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Editor's Desk

Due to Covid 19 Pandemic Journal of Aerospace Sciences and Technologies, The Aeronautical Society of India, Bangalore was unable to function since March 22, 2020. Consequently the E-News also was not brought out in April, May and June, 2020. However, we are happy to resume the work and bringout the April issue.

We are delighted to inform you that 8630 individuals are receiving the E-News every month comprising Corporates, DRDO, ISRO, CSIR, Universities, Educational Institutions and Industries besides members (who opted) of the Society.

We request you to enthuse your colleagues and Professionals also to subscribe. Also Editors welcome you to forward news items of relevance to Aeronautics and Aerospace which will be included after review by the Editors. It may also be noted that advertisements through the E-news will reach a vast segment of Aeronautics and Aerospace fraternity in the Country and Abroad and interested vendors and Professionals may avail the publication for business promotion.

Be Safe and be active

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

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CURRENT AFFAIRS

HAL offers new multirole chopper to Indian armed forces

State-run Hindustan Aeronautics Ltd (NSE -5.61 % (HAL) offered an indigenous multirole helicopter to the Indian armed forces for replacing its medium lift choppers such as MI-17s, Kamovs and Seakings. "We have apprised Defence Minister Mr Rajnath Singh of the progress made on the design and development of the multirole helicopter for induction in the Indian Air Force (IAF), Navy and Army," HAL Chairman R. Madhavan said in a statement here. The city-based defence behemoth displayed a mockup of the multirole helicopter to Rajnath Singh at its helicopter production facility in the city's eastern suburb. "We hope to develop the new helicopter in the next 8-10 years when the present fleet of medium lift choppers are scheduled to be phased out," said Madhavan. The aerospace major has submitted to the Defence Ministry a project report for sanctioning funds by the Cabinet committee on security to develop the new helicopter "The minister has evinced interest in our new offering to the three services," Madhavan noted. The HAL Chairman also told the Defence Minister that it was waiting for the ministry's order to roll out its Light Combat Helicopter (LCH) for the IAF and the Army. "LCH is ready for operational induction in the services and our new production hanger has capacity to rollout 30 of them per year," helicopter complex chief executive G.V.S. Bhaskar said on the occasion. The public sector enterprise has submitted a techno commercial proposal to the ministry for rolling out 15 combat choppers under the limited series production. "The demand for LCH is estimated to be 160 units by the services," Bhaskar said. The indigenous 5.5-tonne LCH is powered by two Shakti engines and has many features of the company's Advanced Light Helicopter (ALH). "LCH is the first attack helicopter to land in forward bases at Siachen, 4,700m above sea level, with 500kg load," said the statement. LCH had received the initial operation clearance (IOC) on August 26, 2017.

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

11,096 cr. spent on LCA and Kaveri engine projects so far, says govt.

A total 11,096 crore has been spent till date on the indigenous Light Combat Aircraft (LCA) and the Kaveri jet engine development programmes, the government informed Parliament. "The LCA programme has run for 36 years and Kaveri engine development for 30 years. The time taken for these developments is due to the complex technological challenges and the gradual development of the necessary eco-system," Minister of State for Defence Shripad Naik said in a written reply in the Lok Sabha. The technical challenges were faced in areas such as advanced avionics, digital fly-by-wire, composites, weapon simulation, testing and integration facilities and non-availability of raw materials, Mr. Naik said. Of the specified amount, ₹9063.96 crore was spent on LCA and ₹2032 crore on the Kaveri Engine. Shortage of engineers in BRO. In another written reply, the government acknowledged that about 33% of the sanctioned posts of various grades of civil engineers including Assistant Executive Engineer in the Border Roads Organisation (BRO) are vacant. A proposal to amend rules of the posts of some engineers to improve the promotional avenue to Group-B civil engineers is under examination, he said.

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

IAF has two-pronged strategy to deal with shortage of fighter jets: Govt

To address the shortage of fighter aircraft in the Indian Air Force, the government has adopted a two-pronged strategy of midlife upgradation of existing jets and induction of new ones in the fleet, Minister of State for Defence Shripad Naik said. In a written response to a question in the Lok Sabha, Naik said the IAF has already contracted for 40 Light Combat Aircraft Mk1 with Hindustan Aeronautics (NSE -0.40 % Limited (HAL) of which 16 aircraft have been delivered. "To overcome the shortage of fighter aircrafts in the IAF, a two-pronged approach has been adopted. That is, midlife upgradation of legacy aircraft to retain their operational relevance and induction of new aircraft," Naik said. The IAF is in the process of acquiring additional 83 LCA Mk1A aircraft for which contract negotiations are in progress. Delivery of LCA Mk1A aircraft would commence three years from the date of signing of contract, Naik said. Request For Proposal for 83 LCA Mk1A was issued to HAL in December, 2017. A Request For Information for procurement of 114 Multi Role Fighter Aircraft (MRFA) was issued in April 2018, the minister added. The MiG-27 fleet was decommissioned on

