites, which are ground-based devices that perform any of the varied roles of the satellite. PBNS, when completed, will provide the required coordinates for various aircraft and drones to assist them in navigation. Currently, experiments are in progress to establish the system around major airports in the country, according to Mr A.S. Kiran Kumar, former ISRO chairman. He was speaking on 'Indian Space Programme and Future Technologies Needed to Grounded Aerospace Activities' ahead of Aero India 2019.PBNS will provide on-ground reference signal generation for any aircraft flying in the Indian airspace, he said. The system has great potential for use in the rapidly growing aerospace industry. ISRO is currently working with the Aeronautical Society of India and other partners from the private industry to develop the technology as soon as possible, he said. Commenting on NavIC, he said that an international chip manufacturer had already developed a microchip that can access global coordinates. "There is a phone in the market that uses it for navigation," he said, adding that these services can be accessed from any phone in the near future.

Source: http://www.newindianexpress.com/

India has potential for 'nose-to-tail' aircraft production: defence minister

India has established itself as a hub for manufacture and export of quality aerospace components, and now has the competence for "nose-to-tail production," defence minister Mrs Nirmala Sitaraman has said. Speaking after inaugurating the 12th edition of the biennial Aero India 2019, Mrs Sitharaman said the Make in India initiative has provided a strong impetus for more investments in the country's defence sector. She said the defence ministry has signed 150 contracts worth about Rs1,27,500 crore with Indian vendors over the past four years for procurement of defence equipment. During the period, the government accorded acceptance of necessity to 164 proposals worth about Rs2,79,950 crore under various categories of capital procurement as per the Defence Procurement Procedure; this means Request for Proposal (RFP) is issued only to Indian vendors. The value of production of the Ordnance Factory Board and defence PSUs has grown from Rs43,746 crore in FY14 to Rs58,163 crore in FY18, she said. Of this, 40 per cent of the production was outsourced to the private sector. According to Mrs Sitharaman, the government has also facilitated the manufacture of seven types of ammunition by the private sector, backed by long-term contracts.

Source: https://www.domain-b.com

Saras Mk II design to be finalised after more sorties

The design for an improvised version of Saras MK II will be finalised after more sorties in the Saras PT1N by March. Saras MK II is expected to complete the certification process for both military and civilian use within the next four years. "The Finance Ministry has given in-principle approval for two prototypes of Saras MK II. In the next four years, the certification process would be completed," said Dr Jitendra J. Jadhav, director of CSIR-National Aerospace Laboratories. According to him, the new variant of Saras will have an imported Pratt and Whitney engine with an electronic control system. Incidentally, Saras PT1N has more than 70% indigenous content. "The project is firmly back on track and brings enormous value to the country because of the volume of indigenisation," said Mr Shekar C. Mande, director-general of the Council of Scientific and Industrial Research and secretary of the Department of Scientific and Industrial Research. He said the improvised design for Saras will have considerable reduction in drag and weight and have unique features such as high-cruise speed, lower fuel consumption, short landing and takeoff distance, low cabin noise, and being operable from high and hot airfields.

Source: https://www.thehindu.com/

India likely to induct air-launched BrahMos-A by early 2020

The air-launched BrahMos cruise missile developed by the Indo-Russian joint venture (JV) BrahMos Aerospace is likely to be inducted with the Indian Air Force (IAF) in early 2020, a JV official told Jane's during the 20-24 February Aero India 2019 exhibition in Bangalore. The official said that the BrahMos-A cruise missile is set to begin its final developmental or certification trials in the third quarter of 2019, more than 20 months after the weapon successfully completed its first flight test. The missile's induction will begin immediately after two certified launches against a naval and a ground target are carried out, he added. As part of the upcoming trials, which are expected to take place before the end of the year, a BrahMos-A missile fitted with a 300 kg warhead will be fired from an IAF Sukhoi Su-30MKI multirole fighter to engage a target at a range of 290 km. The 2.5-tonne, two-stage, air-launched cruise missile is a modified variant of its basic naval/land configuration. It features several design refinements, which include a lighter propulsion system, as well as redesigned fins and nose cap. If successful, the IAF aims to equip two Su-30MKI (modified) squadrons (totaling 42 fighters) with the BrahMos-A to augment its precision-strike capabilities. In this development, India's Hindustan Aeronautics Limited (HAL) has similarly readied a second modified Su-30MKI at its Nashik complex in western India and will ready remaining aircraft in phases. During the show, the JV also exhibited lighter variant of the air-launched BrahMos, called BrahMos NG, equipped on underwing pylons of the Light Combat Aircraft (LCA) Tejas Mk 1A aircraft. The intended air-launched variant would be initially developed to be fired from LCA Tejas Mk 1A aircraft, each of which would carry a maximum of two missiles.

