



E-NEWS

EVERY MONTH FROM THE AERONAUTICAL SOCIETY OF INDIA

VOLUME - 15

March - 2020

RELEASE - 03

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Spin test in July may revive intermediate jet trainer plan

Sukhoi 30 may get AI in new cockpit design



Publisher

Journal of Aerospace Sciences
And Technologies
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Advertisement – Tariff

A4 – 1 Full Page : Rs. 2000
Draft Drawn in Favour of
“Journal Office, The Aeronautical
Society of India” Payable at
Bangalore

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Glimpses of

The Aeronautical Society of India – 70th AGM
Held at Hindustan Institute of Technology and Science (HITS),
Chennai on 21st February 2020



70th AGM of AeSI



The editorial team invites your views, suggestions, to the News about Members Column and contributions to the e-news.

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70TH AGM of The Aeronautical Society of India

The inauguration of the 70th Annual General Meeting of the Aeronautical Society and the National Conference on Recent Developments in Aerospace and Defence Technology on the theme “Regional Transport Aircraft - Opportunities and Challenges” was held at Hindustan Institute of Technology and Science (HITS), Chennai on 21st February 2020. The chief guest for the event was Thiru. BANWARILAL PUROHIT, Honorable Governor of Tamil Nadu. The two-day conference aims and acts as a forum for knowledge sharing between business professionals, scientists, academicians, industrialists, researchers and students in the field of aerospace sector. In his address, the Honourable Governor said that he is happy to be in HITS for the inauguration of the 70th Annual General Meeting of The Aeronautical Society of India. He made a special mention of the Founder Chairman (Late) Dr. K.C.G. Verghese who inspired and motivated many students in the field of Aviation. He said that HITS has grown in leaps and bounds and is producing many talented engineers. He greatly appreciated the institution for its notable contribution towards the development of the nation. Dr. K. Sivan, Chairman, ISRO, was presented the Outstanding Leader in Aerospace and Defence award. He received the award from the Honourable Governor of Tamil Nadu. In his acceptance speech, Dr. Sivan recollected his struggle-filled childhood in Kanyakumari and the education that he underwent in government institutions. He also mentioned about the future missions of ISRO and said that Chandrayan 3 will be launched in a year's time and as a first time accomplishment in the history of space research, a humanoid will travel in Chandrayan 3. Dr. Sivan also said that four astronauts have been selected and are undergoing training in Russia for future missions. He also informed about the new launch pad that is to be established in Tamil Nadu. Dr. V.K. Saraswat, Member, NITI Aayog was presented the Life-time Achievement award. He received the award from the Honourable Governor of Tamil Nadu. In his acceptance speech, Dr. Saraswat dedicated his award to his team members for last 40 years which helped him in his journey of developing certain technologies for the nation. He mentioned that our country has done tremendous work as far as aerospace & defence technologies are concerned. But the technology is not static and we have many more miles to achieve. When the technologies are changing universities like Hindustan Institute of Technology & Science (HITS) with their programs like aeronautics & aerospace have to make a major change. He also mentioned that he was lucky to receive a honorary doctorate from HITS. Dr. Anand Jacob Verghese, Vice President of AeSI, Organising Committee Chairman and Director & CEO of Hindustan Group of Institutions delivered the welcome address. He welcomed all the distinguished guests and delegates from ISRO, DRDO, HAL, NAL, DGCA, Indian Air Force, Indian Navy, Airport Authority of India, Airlines and Aviation Companies. In his address, Dr. Anand Jacob Verghese said that this is the first time the AeSI AGM is held in a large scale in Chennai and is attended by 500 delegates. He proudly highlighted the fact that the Chennai Branch of AeSI has been functioning for six decades and is one of the largest professional societies that houses more than 700 members. The inaugural function was followed by sessions on Aerodynamics and Flight Mechanics, Air Transportation and Airworthiness, Aircraft Structures, Propulsion & system Avionics. The Technical Sessions dealt with the Trends of Regional Transport Operations, Perspective on Advances in Air Transportation, Trends in Airline Operations, Global Market Trends – MRO/Pilot Training, Challenges in Airline Management. Also special lecture sessions like: Dr. KCG Verghese Memorial Lecture, A Lecture on Aviation Law and Dr. Kalpana Chawla Memorial Lecture.

Source: <https://hindustanuniv.ac.in/>

CURRENT AFFAIRS

HAL to make advanced armed UAVs with Israeli Co

In a first, advanced Unmanned Combat Aerial Vehicles (UCAVs) will be manufactured in India, with leading aeronautical entity Hindustan Aeronautics Ltd (HAL) set to formalise a partnership with an Israeli firm that specializes in autonomous weaponry. The advanced Heron TP, which belongs to the Medium Altitude Long Endurance (MALE) class with an endurance of over 36 hours, will be manufactured to cater both to Indian requirements for a combat UAV and possibly exports to third nations in the future as well. HAL is set to sign a partnership pact with Israel Aerospace Industries (IAI) at the upcoming DefExpo 2020 in Lucknow this week, with estimates that in the Indian market alone, there is a requirement of at least 100 drones of this type. The Heron TP is an advanced version of the Heron UAVs that are currently in service with the three forces in a reconnaissance role. HAL, which is India's leading aeronautical company, is looking ahead to commence full production of the armed drones, its chairman and managing director Mr R Madhavan confirmed to ET. Details of the weaponry onboard are still not clear as the choice of payload is usually left to the user, which in this case would be the three armed forces. Given the flexibility displayed by Israel in joint collaborations in the past, Indian air-to-ground weapons could be integrated with the Heron TPs. Once finalized, this would be the second range of Israeli UAVs to be made in India, with a joint plant by an Adani-Elbit combine also producing the unarmed Hermes 900 class of drones for export orders from Hyderabad. The HAL chairman also told ET that the company is actively working on another project for a 200 kg class rotor wing UAV, which among other tasks, will be useful for dropping supplies to troops posted at high altitude areas like the Siachen glacier. This would drastically cut down supply time for vital loads like medicine and food that are currently transported by mules and are prone to high risk, given severe weather and the dangers of avalanches that have claimed numerous lives. Israel Aerospace Industries, which says that it has conducted business deals in India that totalled close to \$ 5 billion in the past five years, will be showcasing its capabilities at the DefExpo in Lucknow. In the past, IAI has sold multiple air defence systems to India, as well as the range of Heron UAVs.