December 31, 2019 due to obsolescence and completion of Total Technical Life, he added. Replying to another question on whether the Defence Research Development Organisation (DRDO) has partnered with Indian or foreign companies to develop technology to prevent drone attacks, Naik said the information is “strategic in nature and its disclosure is not in the interest of national security”. In response to a separate query on whether there are any plans to privatise any defence public sector undertaking, Naik said the government has given an in-principle approval for strategic disinvestment of Bharat Earth Movers Ltd (BEML) by reducing its shareholding of 54.03 per cent to 28.03 per cent, he said.

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

First four Rafale jets to arrive by May end: Rajnath Singh

The first four Rafale fighter jets are arriving in India by the last week of May, following which an aircraft will arrive every 45 days, Defence Minister Mr Rajnath Singh disclosed at the Economic Times Global Business Summit, saying that the 36 on order are enough to take care of adversaries as of now. Speaking at the annual summit, the minister shared the government’s plans for the defence sector and said that the plan is for the sector to grow to \$ 26 billion by 2025, with the private sector being a key player to achieve the goal. The minister also said that India’s relations with China are on the upswing and that there is no threat perception on the border. “The Defence sector has been identified as one of the key sectors that will help us in achieving the stated objectives. In our envisaged Defence Production Policy, we have clearly spelt out our goal to achieve a turnover of US\$ 26 billion in aerospace and defence goods and services by 2025, involving an additional investment of nearly US\$ 10 billion and creating employment for nearly 2-3 million people,” the minister said. Taking a realistic view on the sector, the minister said that a lot more needs to be done to drive defence manufacturing to its true potential and that there is certain sense of underperformance at the moment where the private sector needs to step in. “One of the main reasons for this was to retain the field of defence production within the confines of governmental control and ownership. Though, it was the necessity of the times and it did help provide a much-needed foundation to an industry that was not commercially competitive to begin with. However, the necessity of becoming internationally competitive, globally innovative and structurally efficient, demands that the private sector plays its long-awaited role in the defence industrial production,” he said. Elaborating on steps taken to promote industry, the minister said that the government is going all out to meet demands. “We have opened opportunities through DRDO with a zero fee for Transfer of Technology (TOT), free access to over 450 patents, access to test facilities and an upfront funding of up to 10 crores. More than 900 licensing agreements for ToT have been signed with industries. This is a major step towards self-reliance in defence manufacturing sector,” the minister said. Terming Micro, Small and Medium Enterprises as ‘silent performers’ who carry the ambition of achieving five trillion economy on their shoulders, the minister said that their role is being expanded. “More than 8000 MSMEs are currently engaged in Defence Production. Efforts are being made for doubling the active MSME base in Defence and Aerospace from 8000 to 16,000,” the minister said. Singh said that export of defence products is a priority area and the private sector is being encouraged to reach out to global clients. “We would also be willing to extend Lines of Credit and grants for Friendly Foreign Countries over the next five years. The government aims to achieve exports of defence goods & services to the tune of USD 5 Bn in next 5 years,” he said. The minister announced that the government’s aim is to double the size of Aeronautics Industry from Rs. 30,000 Cr to 60,000 Cr by 2024. “A number of major platforms are envisaged in defence Aerospace sector including India’s 90-seater civil aircraft, developing civil helicopter industry of USD 5 Bn in PPP model, and New Aero Engine Complex in Defence Corridor with industry participation,” he said. The defence minister assured the industry that the government is open to new ideas and is “committed to fully harness the energies, entrepreneurship spirit and enterprise of private sector in the area of defence.”

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

In a first, India, France conduct joint patrols from Reunion Island

India and France, For the first time, have conducted joint patrols from the Reunion Island, signalling New Delhi’s intent to engage with friendly foreign partners in expanding its footprint in the Indian Ocean, focusing on the stretch between the East African coastline and the Malacca straits. India has so far carried out Coordinated Patrols (CORPAT) only with maritime neighbours and had rejected a similar offer by the US. “The Indian Navy conducted a joint patrol with with the French Navy last month from the Reunion Island. The patrol was conducted by a P-8I aircraft with French Navy personnel onboard,” two defence sources independently confirmed to The Hindu. “We have robust engagement with