Source: http://www.defencenews.in/

Issues in upgrade of An-32 aircraft resolved

The Indian Air Force (IAF) has reason to cheer as all issues related to the upgrade of An-32 transport aircraft, its workhorse, have been resolved, according to the head of the Antonov State Corporation of Ukraine. At Aero India,

Ukraine also offered its new An-132 aircraft to the IAF as a replacement for the An-32 fleet. Time limit :: "We are optimistic that the pending issues will be closed shortly… Ukraine should supply all spares and material in two years. After that, it is on India how fast the upgrades are finished," Mr Oleksandr Donets, President of Antonov, said in a conversation with The Hindu on the sidelines of Aero India. Ukraine has begun supplying the upgrade kits to India. Mr. Donets said that preliminary discussions have been held with the IAF on further life extension of the An-32 fleet by another five years. Antonov, which is the design organisation, has already checked the feasibility of further five year life extensions by conducting testing and ground vibrations. In 2009, India finalised a major upgrade and life extension plan for the entire fleet of 105 An-32 aircraft acquired from Soviet Union under a $400 million deal which would extend their life to 40 years. So far, 46 aircraft have been upgraded, of which 40 were done in Ukraine. The rest were to be carried out in India by IAF's base repair depot in Kanpur. But the programme came to a halt after bitter relations between Moscow and Kiev following the Russian annexation of the Crimean peninsula. Mr. Donets said that the delay was mainly due to delay in securing spare parts produced in Russia and the gravity of the problem has now "decreased." At the air show, an An-132 prototype, an upgraded variant of the An-32, performed impressive turns, loops, low and high speed manoeuvres. According to Antonov, the aircraft jointly designed by Ukraine and Saudi Arabia can carry a load of upto 9 tonnes and land at high altitudes and on unpaved runways. Mr. Donets said the An-132, which is a major improvement in terms of features and performance over the An-32, makes an ideal replacement for the IAF, and offered joint production in India under the 'Make in India' initiative. IAF Chief Air Chief Marshal B.S. Dhanoa examined the aircraft at the show. During Aero India, Antonov briefed the IAF and also held several meetings for possible partnerships on the An-132 programme. Stating that they were looking for international partners for the An-132 programme, Mr. Donets said his team had held discussions with Peru and Myanmar. "We have completed contract for the demonstrator. Currently, Saudi Arabia is approaching for a contract for serial production," he said. In the pipeline : An Avro replacement programme of the IAF is currently in the pipeline, for which the Airbus C-295 has been chosen in partnership with Tata group. However, final contract discussions have been delayed. Another project for the joint development of a Medium Transport Aircraft (MTA) with Russia was shelved. The An-132 is in the same class as the C-295 and the now shelved MTA.