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

First batch of Kamov choppers to be rolled out from Tumkur by 2025: Report

The first batch of Kamov military helicopters, to be manufactured in India under an Indo-Russia joint venture, is expected to be rolled out by 2025, a top official overseeing the project said. In October 2016, India and Russia finalised a broad agreement for the joint venture between Hindustan Aeronautics Ltd (HAL) and two Russian defence majors for production of the helicopters in India. "The first batch of helicopters will come out of our production facility at Tumkur in Karnataka by 2025 if everything goes as per plan," Indo-Russian Helicopters Ltd CEO Mr N M Srinath said. Under the joint venture, 200 Kamov 226T helicopters will be produced. Of these, 60 will be supplied to India in fly-away condition while 140 choppers will be manufactured in India under a USD 1 billion deal. India is procuring the Kamov choppers to replace its ageing Cheetah and Chetak helicopters. The Kamov Ka-226T helicopter has 72 per cent Russian components and 28 per cent from various western countries. Mr Srinath said the helicopters to be produced in India will have around 70 per cent Indian-origin components out of the 72 per cent Russian indigenisation. Overall, he said, the percentage of the Indian-origin component in the chopper will be around 40 per cent. The joint venture has already sent a detailed proposal to the government on the production of the helicopters, including proposed percentage of the indigenous component. A final decision on the order will have to be cleared by the Defence Acquisition Council, the highest decision-making body of the Defence ministry on procurement. The government approved the technical configuration for the twin-engine multi-role helicopter, which is known for its superior manoeuvring capabilities in mountainous areas. The Kamov helicopters will be supplied to the Indian Air Force and the Army. Both the forces have been pressing for early conclusion of the deal so they can replace their ageing fleet within the next three to four years. The joint venture has already finalised an agreement specifying work-schedule and techno-commercial issues.

Source: <https://www.hindustantimes.com/>

Lockheed Martin says ready to help India on Tejas and AMCA projects

US aerospace giant Lockheed Martin has offered to help India in its multi-billion dollar programme to develop a next generation advanced multi-role combat aircraft and boost capability of the Tejas fighter jet. The offer by the US aerospace

firm comes ahead of President Donald Trump's maiden visit to India on February 24-25 during which both strategic partners are expected to further expand defence and military cooperation. Mr Vivek Lall, vice president of Strategy and Business Development for Lockheed Martin, said the company is "very open" to assisting India in further development of the Tejas combat jet as well as the ambitious next generation aircraft. "We are very open to any requirement from the government of India or the Indian Air Force for any help for the Tejas as well as the AMCA (advanced multi-role combat aircraft) project," Mr Lall told PTI in an interview without divulging specifics. The indigenously developed Tejas has been a showpiece project of India being implemented by the Hindustan Aeronautics LtdNSE -1.82 % (HAL) and the Aeronautical Development Agency (ADA). Both HAL and ADA are now focusing on an upgraded version of Tejas to make it a world class plane. India is also working on an ambitious USD 5 billion project to develop a fifth-generation medium weight deep penetration fighter jet to significantly bolster its air power capability. Lall showcased Lockheed Martin's F-21 jet as an attractive option for IAF's hunt to procure a batch of 118 fighter planes, saying choosing the American jet will link India to a USD 165 billion worth global aerospace eco-system.. The Lockheed executive said the F-21 has an advanced APG-83 active electronically scanned array (AESA) radar which significantly enhances the jet's ability to track and attack more targets with higher precision. Defence and security ties between India and the US have been on an upswing in the last six years. Bilateral defence trade touched USD 18 billion mark in 2019, reflecting growing defence cooperation between the two sides. There are indications that the two sides may announce further deepening of defence ties during Mr Trump's visit later this month. Both sides have also been pushing for joint venture and collaboration between private sectors of the two countries in defence manufacturing. In June 2016, the US designated India a "Major Defence Partner", intending to elevate defence trade and technology sharing with India to a level commensurate with that of its closest allies and partners.

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

F-15EX is a major contender in India's next fighter jet acquisition plan

India's multi-billion dollar programme to acquire new fighter jets could see another contender in F 15EX of Boeing, with the company seeking formal US permission to offer it to India. New Delhi is planning to produce 114 combat aircraft at more than \$15 billion in partnership with a domestic company. The F 15EX, a heavy fighter jet capable of carrying up to 22 air-to-air missiles or a mix of ground-attack weapons, will be the third American aircraft in the fray. "The Indian Navy and Indian Air Force have distinct operational needs for fighters. While awaiting further definition on the Indian Air Force's requirements, we have requested a licence for F 15EX so that we're ready to share the full spectrum of potential solutions across our fighter portfolio when appropriate," a Boeing spokesperson said in response to a query after a US official disclosed that export permissions had been sought. The US company said the licence application is a routine procedural step that will give it flexibility to provide information on the jets when required. "We continue to offer F/A 18 Super Hornet to both Indian Navy and Indian Air Force," Boeing said. The US-made jet will be a challenger to F/A 18 Super Hornet and F 21 (a variant of F 16), which are already on offer. US' F 22 Raptor and Lockheed Martin's F 35 are not on the table as Washington is reluctant over India's purchase of Russian S 400 air defence systems. The expected entry of the F 15EX, with IAF yet to invite an official expression of interest, will add an interesting mix to the acquisition process. Though in a heavier class than its competitors, it is the fastest aircraft in production and is known for its ability to carry a phenomenal weapon load. It may be recalled that in the earlier Indian contest for medium multirole combat aircraft, F/A 18 and F 16 failed to make the technical cut during extensive testing. This resulted in a shortlisting of the European Rafale and Eurojet fighters by IAF.

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

HAL back on Rafale Radar, talks on for making jets in India

French aircraft manufacturer Dassault and state-owned HAL are in talks for possible cooperation in producing Rafale fighter jets in India for additional anticipated orders under a 'staggered procurement' plan. Sources have told ET that a few rounds of discussions have taken place between the companies on possible work share for additional orders of the cutting edge combat jet, though there is no going back to earlier discussions that broke down in 2012 over differences in localisation and pricing. The two aviation companies are old partners, having worked most recently on the \$2.1 billion deal to upgrade the Indian Air Force's Mirage 2000 fleet. If additional orders are placed for Rafale — Chief of Defence Staff Gen Bipin Rawat hinted recently that 36 more fighter jets could be ordered within four years — a work share model could be worked out to manufacture parts for the fighter jet at HAL facilities. At present, French manufacturers are executing the order for 36 jets and investing 50% of the •7.8 billion contract price in the Indian aerospace and

defence sectors as part of the offsets clause, with a factory in partnership with Reliance Defence at Nagpur also geared to produce the Falcon executive jets. While the contours of a possible partnership have not been finalised, sources confirmed that detailed discussions have taken place on how HAL facilities and expertise could be used for the next round of localisation when more jets are ordered. In several comments over the past weeks, General Rawat has spoken of staggered purchases of fighter jets in the future, his idea being that small batches would be ordered to ensure that allocated funds can cover the price. The top officer also suggested that 36 more Rafales could be ordered in three to four years to make up for gaps in fighter squadron strength. The current batch of Rafales on order are following the 'staggered payments' model, with India paying for 11 fighter jets every year till deliveries end. If the contract is extended, the staggered procurement could stretch over the next few years to make up for fighter shortages.