the French”, one of them said. The surveillance was done in Southern Indian Ocean off Mauritius. “The P-8I was there for a week,” he stated. There was greater understanding between India and France on each others concerns, especially in the maritime domain, the source said. “They also have capacity constraints there and we can share responsibilities. The patrols will be periodical. There is no set pattern,” the source added As reported by The Hindu last November, visiting French Navy Chief Admiral Christophe Prazuck had stated that they were “looking forward to organising joint patrols with the Indian Navy” in 2020 and working on the precise objectives. Speaking at an event, he said the region of the patrols could be North Western Indian Ocean or Southern Indian Ocean “around the islands that are part of France.” “France is a safe country for us, there will be no concerns in conducting joint patrols with them,” a third official stated on why France was the first country selected to conduct joint patrols. France is also the first country to deploy a Liaison Officer at the Indian Navy’s Information Fusion Centre (IFC-IOR) as part of efforts to improve Maritime Domain Awareness (MDA). Major strategic partner France has steadily emerged as a major strategic partner for India with big ticket defence deals and increased military to military engagement. The Indian navy is currently inducting French Scorpene conventional submarines, being built in India under technology transfer, and the Indian Air Force will soon get the first batch of its 36 Rafale fighter jets. Currently, under the ‘Neighbourhood First’ policy and broader maritime cooperation, the Indian Navy undertakes joint EEZ surveillance with Maldives, Seychelles and Mauritius and CORPATs with Bangladesh, Myanmar, Thailand and Indonesia. In early 2016, then U.S. Pacific Commander (now Indo-Pacific Command) Adm Harry Harris proposed the prospect of Indian and US navies conducting joint patrols, which was also advocated by other visiting senior U.S. military officers. However, this was rejected by India, and in 2018, then Navy Chief Adm Sunil Lanba stated that while India was looking at cooperative frameworks in the region to deal with common threats, efforts such as coordinated patrols and joint patrols would be done only with maritime neighbours. The joint patrols, along with other activities, are part of the Navy’s increasing engagement in the Indian Ocean Region through capacity-building and joint activities for improving MDA and interoperability.

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

A satellite for only Rs 10 crore, with a little help from Elon Musk and ISRO

In December 2018, Mumbai-based Exseed Space created nothing short of history by being the first private commercial organisation in the country to launch a satellite in space via Elon Musk-led SpaceX. The company, now rechristened Satelize, did what was considered unthinkable at one time - slashing down the cost of building a satellite. So, while earlier satellites would cost Rs 1,000 crore each to build and launch, Satelize’s technology brought this down to under Rs 10 crore each. “These make them radically affordable both for the private and public sectors,” says Mahesh Murthy, Founder & Director, Satelize. The company has an interesting story behind how it all started. Mahesh Murthy and Asshar Farhan, the founders of Satelize, go back a long way. They first met as quizzers and debaters while at rival schools in the year 1980 in Hyderabad where bonding over steaming cups of Irani Chai only seemed natural. 15 years ago, a company that Farhan co-founded was acquired by Geodesic, a company that Murthy had co-founded. Flashback then to five years ago when Murthy and Farhan jointly mentored a space startup called Dhruva Space. After the government’s Electronics Development Fund contacted Murthy in 2017, he called Farhan and a brainstorming session on a fund for space followed soon enough. “We believed it might be a hard sell to raise a fund focused around space back then - and decided to do a startup to prove the point that world class space startups can be built in India. One of the first things we did was to acquire the assets of Dhruva Space and kick off Satelize in 2017,” he recalls. The founders’ vision was to become a leader in spacecraft manufacturing. Satelize claims to build satellites that offer high performance at radically lower costs. “We have launched two already and are the only Indian firm to do so. Moreover, we have experience launching on both SpaceX and ISRO platforms. No other company in Asia has either,” asserts Murthy. Companies, he says, tend to buy them in constellations of dozens each. ISRO is a world leader in launching them with a market share of over 30%. The founders draw attention to how what was once being achieved through large satellites at phenomenally high costs can today be made possible via nanosatellites. And they can do it all - earth observation, remote sensing, optical imaging and communication - at highly reduced costs. “India has over 150,000 trained people with hands-on space expertise - except there was no private space industry in India that existed earlier. Specifically, no one was making nanosatellites, one of the fastest-growing parts of this sector. The world is moving towards smaller, more affordable satellites called nanosatellites about the size of a few coffee cups,” reveals Murthy. Their satellites are beneficial for imaging, communication and other data gathering purposes. A range of use cases such as helping detect diseases on farms and increasing crop yields; monitoring road and infrastructure construction; helping cities govern themselves better and detect intruders via sea, forest or land; picking up distress calls of teams in remote mountainous areas for search and rescue operations are possible via Satelize. “We have partners within and outside the group who help us offer customers the entire solution from one single source - from payload manufacturing,