Source: http://www.defencenews.in/

Israeli arms makers unveil new bunker buster and suicide drone in India air show

Israeli defense contractors unveiled two weapons systems during a trade show in India this week: a new "bunker buster" air-to-ground missile and a small "kamikaze drone." The government-owned Rafael Advanced Defense Systems showcased its new air-to-surface standoff missile, dubbed "Rocks," at the Aero India Air Show in Bangalore, India."Equipped with either a penetration or blast fragmentation warhead, the missile can destroy above-ground or well-defended underground targets in heavily surface-to-air-defended areas," the company said in a statement. According to Rafael, Rocks uses GPS and an inertial navigation system to navigate in flight and homes in on its target using optical systems and "advanced image processing algorithms, which ensures hitting targets with great precision, overcoming GPS jamming or denial." The company said its new long-range missile is both "cutting edge and cost-effective," and utilizes existing, "combat-proven" technologies. At the same air show, the Israel Aerospace Industries weapons maker also unveiled its Mini-Harpy loitering missile — what is commonly referred to as a kamikaze or suicide drone. The Mini-Harpy, like its larger counterpart, flies over an area until a target is spotted. The drone, which carries an eight-kilogram (17.6-pound) warhead, is then directed to fly straight into the enemy object, where it explodes on impact. This type of small kamikaze drone has been identified as a possible weapon Israel could use against Syria's powerful S-300 air defense system, which Israeli officials have said the military would destroy if it were used against Israeli fighter jets. Its small size makes it easier for field or naval units to launch the Mini-Harpy and it is cheaper than the larger alternatives, the company said in a statement. "It can be launched from land, marine and helicopter borne platforms, providing complete independence in intelligence collection for an updated situational picture and closing the attack circle at low cost," IAI said. In total, the Mini-Harpy weighs 45 kilograms (100 pounds), can remain in the air for approximately two hours and has an operational range of 100 kilometers (62 miles), according to the firm. This model is far smaller than the Harpy, which carries a 32-kilogram (70-pound) warhead. The Harop, another suicide drone made by IAI, has a 23-kilogram (51-pound) warhead and a range of 1,000 kilometers (621 miles). The Mini-Harpy can spot targets using video footage, which it sends back to an operator. Multiple Mini-Harpies can be used in tandem, IAI said. "The loitering missiles are launched towards the target area. They loiter the sky until the threat is detected. Upon detection, the systems locks in on the threat and attacks it for a quick, lethal closure," the government-controlled company wrote in a statement.

Source: https://defenceupdate.in

Lethal Make in India BrahMos NG integrated with Tejas! India eyes huge defence exports market

At the Aero India 2019, BrahMos Aerospace plans to display a model of the indigenous Light Combat Aircraft (LCA) Tejas with two next-generation BrahMos missiles under its wings! Sources told Financial Express Online that the new BrahMos NG (or the next-generation BrahMos) which is being developed by BrahMos Aerospace will have the same range as the original supersonic cruise missile, that is around 300 kilometres. The maximum speed of the BrahMos NG missile will be 3.5 mach. BrahMos NG is a lighter version of the world's fastest anti-ship cruise missile and according to BrahMos Aerospace can be used from various platforms. The 'Make in India' BrahMos NG will add immense firepower to the 'Make in India' Tejas aircraft, making the duo a formidable combination for light combat warfare. Some of the big advantages of BrahMos NG on the Tejas will be; multi-target capability and wider scope of deployment. India is also eyeing immense export potential for this 'Make in India' combination – Tejas and BrahMos NG. Both LCA Tejas and the BrahMos cruise missile have generated export interest in the last few years and with the newer version of BrahMos – BrahMos NG being developed, defence officials are hopeful that a big market for export of indigenous 'Make in India' weapons will open up for the country with this integration. BrahMos Aerospace, CEO and Managing Director, Mr Sudhir Mishra has been quoted in the past as saying that the lighter BrahMos NG missiles will be tested from submarines, ships and aircraft. The BrahMos missile, jointly developed by India and Russia, has over the years increasingly got more 'Make in India' indigenous components, one of the most recent being the successful test with an indigenous seeker. The learnings from making a missile as lethal as BrahMos are unparalleled and would feed into the defence industry's missile making ecosystem over the coming years. Meanwhile, BrahMos has already been successfully integrated and test-fired from the Sukhoi-30 MKI of the Indian Air Force (IAF). According to Mishra, this is the first time in the world that a missile as heavy as the BrahMos has been fitted on the frontline fighter jet of a nation. While originally developed with a range of 300 kilometres, BrahMos has recently been upgraded to a range of 450 kilometres. An 800 kilometres BrahMos missile is also under development, a fact that will give India a huge boost in defence preparedness against not only Pakistan, but also China.