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

Anti-drone system for Modi Trump roadshow destroys an incoming drone during trial

An indigenous anti-Drone system that is being deployed in Ahmedabad as part of the security cover for US President Mr Donald Trump's visit to Ahmedabad was successfully tested. The system developed by the Defence Research and Development Organisation (DRDO) neutralised an incoming drone during the trials and will be used to tackle such threats on February 24, during Trump's 22 km long roadshow from the Ahmedabad airport to Motera stadium, where he will attend the 'Namaste Trump' event organised on the lines of the 2019 'Howdy Modi!' diaspora event in the US. The DRDO system can detect and identify drone threats at a moment's instance and terminate them. Unmanned aerial vehicles, mostly of small size, are called drones. They are controlled remotely and can be utilised by miscreants or militants for carrying explosives apart from other threats they pose. PTI said some of the streets on the roadshow route and near the Motera stadium will remain closed for traffic on the day. More than 10,000 police personnel led by 25 senior IPS officers are likely to be deployed for the roadshow's security. Special commissioner of police, crime branch, Mr Ajay Tomar said that while the residents near the stadium have been advised not to use the road unless absolutely necessary there was no complete ban on people's movement and that they can move in and out of housing colonies in case of an emergency situation. He said, students appearing for exams have also been allowed to use the roads closed for traffic by showing their hall tickets.

Source: <https://www.hindustantimes.com/>

Any aggression in future will be met with a robust response: IAF Chief

Air Chief Marshal RKS Bhadauria on the occasion of the Balakot airstrikes anniversary said any aggression in future would be met with a robust response. Mr Bhadauria heaped praises on 51 Squadron and Mr Abhinandan Varthaman, saying they demonstrated the spirit of the Indian Air Force after the Pakistan Air Force attempted to retaliate a day later. "They had no hesitation in engaging vastly superior aircraft in terms of technology and weapons. They did the right thing. Air Force is proud of them," he said. On Rafale, Mr Bhadauria said: "It is a total game changer. When we will use Rafale along with other aircraft we have in our inventory, then we would be a different Air Force."

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

Global space agencies meet in Bengaluru for collaboration potentials

ISRO chairman Dr K Sivan called for collaborations both in the human space missions and beyond at the three-day international conference organised by the international academy of astronautics. Several space agencies including the Japanese and Italian agencies stressed the importance of collaborations with prominent space agencies for their national space programmes. "For more useful products and science and technology development we are interacting with many agencies," said Dr Sivan while giving a push for international collaborations in the Gaganyaan mission and beyond. Enumerating the advantages of the venture, he said the Human Space Mission will reduce development risks and ensure wider participation in holding scientific experiments and cover the cost overrun. Emphasising on space mission collaborations as opportunities for leading organisations, academic institutions and national laboratories to rally together towards a common goal he said, "If inhouse knowledge and research of all organisations are synergised, the outcome would be spectacular." For instance, a national-level advisory body has been formed to direct human space flight activities within the country, he said, calling for institutionalisation of organisations that have a stake in

human space flight mission activities. "One ISS (International Space Station) may not be enough. Regional ecosystems will be needed and Gaganyaan will focus on regional needs: Food, water, energy security," Dr Sivan added.

Source: <https://www.newindianexpress.com/>

ISRO to study tech needed to send Indians to moon

India's space agency has set up a two-member team to study the technologies needed to send a human mission to the moon, people familiar with the development said. This will be an extension of its human spaceflight programme Gaganyaan. The mission by the Indian Space Research Organisation (ISRO) will need powerful rockets, as well as a capsule to carry human beings and return them safely back to earth. The team is also expected to identify gaps in technologies that ISRO will need to plug before undertaking such a mission. "The team has been formed to look at a (human) mission to the moon," said a space agency official who did not want to be named. It is too early to put a timeline for such a mission, the person said. India's plan to work on human moon mission comes at a time when there is revival of interest globally for a return landing of a human on earth's satellite. US space agency National Aeronautics and Space Administration expects to return to the moon with a man-woman team in 2024. Technology entrepreneurs Mr Elon Musk and Mr Jeff Bezos have also lined up plans for manned missions to the moon with SpaceX's StarShip and Blue Origin's Blue Moon spacecraft around the same time. China, too, has embarked on a human mission to the moon, which is expected sometime in the 2030s. India's mission, however, could take longer, said another person. ISRO usually plans its space programmes with a small team doing a feasibility study, publishing papers and then seeking grants from the government to do technology development. Once the technologies that are strategic to the country are built and demonstrated, the space agency expands it into a programme team and works on a timeline to launch the mission. In most cases, a programme is announced only after government approval. For example, ISRO began preliminary work on its human spaceflight programme in the late 1990s, which it expected to launch in eight years. But, only after the government approved the programme in 2018 did ISRO move it to mission-mode to prepare to send a person to space using its own rocket and crew capsule by 2022. GLOBAL REVIVAL IN HUMAN MOON MISSIONS ::

- NASA expects to return to the moon with a man and woman with its Artemis mission in 2024
- Mr Elon Musk and Mr Jeff Bezos have lined up manned missions with SpaceX's StarShip and Blue Origin's Blue Moon
- China is planning a human Moon mission, set for takeoff in 2030s

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

ISRO to launch 10 satellites to replace its ageing fleet

India plans to replace more than 10 communication satellites over the next few years as they near the end of their life in orbit, the country's space agency chairman told ET. The plan includes launching high throughput satellites that can beam high-speed internet at more than 300 gigabytes per second into remote corners, said Dr K Sivan of the Indian Space Research Organisation (ISRO). The first such satellite, GSAT-30, which will replace the 15-year-old INSAT 4-A satellite, was launched on January 17. The satellite carried 12 C band transponders for communication and 12 Ku band transponders designed for direct-to-home transmission. "One of the (important) plans is that wherever we have our ageing satellites, we will have to replace them," Dr Sivan said. "We need to have advanced technology (enabled) satellites in the areas of communication, navigation and earth observation." ISRO's communication satellites that hover in geostationary transfer orbit (GTO) 36,000 kilometres above the earth, are designed for a lifespan of 12-15 years. As the existing fleet of satellites age, ISRO has begun to replace them with more powerful ones to aid in communication, internet and television broadcast. There are 17 operational satellites including GSAT-30. Analysts suggest satellites that have completed nearly 15 years need replacement as technology changes. "Technologies progress a lot in 15 years and there are satellites which are 15 years old and they need replacement. The second aspect is, both strategic and commercial needs are increasing equally," said Mr Ajey Lele, senior fellow at the Institute for Defence Studies and Analyses. Even as demand for transponders peak, ISRO is struggling to meet its target of 500 transponders. "Communication requirements are increasing day-by-day. There are agencies that are hiring transponders of foreign satellites. If you look at the number of transponders ISRO has (it is huge). At one point in time, ISRO had an ambitious plan (of having 500 transponders), but they are still trying to achieve that," Mr Lele said.

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

Four Indian pilots begin astronaut training in Russia

The four Indian pilots chosen as candidate-astronauts began their 12-month training at the Gagarin Research and Test Cosmonaut Training Centre (GCTC) in Moscow, Russian space business company Glavkosmos has announced. Much of the training will take place at the GCTC facilities, a statement issued in Moscow said. The full programme includes basic or generic astronaut training followed by activities specific to the first Indian human space mission, Gaganyaan. From IAF team. The four candidates are fighter pilots from the Indian Air Force and were chosen from among hundreds of applicants over the last few months. At the end of all training modules in India and Russia, one or two of the four will be finally named to circle the earth in the first crewed Gaganyaan, which is planned around 2022. 12-month module In June 2019, the Human Space Flight Centre of the Indian Space Research Organisation and the Russian government-owned Glavkosmos signed a contract for the training, which includes Russian support in the selection of candidates, their medical examination, and space training. Glavkosmos said, "The 12-month training programme includes comprehensive and biomedical training of the Indian candidates, combined with regular physical practices. They will study in detail the systems of the Soyuz manned spaceship, as well as be trained in short-term weightlessness mode aboard the Il-76MDK aircraft." The Il-76MDK is an Ilyushin-78 military transport plane specially re-designed for parabolic flights of trainee astronauts and space tourists. The candidates will also be trained to take appropriate actions during emergencies — for example should the spacecraft make an abnormal landing in (unplanned) climate and geographic zones.

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

In a first, Ananth Tech will build 6 satellites for foreign customers

Aerospace firm Ananth Technologies, Hyderabad has signed deals to build six foreign-owned satellites in India, a first by a private firm as it taps the country's low-cost base to make satellites for global customers. The Hyderabad-based Ananth, a supplier of systems for the Indian Space Research Organisation's (ISRO) satellites, is opening a full-fledged satellite-making facility later this month in Bengaluru, where it will build satellites weighing between 50 kg and 250 kg for customers in Sweden and France, chairman and managing director Mr Subba Rao Pavuluri told ET. "We can fully integrate satellites at around 30% lower costs (than in the West)," said Mr Pavuluri. "We will also help them launch from Indian soil." He did not name the customers citing confidentiality agreements. Ananth Technologies has been a supplier of satellite systems and sub-systems for India's space agency and has also integrated the solar panels for these satellites. Its new facility is designed to fully integrate satellites for both local and overseas customers. India's decades-long expertise in building satellites has helped create a critical talent base, giving it an edge in tapping outsourcing avenues. The country has an opportunity to integrate medium-sized satellites, Mr Pavuluri said, because they are designed to last for over five years and companies invest huge sums in building them. "We are offering end-to-end service. Integrating the satellite, identifying the rocket and launching them from Indian soil," he said. India's Polar Satellite Launch Vehicle (PSLV) has emerged as the preferred rocket to hurl small and medium satellites into space. In the five years to fiscal year 2019, ISRO earned Rs 1,254.19 crore from launching satellites for global customers from the US, UK, Japan and Germany, among others. ISRO is developing a small satellite launch vehicle (SSLV), a rocket that can be turned around every two days and designed to hurl 400 kg satellites into low-earth orbit. Antrix Corp, the commercial arm of ISRO, had signed a contract in the past with EADS Astrium to build a communication satellite for British media firm Avanti Screenmedia Group. ISRO has formed New Space India, a new entity to engage with the industry to build and launch satellites on Indian soil. Other upcoming full-fledged satellite production initiatives include the proposed production facility to be built jointly by Berlin Space Technologies and Ahmedabad based Azista Aerospace. Analysts said "a lot of companies are planning to follow this model", but it could be more interesting if the production of full-fledged satellites brings in a satellite services industry. "These companies can be an outsourcing hub for manufacturing satellites for certain global companies and take advantage of the low costs in (India)," said Mr Narayan Prasad, an industry analyst and cofounder of satsearch.com. "What is going to be more exciting is that if service providers in the field of communication or imaging emerge as a result of such satellite producing facilities."

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

Major Fire Power Boost - Starting April, Indian Navy to induct 4 more P8I Anti-Submarine Aircrafts

The Indian Navy's P8I long-range maritime reconnaissance aircraft had played an important role in gathering intelligence on Pakistani military deployments and keeping India's western seaboard safe after the Pulwama attack last year.

More than a year later, the navy will be inducting more such aircraft, boosting its capability to conduct sustained surveillance and anti-ship and submarine preparedness in the Indian Ocean Region. According to officials, from April the navy will begin inducting four P8I aircraft worth \$1.1 billion, orders for which were placed in 2016. This procurement is under an option clause as part of the earlier procurement of 8 P8Is between 2013 and 2015 worth \$2.1 billion. The navy also plans to procure six more P8Is under a different deal through the foreign military sales route between India and the US. The Rajnath Singh-led Defence Acquisition Council had cleared this procurement in November last year. The P8I deals are a sign of India's increasing weapons procurement from the US, which has touched \$17 billion till date. It also comes in the backdrop of US President Mr Donald Trump's India visit on February 24, which will focus on strengthening defence cooperation between the two nations. Since induction six and half years ago, the P8Is clocked 25,000 flying hours in December last year, officials said. Based at INS Rajali, a naval air station in Tamil Nadu, the fleet is the navy's eyes in the sky and gives it a significant edge in the Indian Ocean Region. It is used for coastal patrolling, search and rescue operations, anti-piracy and other military tasks. Its important features include anti-submarine warfare, anti-ship strikes and maritime surveillance. "Based on the contract, the first of the four aircraft will be delivered in mid-2020 and the remaining three in 2021" a Boeing Spokesperson said. The aircraft have also led to better synergy of the navy with the army and air force. "They have flown in support of the army and the air force. They flew during the Doklam standoff and in the aftermath of the Pulwama incident," an official said. After the Pulwama attack that killed 40 CRPF soldiers and around the time of the Balakot air strikes last February, the P8Is had conducted widespread reconnaissance over the Arabian Sea. The aircraft was also used to help the army during the 2017 Doklam standoff between Indian and Chinese troops, as was mentioned by Chief of Defence Staff General Mr Bipin Rawat earlier this month. According to officials, during peak winter last year, a P8I was deployed to monitor and classify two radar contacts moving in a formation towards Mumbai, which were detected by a drone along the Gujarat coast. "By first light, the P8I had indicated that these were two warships of a neighbouring country proceeding to Southeast Asia, completing the information loop in the operations room at Mumbai," an official said. The P8Is have also been instrumental in locating and tracking submarines operating in the IOR. They have also participated in several exercises with foreign navies. "Their enormous endurance of 10 hours and long operational range of over 4,000 km enable them to be our 'Eyes in the Sky' and have augmented the navy's ability to keep all 'Areas of Interest' under continual surveillance," the official said. The P8I assessment of shipping traffic in important Sea Lines of Communication and choke points in the IOR is regularly provided to Indian Ocean Region-Information Fusion Centre (IOR-IFC) at Gurgaon.