Source:- Financial Express

India's Air-To-Air Supermissile A Step Closer With DRDO's New SFDR Test

If the Indian Air Force's unusual satisfaction and eagerness with the indigenously developed Astra air-to-air missile is any indicator, then a technology test conducted on India's east coast last week should clear the decks for some serious joy ahead. The Defence Research & Development Organisation (DRDO) tested a complete solid fuel ducted ramjet (SFDR) propulsion system from a ground based launcher, blasting a missile system to a high altitude and achieving speeds in excess of Mach 3. Unlike the Astra, which rides on a smokeless solid fuel rocket motor, SFDR technology — a $70 million joint effort since 2013 by India and Russia — takes every performance aspect of the Astra to the next level, crucially range, sustained speed and kinetic energy during the difficult endgame phase when such missiles close in on normally manoeuvering targets. The test was a big step up from the debut SFDR test conducted last May when the weapon fired sported only a nozzle-less booster and not the actual ducted ramjet system (with a boron-based sustainer) that powers in later to send the missile screaming across long ranges with minimal dissipation of energy. The big plan is for the SFDR-powered missile to closely mirror the world's currently most advanced air-to-air missile, the MBDA Meteor, a system that the Indian Air Force will operate on its Rafale fighters arriving this year, and has been hoping to deploy on other platforms too but has hit an integration roadblock. With the Astra in a final stage of acceptance trials with the Indian Air Force before entry into service (later this year is the hope), with the SFDR technology, the DRDO will be looking to replicate a template of close ground-up coordination with the IAF, concurrent engineering and a plan that allows pilots to discover the capabilities of the missile as it's being developed, instead of simply being saddled with a developed system at the end, with a hope and prayer that they like what they've got. "The SFDR technology will be a legacy leap in our air combat weaponry," said an Indian Air Force officer embedded with the SFDR development team, speaking to Livefist on condition of anonymity. "The Astra itself is turning out to be a very capable weapon system, even beyond some of our expectations. With SFDR, as they say, the sky is the limit. We are waiting to see what else this technology can demonstrate, especially from air launches and sustained velocity tests, which we will be gearing up for later this year." Last year, the Astra missile system also transitioned from a Russian-built seeker to an Indian Ku-band seeker — an enormous leap, considering India's traditional dependence on Russia for these critical computers that actually guide missiles to their targets. This development will carry forward and be fine-tuned on the SFDR-based weapon, a crucial requirement for the higher performance weapon. A senior DRDO scientist with the missiles and munitions cluster told Livefist, "This is a strategically very critical program with our Russian partners. The first application will be a new air-to-air missile and all current work will be dedicated towards

achieving that. The IAF has been a very good partner for us on the Astra, and we are looking forward to carrying that ahead with this new technology." In 2016, during ground tests, the DRDO had revealed that the SFDR-powered weapon would sport a range of 120 km at speeds of 2.3-2.5 Mach, though these specifications are understood to have been revised upward now. The DRDO and Russia have worked together on the development and testing of the nozzle-less booster, boron-based ramjet sustainer and fuel flow controller, in addition to the design of the the dual air intakes. The $70 million program aims to achieve demonstrable finality by summer 2020, by which time the Indian Air Force — as with the Astra — will guide an acceptance phase. Engineering design and wind tunnel testing on the new missile is still under way and is likely to see changes as the SFDR system progresses through testing.With SFDR tech now up and rolling, the Indian Air Force will basically get to craft its air-to-air missile payloads around three systems in the medium term: the MBDA ASRAAM for close combat heat-seeking duties, the Astra for beyond visual range and the Meteor+SFDR at the higher end. Theoretically, the SFDR weapon will be deployable across the IAF's fleet, from the LCA Tejas to MiG-29s and Su-30s. But whether the missile will be a fit on the Rafale remains to be seen. Either way, the success of the program could potentially satiate the Indian Air Force's need for a higher performance beyond visual range missile with fleet-wide integration. Senior defence journalist Vishnu Som said on Twitter, "What this means is that India is on the verge of mastering game-changing missile technology which will enable a jet fighter like the Tejas to launch an air to air missile that will travel at between Mach 3 and Mach 7 towards a Chinese fighter likely upwards of 300 km away." Defence analyst and writer Mihir Shah says, "This is great news. It may still take a decade for a missile based on this tech to become operational, but it will provide a significant boost to our air power. SFDR + Astra + ASRAAM should make for a formidable combination."