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

Amitabh Bhatt is the New CEO(Bangalore Complex) at HAL

Mr Amitabh Bhatt has taken over as Chief Executive Officer (CEO) of HAL's Bangalore Complex. Earlier, he was heading the LUH project in HAL as Executive Director. Mr Bhatt is a Post Graduate in Management and earlier served in SKF India Limited for 15 years before joining HAL. With his 32 years of professional experience in HAL, he spear-headed marketing, planning and projects. He led the team as Chief of Projects(LUH), played a key role in setting-up an integrated new Helicopter Factory, a 3000 Cr greenfield project. He is a Director on Board of HAL's Joint Venture, 'Indo Russian Helicopters Limited', formed to build Kamov KA-226T Helicopters for Defence Services. During his stint at Helicopter Division, helicopters were delivered to ONGC, Geological Survey of India and Government of Jharkhand and exported to Nepal, Surinam, Mauritius and Ecuador.

Source: <https://hal-india.co.in/>

ISRO G Narayanan to head space PSU NSIL

Veteran space scientist Mr G Narayanan has been named the chairman of Indian Space Research Organisation's newly formed commercial entity New Space India Ltd (NSIL). He was earlier working as deputy director (systems reliability and quality assurance) at the Liquid Propulsion Systems Centre (LPSC), a Thiruvananthapuram-based unit of ISRO that designs, develops liquid propulsion stages for launch vehicles. Mr Narayanan, who hails from Kerala's Palakkad, had earlier worked as first secretary (space) at the Indian embassy in Paris. An alumnus of the College of Engineering, Thiruvananthapuram, Narayanan joined ISRO in 1983. NSIL was set up on March 2019 to meet the ever-increasing demands of the Indian space programme and commercially exploit the emerging global space market. It will also manufacture the small satellite launch vehicle (SSLV) or mini-PSLV in collaboration with the private sector

and help in the production of the polar satellite launch vehicle (PSLV) and other space-based products through the industry. For the SSLV launches, ISRo is already working on a new launchpad in Kulasekarapattinam in Tamil Nadu.

Source: <https://timesofindia.indiatimes.com/>

Boost to UDAN Initiative: HAL Gets Modification Document of Do-228 Civil Aircraft from DGCA

Hindustan Aeronautics Limited (HAL) received the modification document of HAL Do-228 (Upgraded) civil aircraft for 5700 All Up Weight (AUW) from DGCA during the ongoing DefExpo-2020 today. The document was handed over by Mr. G. Rajsekhar, JDG, DGCA to Mr. Apurba Roy, General Manager at HAL's Transport Aircraft Division, Kanpur in the presence of Mr R Madhavan, CMD, HAL and senior executives from HAL and DGCA. Two Civil Do-228 produced by HAL for launch under UDAN scheme having state-of-the-art configuration certifications from DGCA for MTOW at 6200 kgs. But in order to meet the prospective operator's requirement of a transport aircraft flyable under Commercial Pilot License (CPL) category, HAL undertook efforts to reduce the aircraft weight below 5700 Kgs. Apart from weight criterion, HAL Do-228-201(Upgraded) civil aircraft will also be equipped with digital cockpit which will ensure more accurate readings, precise information and ergonomic data displays with feedback loops and capability for self-check to alert pilot in emergencies. The Glass Cockpit architecture enabled aircraft will be most sought after new age aviation technology. Also, the incorporation of civil certified turbo-prop minus 10 Engine ensures more reliable torque sensing system, higher component life, lighter in weight and higher time between overhaul (TBO) as compared to previous minus 5 engine. It is also assured that the integration of the five blade propeller to HAL Do-228-201(Upgraded) aircraft will augment in significant reduction in noise levels, faster engine start, less lubrication and better damping characteristics.

Source: <https://hal-india.co.in/>

LUH Receives IOC, Fillip to Indigenous Programme

The Hindustan Aeronautics Limited (HAL) has received the Initial Operational Clearance (IOC) for its Light Utility Helicopter (LUH) paving the way for its productionisation. Mr R Madhavan, CMD, HAL received the IOC document from Mr G Sateesh Reddy, Secretary, Department of Defence R & D and Chairman, DRDO at the 'Bandhan' programme held at ongoing DefExpo 2020 today in the presence of Defence Minister Mr Rajnath Singh and Uttar Pradesh Chief Minister Mr Yogi Adityanath and others. Mr Madhavan said, "This is a momentous occasion for HAL. It reinforces our commitment towards indigenous R&D programs on self-reliance and enhancing operational effectiveness of the Indian Armed Forces. HAL is fully geared up to fulfil the requirements of its customers in a time bound manner". Mr Arup Chatterjee, Director, Engineering & R&D, HAL, said the performance of basic configuration of LUH in all terrains and under all weather conditions is satisfactory and HAL is moving towards the next phase of integrating and flight testing of Mission & Role Equipment on LUH.

One LUH Prototype is part of flying display and another is part of static display at the DefExpo 2020.

About LUH: LUH is a single engine, light weight, highly agile 3-Ton Utility Helicopter, indigenously designed & developed to meet the operational requirements of Indian Army & IAF. LUH will soon replace the ageing fleet of Cheetah and Chetak helicopters. Three prototypes have been built and cumulatively completed over 550 flights under various terrains and climatic conditions like cold weather, hot weather, sea-level and high altitude complying to stringent certification and user requirements. Its endurance and reliability were established during the hot weather and high-altitude trials where in LUH was ferried from Bengaluru, covering over 7000 kms of distance and continuously flying for 17 days without any abnormalities.

Source: <https://hal-india.co.in/>

HAL-designed RTOS Handed Over to IGCAR

The Hindustan Aeronautics Limited handed over document related to India's first indigenously designed and developed Real Time Operating System (RTOS) to Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam at the ongoing DefExpo-2020 today. The document was handed over by Mr Arup Chatterjee, Director (Engineering and R&D), HAL to Ms T Jayanthi, Director (Electronics & Instrumentation Group), IGCAR in the presence of HAL CMD Mr R Madhavan and other senior officials from HAL and IGCAR. The RTOS is based on international standards such as ARINC-653 and provides the underlying system with absolute reliability, maximum real-time performance and enhanced security. The HAL-RTOS is also suitable for use in nuclear applications such as the Instrumentation and Control Systems. The use

of HAL-RTOS will not only ensure real-time application execution in a fault-tolerant manner but also enhance the overall safety and security of the nuclear power plant.

Source: <https://hal-india.co.in/>

ISRO making preparations to launch GISAT-1 in March first week

Indian Space Research Organisation (ISRO) is preparing to launch GISAT-1, a new earth observation satellite, in the first week of March. GISAT-1 — Geo Imaging Satellite — will be the first of two planned Indian EO spacecraft to be placed in a geostationary orbit of around 36,000 km. It will apparently be in a fixed spot looking over the Indian continent at all times. All Indian EOs have been placed so far in a 600-odd-km orbits and circle the earth pole to pole. GISAT-1 will be launched from Sriharikota satellite launch centre. "With this satellite, which has high-resolution cameras, we can keep a constant watch on our borders, monitor any changes in the geographical condition of the country, etc.," said Mr Alok Kumar Srivastav, Senior ISRO scientist and Deputy Director, U R. Rao Satellite Centre, Bengaluru. About the ambitious Chandrayaan-2 project, he said that after the failed lunar landing of the project owing to technical reasons, ISRO has planned to repeat the project. "The government has already approved the [Chandrayaan-3] project. We are working on it. We are planning to re-launch the project within a year. I am hopeful that this time we will be successful in our endeavor to land our rover near the lunar southern where no rover has landed so far," he said. ISRO is expected to develop its own space station within a decade. "ISRO scientists are making every effort to develop our own space station. Hopefully, in the next ten years, India will have its own space station like the U.S. and China," Dr. Srivastav said. To achieve this gigantic target, preparations are already under way at ISRO. He said ISRO has planned to first send two unmanned spacecraft within a couple of years, and later a crewed mission in the third phase.

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

TECHNOLOGY

F/A 18 Super Hornet is compatible with Indian aircraft carrier, ski jump tests soon: Boeing

Making a strong pitch for the F/A 18 Super Hornet fighter jets for an upcoming requirement of the Indian Navy, US defence major Boeing has said that the aircraft will soon be tested on a ski jump to demonstrate that its abilities to operate from Indian platforms. The Super Hornet, which is by far the most used carrier borne fighter in the world, will be competing with the French Rafale for a requirement of 57 jets for the Navy for its aircraft carrier that is currently under construction at Kochi. The only existing Indian carrier – the INS Vikramaditya – operates the Russian MiG 29 K but the Navy is keen to get a more contemporary jet for future requirements. While both France and the US have offered their fighters, the key issue is that the western jets are designed to operate from a flat deck with the assistance of a catapult. The Indian ships do not have the catapult and rely on a ski jump for take-off. To overcome this, Boeing says that it will prove that the Super Hornet can operate from a ski jump by conducting physical tests. Sources said that the tests could be carried out at a shore based facility in Maryland in the coming months. "The F/A-18, on offer to the Indian Navy, is fully compatible with Indian Navy carriers and will boost the growing maritime and defence relationship between the United States and Indian navies," Boeing says. France is also pitching the fighter jet as a contender for the Indian Navy's, pointing to operations against ISIS using the Rafale. Both the F/A 18 and Rafale Marine fighter jets have been operating from aircraft carriers but are rigged for catapult launches. Extensive tests and software analysis have been conducted by the French and US companies to show that they can operate with a meaningful load from ski-jump carriers. It is still unclear how the Indian side will categorise the purchase—as a direct foreign purchase or with an offset clause that mandates a proportion of the manufacturing will have to be domestic.

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

Spin test in July may revive intermediate jet trainer plan

The indigenous programme to develop an intermediate jet trainer (IJT) could get back on track with a crucial 'spin recovery' test in July, with developer Hindustan Aeronautics Limited (HAL) confident that modifications carried out on the test aircraft would prove successful. HAL chairman R Madhavan has told ET that a spin recovery parachute is being integrated onboard the test aircraft this month, following which it would be put through a series of tests to prove that it meets service requirements. The air force is in dire need of an IJT as 'Kiran Mk II' fleet is being

phased out, putting a strain on its pilot training programme. The IJT 'Sitara' project has been in the works since 1999 but had hit a roadblock in 2014 after it failed the safety tests. After facing difficulties in the Spin Test —in which the plane is stalled midair and recovered as part of the training process — a foreign consultant was hired by HAL and structural changes have been carried out. "We are getting the recovery parachute this month and once we integrate it, we can restart the testing along with all the modifications that BAR (Bihrl Applied Research) has given. We will start the first spin tests by July and once that happens, we will be back in the game," Mr Madhavan said. The indigenous aircraft has gone through a significant modification, including an increase in the length of the rear fuselage and a redesigned rudder placement. A timeline for final development would be available only after the spin tests are completed. "We have seen the mathematical models and in this case we are quite confident that the modifications will work and we can meet the required tests," the HAL chairman said. The spin recovery parachute being integrated is a failsafe mechanism. HAL is also working on changes in the Russian origin engine of the IJT. "The modifications have been done and we expect the life to be increased from just about 100 hours right now," Mr Madhavan said. If the IJT clears tests, the deliveries can be carried out at an accelerated pace, given HAL already has 16 serial production aircraft ready that can be quickly modified. The air force has a requirement of 83 IJTs and the number could cross a hundred if the needs of the Navy are also factored in.

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

Sukhoi 30 may get AI in new cockpit design

The Sukhoi Su-30 MKI may be the tip of the Indian military's spear but with the aircraft's systems rapidly showing their age, scientists and engineers are working on improvements. Among developments is a new Artificial Intelligence-infused cockpit being built by the state-owned Hindustan Aeronautics Limited (HAL) on its own initiative which can execute commands based on the spoken word. Speaking to DH, project scientists from HAL Nashik, where the "proof of concept" prototype was made, said that the project had begun in November 2019 to show how the existing analogue cockpit of the Russian-made fighter aircraft could be upgraded. The new cockpit dispenses with a number of analogue gauges and switches populating the cockpit's front panel, in favour of customisable digital screens, a project scientist said. "The heart of the cockpit upgrade, however, is a new Artificial Intelligence system which can carry out commands said by the crew," he added. Pressing a thumb button located on the left-hand side of the cockpit activates the Voice Activated Controller System (VACS), a 2.7-kg unit which uses AI to understand verbal commands. "For example, if the crew pressed the button and said 'altitude and position', the AI system would verbally inform the crew about their current altitude and position. The system has a set of pre-built commands, including weapons selection," an engineer involved in the project said. The AI is also instrumental in understanding the various accents spoken in India, he added, clarifying that the system had 98% speech recognition accuracy. HAL said it had not yet attached a cost estimate to the upgrade. It said the glass cockpit came with a weight reduction. Although the prototype made use of some overseas components, the company said that the cockpit would be 100% indigenised in the subsequent iterations. The combat viability of Su-30 was thrown into sharp relief at the Electronic Warfare Asia symposium in Singapore when retired Air Marshal Daljit Singh commented that several components of the aircraft were becoming obsolete. Singh's comments were limited to the aircraft's electronic warfare suite and the NIIP N011M Bars radar, a passive electronically scanned array system that offers the crew inferior situational awareness compared to an active scanned array. Singh expressed concern that the aircraft's large radar cross-section would require augmentation of its wingtip.