Source:- LivefistDefence

BUSINESS

Dassault-Reliance kicks off Falcon jet production

At the heart of the controversy over offsets in the Rafale deal, the Dassault-Reliance facility in Nagpur has kick started production, with the delivery of major components for the Falcon 2000 LX executive jets that are currently being assembled in France. Top executives who have been working at the plant that will meet some of the offset obligations for the •7.87-billion Rafale deal said the plan is to ramp up production over the next three years and deliver a complete Falcon 2000 LX jet by 2022. However, they said no parts of the Rafale jets will be made at the facility for the time being but did not rule out the possibility of expanding it for the military aircraft in the future if India orders more than the 36. "By early 2022, we want to assemble the complete Falcon 2000 aircraft here in Nagpur and we want to fly it out from here," Mr Sampathkumaran ST, CEO of Dassault RelianceNSE -1.44 % Aeronautics Ltd (DRAL), told ET. The plant will be capable of producing two aircraft per month once fully operational. At present, the facility, which was showcased to the media for the first time, is assembling the cockpit and fuel tank parts for the popular executive jets. Internal calculations claim that the Make in India project can give a $5 million cost advantage due to lower labour and production costs at Nagpur as compared to the current facility in France. A Falcon 2000LX sells for a little over $35 million and the lower cost for the Made in India jets would give it an edge in the international market over competitors, officials believe. Once complete, this will be the first private sector assembly line that produces commercial jets in India and will employ over 650 high skilled personnel. The ongoing work at the facility will count towards offsets obligations of Dassault for the Rafale deal with the French company committed to spend upwards of Rs 850 crore to set it up. Dassault officials however say that there are no plans to make components for the Rafale jet as part of the offsets obligations. "Depending on further orders, we will decide on the question of making the Rafale jet here in India. As of today, only components for the Falcon aircraft are being planned here," Dassault's senior executive vice president Benoit Dussaugey said. The company is set to claim offset credits for the Rafale contract in October this year when it will inform the Indian government officially about the work being carried out. Executives however refrained from comments on the political controversy surrounding the deal, saying it has not impacted any work at the plant. "It has no impact here, we are following our path and we don't want to talk about the politics around it," Mr Benoit said.

Source: https://economictimes.indiatimes.com/

French Giant Safran To Set Up ¹ 323 Crore Aircraft Unit In Hyderabad

The new manufacturing facility, its first in India for LEAP turbofan engines, will involve an investment of around •40 million (approximately ¹ 323.3 crore) with a capacity of around 20,000 units a year, said its global chief executive Mr Philippe Petitcolin French defence and aerospace giant Safran has decided to set up a facility to manufacture parts of LEAP turbofan engine of aircraft at Hyderabad, next to its electrical wiring facility in the special economic zone of GMR at Hyderabad international airport. The new manufacturing facility, its first in India for LEAP turbofan engines, will involve an investment of around •40 million (approximately ¹ 323.3 crore) with a capacity of around 20,000 units a year, said its global chief executive Mr Philippe Petitcolin. Addressing the media in Hyderabad, Philippe said the new facility, aimed at helping the French defence and aerospace giant in its transition from CFM engines to LEAP turbofan engines, will commence operations by early 2020. Safran currently has an electrical wirings facility at Hyderabad set up at an investment of around •10 million, apart from a training services unit for CFM engines. The proposed engine parts facility at Hyderabad is primarily aimed at promoting competition among global suppliers of Safran, given the high commitment to execute orders on hand of around 15,000 engines to be delivered over the next 7-8 years, said Mr Philippe. Safran will look at setting up more manufacturing facilities in India for components of LEAP turbofan engines after assessing the progress of the proposed facility at Hyderabad, said Philippe.