Source: <https://www.deccanherald.com/>

India to develop 200-km range tactical ballistic missile

India is working on a new tactical ballistic missile capable of striking targets at a range of 200km, two top government officials said on condition of anonymity. The surface-to-surface missile, being developed by the Defence Research and Development Organisation (DRDO), has been named Pranash, a military systems' exhibition organised by the Department of Defence Production that seeks to project India as hub for global defence manufacturing. The new weapon traces its origin to the Prahaar missile developed by the DRDO, the official said. The Prahaar has a range of 150km but the army wanted a weapon with a better range, which is why Pranash is being developed, he added. "The configuration of Pranash has been frozen and development trials will begin by 2021-end. We will be in a position to offer it for user trials in two years. The army wants a missile with a range in the region of 200km," said a second official aware of the matter. The non-nuclear Pranash missile will be propelled by a single-stage solid propellant engine, he added. DRDO's short-range Prithvi series of missiles with ranges of 150 to 350 km are nuclear-capable and powered

by a liquid propellant engine that has its limitations. "Missiles with solid propellant engine are ready-to-use. However, liquid propellant engines can be complicated as the liquid propellant mixture has to be added before the launch," the second official said. India's Agni series of nuclear-capable ballistic missiles can hit targets at different ranges between 700km and 5,500km. Once developed, the Pranash missile could also be exported to friendly foreign countries, said the first official cited above. "It will be one of the cheapest missiles in the world in its range category. Also, the missile is outside the purview of the Missile Technology Control Regime (MTCR), which places export restrictions on missiles with ranges of more than 300km," he said. Increasing weapons exports is a top priority for the government. Prime Minister Mr Narendra Modi said the country's target was to clock exports worth Rs 35,000 crore in the next five years. This is in line with a draft Defence Production Policy, released in March 2018, that visualises India as one of the top five countries in the aerospace and defence sectors in the coming years. The PM said India had exported military hardware worth Rs 17,000 crore during the last two years, compared to Rs 2,000 crore in 2014. This year's DefExpo is being attended by ministers from almost 40 foreign countries.

Source: <https://www.hindustantimes.com/>

BUSINESS

HAL plans to outsource 35% of LCA manufacturing to private sector

Gearing up for its biggest order yet under the Make in India initiative, state owned Hindustan Aeronautics Limited (HAL) plans to outsource a significant part of the estimated Rs 38,000 crore contract to the private sector. The leading aeronautical firm is in line to bag a contract to manufacture 83 of the LCA Mk 1A fighters — to be equipped with advanced radars, sensors and indigenous weaponry — and is doubling its annual production capacity to meet the requirement. HAL chairman R Mr Madhavan told ET that the first of the upgraded fighters can be delivered within three years of the order being placed and a significant amount of manufacturing will go to private sector companies such as M/s Larsen and Toubro, Dynamics, VEM Technologies and Alpha Design "We have planned that four vendors will supply major parts of the fuselage for the fighters. With regard to the manufacturing part, we plan to outsource almost 35% to the private sector," said Mr Madhavan. Several other Indian vendors will also be involved in the project, he said. HAL has put in place the infrastructure to double its capacity to produce 16 of the fighter jets every year and has a contingency plan to increase it further if the need arises. "The second (production) line has been set up. With two lines we can manage 16 a year and if really required we can put up a third line as well," said Mr Madhavan.

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

Working on Rs 38,000-crore deal to sell 83 jets to IAF, says HAL chief

State-run aircraft maker Hindustan Aeronautics Limited is hoping to hammer out a Rs 38,000-crore deal with the Indian Air Force by April for 83 Light Combat Aircraft Mk-1A jets, HAL chairman Mr R Madhavan told Hindustan Times. He said the order was crucial for the HAL to prevent a complete halt of production at its facilities. HT reported on January 11 that HAL's order books are empty beyond 2021-22 and new orders from the armed forces are critical for continuity in production. "Price negotiations are over. We estimate the deal to be worth around Rs 38,000 crore. We hope to sign the deal in two months. It's an important deal for both HAL and IAF (which is battling a shortage of fighter squadrons)," Mr Madhavan told HT at DefExpo 2020, a defence systems exhibition being attended by more than 1,000 Indian and foreign firms. The deal was earlier expected to be worth around Rs 50,000 crore but it had turned out to be cheaper as the air force had reduced its requirements for spares and support facilities for the fighter jets, he said. Military affairs expert Air Marshal (retd) PS Ahluwalia said the LCA Mk-1A would be an important asset in plugging the shortfall in combat potential of the IAF. "These will be state-of-the-art aircraft to replace the retiring ones," he said. The IAF plans to buy 83 LCA Mk-1A jets, taking the total number of Tejas variants ordered to 123. The 40 LCAs already ordered by the IAF, of which 16 have been delivered, are in the initial operational clearance (IOC) and the more advanced final operational clearance (FOC) configurations. The LCA Mk-1A will come with additional improvements over the FOC aircraft, making it the most advanced Tejas variant so far. The Mk-1A variant is expected to come with digital radar warning receivers, external self-protection jammer pods, active electronically scanned array radar, advanced beyond-visual-range missiles and significantly improved maintainability. HAL is expected to deliver the first Mk-1A jet to the IAF three years after the deal is signed. Mr Madhavan said only two fighter production lines were open at HAL — one for Sukhoi-30s and the other for LCA Tejas. "We have to keep one line running," he said. The Sukhoi-30 line is

expected to shut after HAL delivers 12 fighter jets to IAF as part of an order likely to be signed later this year. Another order that HAL is eyeing is the supply of 70 locally produced basic trainers to the IAF. If it gets the order for the Hindustan Turbo Trainer-40 (HTT-40), HAL could begin production of the trainers by early 2021. In a report tabled in Parliament in December 2019, the Parliamentary standing committee on defence said “all-out steps” should be taken to ensure that the “order book position” of defence public sector units such as HAL improved in the coming years and the ministry should extend full cooperation to achieve that.

Source: <https://www.hindustantimes.com/>

Lockheed Martin inks pact with BEL to explore opportunities in F-21 fighter jet programme

US defence giant Lockheed Martin inked an agreement with the state-run Bharat Electronics Limited to explore opportunities in the F-21 fighter jet programme. Lockheed Martin has exclusively offered its F-21 military aircraft to India, with an eye to bag the Indian Air Force's USD 18 billion dollar deal to procure 114 jets. “Lockheed Martin signed a memorandum of understanding (MoU) with Defence PSU Bharat Electronics Limited (BEL) to explore industrial opportunities in the F-21 programme today at DefExpo 2020,” the company said in a statement. Lockheed Martin said it is strengthening and growing its partnerships with the Indian industry to support the company's F-21 proposal for the IAF. “We are excited to begin exploring F-21 opportunities with BEL, one of India's leading aerospace and defence companies,” said Dr Vivek Lall, Vice President of Strategy and Business Development, Lockheed Martin Aeronautics. He said if India goes for F-21, then it will be plugging into the world's largest fighter plane ecosystem. “An F-21 partnership with India integrates Indian industry, including BEL, into the world's largest and most successful fighter aircraft ecosystem and demonstrates Lockheed Martin's commitment to India,” Dr Lall said. In April last year, the IAF issued an RFI (Request for Information) or initial tender to acquire 114 jets at a cost of around USD 18 billion, which is billed as one of the world's biggest military procurement in recent years. The top contenders for the deal include Lockheed's F-21, Boeing's F/A-18, Dassault Aviation's Rafale, the Eurofighter Typhoon, Russian aircraft MiG 35 and Saab's Gripen. “We are happy to collaborate with Lockheed Martin which is a global major in the aerospace sector. We are eagerly looking forward to cash in on this co-operation to address domestic and international market needs in this sector,” said Mr Anandi Ramalingam, Director (Marketing), BEL. Lockheed Martin has projected F-21 as the ideal aircraft to address the IAF's capability needs and deliver unparalleled industrial opportunities in India. It said the single-engine F-jet will have the most optimal life cycle cost for the Indian Air Force, besides ensuring longest service life of 12,000 flight hours.