Source : The Economic Times

Russia ready to discuss deliveries of Su-57 5th-Gen Fighter Jets to India

Russia is ready to hold a dialogue with India on the deliveries of Sukhoi Su-57 fifth-generation fighter jets to India, Director for International Cooperation and Regional Policy at the state hi-tech corporation Mr Rostec Viktor Kladov told. “On our part, we are ready to continue the deliveries of generation 4+ and 4++ planes and for the work on the delivery of fifth-generation aircraft. At the same time, Russia’s Air Force is a top priority for us. The plane [the latest Su-57 fifth-generation fighter jet] has been tested in combat conditions in Syria and its deliveries to the Russian troops have begun,” the Rostec official said. India displays interest in the Su-57 but the country needs to shape its further concept of the Air Force, Mr Kladov said. “The Indian Air Force should determine how much this plane fits into their general concept, what their focus should be and on what money should be spent - on acquiring several models of the next-generation aircraft or on building up significantly the number of reliable Su-30MKI planes well known to Indian pilots,” the Rostec official said. Deputy Director of Russia’s Federal Service for Military and Technical Cooperation Anatoly Punchuk said at the Aero India 2019 air show that India had filed a request for the delivery of 21 light MiG-29 fighter jets. Russia earlier supplied over 200 Su-30MKI multirole fighter jets while the Kommersant daily reported in early February, citing the Federal Service for Military and Technical Cooperation, that India had filed a new request for aircraft sets to assemble these planes. The Su-57 is a fifth-generation multirole fighter designed to destroy all types of air targets at long and short distances and hit enemy ground and naval targets, overcoming its air defense capabilities. The Su-57 took to the skies for the first time on January 29, 2010. Compared to its predecessors, the Su-57 combines the functions of an attack plane and a fighter jet while the use of composite materials and innovation technologies and the fighter’s aerodynamic configuration ensure the low level of radar and infrared signature.

Source: http://www.defencenews.in/

HAL places order with Thales for 2.75-inch rocket launchers to equip Indian armed forces

Seeking to boost tactical capabilities of the Indian armed forces, HAL has awarded French aerospace and defence company Thales a contract to supply 135 2.75-inch (70-mm) rocket launchers. Thales’s fully certified, field-proven, competitive rocket launchers are suitable for use on both light and combat helicopters, the company said. As a key differentiator for state-of-the-art helicopters and combat aircraft, they provide an excellent fit with requirements of the Indian armed forces, Thales said. The Indian armed forces are involved in a wide range of deployments in remote theatres, conducting operations beyond the scope of traditional homeland defence for which they need to round out their available resources with a view to boosting their tactical capability, it said. Thales’s 2.75-inch (70-mm) rocket launchers are produced using composite material, making them an average of 50 per cent lighter than metal launchers, and eliminating corrosion issues. They offer best in class precision and reliability, providing crews with optimum support during missions, the company said in a release. The solution to be supplied by Thales includes four 2.75-inch (70-mm) 12-tube rocket launchers, plus fire control capability and the T100 sighting system, as supplied under previous orders (more than 80 Advanced Light Helicopters have already been equipped with the solution). The huge range of 2.75-inch (70-mm) munitions available for use with the launchers, from conventional rockets to Thales’s laser-guided variant, encompasses a broad spectrum of the missions facing today’s armed forces, it said. “This new collaboration between

Thales and HAL in the field of air-launched weaponry opens up new opportunities for supply of equipment to the Indian armed forces, and consolidates Thales's position in the Indian market," said Mr Emmanuel de Roquefeuil, VP and Country Director, Thales in India. With this, helicopter crews will see a significant improvement in their tactical capabilities during missions, he added.

Source: https://defenceupdate.in/

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