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

Thales to expand presence in India, says France supports company's resolve to share critical technology

French defence major Thales has decided to expand its presence in India to exploit billions of dollars of military requirements expected to flow from the India's ambitious plan to roll out theatre commands to deal with evolving security challenges. Mr Pascale Sourisse, senior executive vice president, International Development, Thales, said creation of theatre commands will fuel the need for radars, electronic warfare systems and weapons and the firm is ready to meet the huge demands, including through joint production of military hardware. The first batch of RBE2 active electronic scanned array(AESA) radar will come out from the joint venture between Thales and Reliance Aerostructure Ltd next month, Sourisse told PTI in an interview. The Nagpur-based manufacturing facility of the joint venture is going to produce SPECTRA electronic warfare systems, which are going to be part of the Rafale fighter jets. Initially, the RBE2 AESA radars were being integrated in the facility. The JV was set up to develop Indian capabilities to integrate and maintain radars and manufacture high performance airborne electronics, leveraging Thales' offset commitment as part of a deal to supply 36 Rafale fighter jets to the Indian Air Force. India plans to reorganise the existing military commands into common theatre commands comprising the Army, Navy and Air Force, similar to the structure followed by the leading western powers. Chief of Defence Staff Gen Bipin Rawat last month announced that work on establishing theatre commands will be completed within three years and that the new model will significantly enhance India's combat capabilities. Thales, a vendor of Dassault Aviation, has already almost tripled its head count in India to 1,600. Sourisse also said Thales will be able to boost technology transfer to India if the Rafale aircraft is chosen by the Indian Air Force in its hunt to procure 114 fighter jets at a cost of USD 18 billion. The top contenders for the deal include Lockheed's F-21, Boeing's F/A-18, Dassault Aviation's Rafale, the Eurofighter Typhoon, Russian aircraft MiG 35 and Saab's Gripen. In 2016, India inked a Euro 7.87 billion (approx Rs 59,000 crore) deal with France for the purchase of 36 Rafale fighter jets. The first four aircraft will arrive in India in May. “Thales is part of the Rafale

team. We hope that Dassault Aviation will get the future orders. Our resolve to share critical technologies with India is fully supported by the French government. There is a clear commitment to transfer critical technology to India,” Sourisse said. She said Thales has offered to produce F90 assault rifles in India. Sourisse also said that Thales is keen to help India in its multi-billion dollar programme to develop a next generation advanced multi-role combat aircraft and also in the Tejas fighter jet programme..

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

India, US sign contract for additional Apache attack choppers

India and US have signed the contract for six Apache helicopters for the Indian Army which follows a contract for 22 helicopters ordered by the Indian Air Force in 2015. While 17 of 22 Apaches have been delivered to India, the remaining five will be delivered to the Indian Air Force by the end of March 2020. Notably, the deliveries for the Indian Army Apaches are planned to begin in 2023. The Apache sale is a hybrid procurement – Direct Commercial Sale (DCS) between Boeing and MoD and Foreign Military Sale (FMS) between the GoI and USG. The FMS contract for the Apache includes munitions, training, aircraft certification, and components includes engines, EO sensors and the radar. The direct commercial sale portion of the contract primarily consists of the aircraft (less engines/sensors), logistic support, spares and services. Indian Army will get the AH-64E Apache configuration – the latest attack helicopter version that the US Army first took delivery of in November 2011. In terms of capabilities, the AH-64E Apache helicopters for the Indian Air Force and the Indian Army will be identical.

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

Russian S-400 missile delivery to India will start by end-2021

Russia will begin delivering S-400 surface-to-air missile systems to India by the end of 2021, agency RIA Novosti quoted a Russian official as saying. India signed a \$5 billion deal for S-400 missiles in 2018, drawing warnings from the United States that such an acquisition would trigger sanctions as part of a wider programme against Russia. “The contract is being implemented on schedule. The first shipment is due by the end of 2021,” Deputy Director of the Federal Service for Military-Technical Cooperation (FSMTC), Mr Vladimir Drozhzhov, said at Defence Expo 2020 in Lucknow, India, according to RIA. In November, the same agency cited the general director of Russian state arms exporter Rosoboronexport, Mr Alexander Mikheev, as saying deliveries would start in September 2021.

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

HAL, IAI and DTL form Strategic Collaboration for UAVs

Hindustan Aeronautics Limited (HAL), Israel Aerospace Industries Limited (IAI) and Dynamatic Technologies Limited (DTL) signed a Memorandum of Understanding (MoU) for marketing, manufacturing and selling of IAI's Unmanned Ariel Vehicles (UAVs) to Indian potential customers such as Indian Defence Forces, Paramilitary Forces and Central Armed Police Forces at DefExpo 2020 here today. The MoU was signed between Mr. Sanjiv Shukla, ED (Corporate Planning), HAL, Mr. Eli Alfassi, Executive Vice President, Marketing for IAI and Mr. Arvind Mishra, Executive Director & Global COO Hydraulics and Homeland Security for DTL, in the presence of Mr. R Madhavan, CMD(HAL), senior executives of HAL, IAI and DTL. Mr Madhavan said that “The collaboration will provide excellent opportunity to HAL to expand its product offerings to Defence Customers, absorb critical technologies and strengthen the Aerospace Ecosystem in the country, especially for UAVs”. Mr Nimrod Sheffer, President and CEO, IAI said “We are delighted to sign the strategic agreement with our partners, HAL and DTL. India is an important strategic market for UAVs and I am confident of IAI's extensive experience and the technological capabilities of HAL and DTL will lead to significant advancements in the field.” CEO & Managing Director of Dynamatic Technologies Limited, Dr. Udayant Malhoutra, said, “This is a Global PPP between HAL, our partner for over two decades, IAI a world leader in UAV technology who we have been teaming with since 2017. This collaboration will provide a boost to Make-in-India and we are committed to establish a broad technological and industrial eco-system within the country”. Presently, UAVs are playing significant role in wars and other tactical missions such as Intelligence, Surveillance and Reconnaissance (ISR). In the coming years Indian Defence Forces are likely to induct a large number of UAVs to meet such requirements. HAL has the best capability and infrastructure available in India to manufacture world class and battle proven UAVs of IAI. IAI as design authority, HAL as Principal Contractor and DTL as Principle Sub-Contractor will complement each other to provide best in class

'Make-in-India' UAVs to Indian Defence Forces. HAL as a long-time partner of IAI is involved in the depot level maintenance of all the MALE and Short Range class of UAVs supplied by IAI to the Indian Defence Forces since 2004. Taking the HAL-IAI collaboration one step ahead, under the scope of this MoU, this partnership would be the first in country to manufacture IAI designed UAVs in India like Short Range Tactical class having long endurance. This collaboration will enhance technology sharing and business partnership between India and Israel.

Source: <https://hal-india.co.in/>

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Journal of Aerospace Sciences and Technologies

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