satellite assembly and rocket launches, to ground station coverage, data analysis and insight sharing,” he highlights. The India opportunity :: The opportunity for India is waiting to be tapped and a space strategy can be a gamechanger for both government and private companies, feels Murthy. Satellize is currently working with several state governments and central bodies to help re-shape their approach to solutions by using new space technology. Murthy is of the firm belief that India needs to up the quantum of its nanosatellites to make a qualitative difference. “India launches a few hundred nanosatellites a year. Just a couple every year are of Indian origin. Even if we were to make 10% of the nanosatellites that India launches - that alone is a \$100m revenue base. When you add other satellites that are launched from the US, New Zealand, Europe, China and other nations, even a 10% share of this market quickly takes potential revenues way past the \$ 1 billion mark,” he reasons. Besides this, the revenue potential available in the rest of the space ecosystem is also immense. As per estimates, space is expected to be a trillion dollar sector in 5 years and Indian companies can vie for a chunk of this pie. Despite such potential, however, the space startup faced a lot of resistance in 2018 when they tried to get a launch slot on an Indian rocket as there was no precedent. “We even had spies from Indian intelligence agencies vetting us before ISRO gave us a go ahead,” adds Murthy. They tried for over a year where they had to solve a wide range of issues from insurance and liability to clearance for spectrum and ensuring the payloads worked before finally being cleared to launch on SpaceX. “This was a blessing in disguise because knowing that we had successfully launched on SpaceX then helped ISRO to understand our capabilities and welcome us as a partner and customer in India,” he gushes. Spacing it out well :: The founders are enthused by the response and have plans lined up for the innings ahead. On the anvil are plans to launch 8 more payloads in the next three months. “We hope to launch 10 more payloads in 2020, most of them being commercial. We aim to be one of the world’s leading players in this business by 2022. It’s hard to say what this means in revenues - but it’s not likely to be a small number. We hope to grow sustainably at over 50% a year over the next 2 to 5 years,” he candidly states. The startup has made steady progress. Murthy says that they now get regular calls from ISRO and other government agencies to advise them on various aspects. Potential customers also feel exhilarated to know that they can have their own space-based assets for Rs 10 crore. All this is making Satellize come closer to what they had envisioned of kick-starting the private space revolution in India. The going ahead, then, looks better than what they had even expected. “The support for our vision is already there overseas - and is growing in India. We are beginning to see the centre, various states and private industries show interest in working with us,” he says. Murthy gives food for thought before signing off by talking about helping to build the future of humanity even in space. This stems from all the ecological issues on earth at present which, the founders believe, may warrant a better alternative for people of the planet. “And that is, a life off-planet. We don’t know how and when that might happen - but we would like to do our bit to make this possible, with affordable technologies for space,” reveals Murthy, with a conviction clear enough to narrate their future leanings in space.

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

TECHNOLOGY

‘Indian Navy ships armed with BrahMos can defeat warships of any country’

Stating that all the Indian Naval ships guarding the Indian Ocean and the Arabian Sea are armed with BrahMos missiles that give only 22 seconds reaction-time to the enemy, Mr Sudhir Mishra, scientist and Director General (BrahMos), DRDO (Defence Research and Development Organisation), said that these supersonic cruise missiles have given the Navy the capability to “defeat warships of any country.” While speaking on the topic of the “Role of BrahMos in nation building” at an event organised by the Confederation of Indian Industry (CII) in Ahmedabad, Mishra said, “It is an unmanned aircraft loaded with explosives... A ship usually has a radar that can only see only up to 20 kilometres... the speed of the BrahMos is 970 metre per second. When it is about 20 kilometres away, the enemy gets only 22 seconds to react. It is very difficult to engage a projectile coming with so much speed.” The BrahMos missile has a range of 300 km and a speed of Mach 3. Mishra, who is also the CEO and MD of BrahMos Aerospace Pvt Ltd, said there are currently eight variants of the BrahMos that can be fired from different platforms like ships, Sukhios, submarines and land systems. “One of the Naval captains told me that for a 600 kilometre diameter I have only friends in the ocean. The reason is nobody can afford to be an enemy within this diameter. Because, we are having a capability to defeat warships of any country. When I underline any country, you can include all the countries without telling you the name,” he said. Mr Mishra also showed videos of BrahMos hitting a ship and breaking down into two pieces and said, “This is the fear our enemies and adversaries are having. This kind of capability we provide to our

Navy.” Serving Naval officers have spoken in public about the increasing might of the Chinese in the Indian Ocean which is a key trade route for ships plying to South-East Asia and beyond. BrahMos Aerospace Pvt Ltd a private entity developed in joint venture with Russia that began operations with Rs 1,300 crore about 21 years ago has today “created business worth Rs 34,000 crore” with only Indian Armed forces as the only customer. “Had we exported to other countries, we would have certainly become much bigger and made much more money,” Mr Mishra said. Brahmos Aerospace, the joint venture between DRDO and NPOM of Russia, was formed on February 12, 1998. “DRDO has a 50.5 per cent equity in the project. Had it crossed 51 per cent, it would have become a defence Public Sector Undertaking and the government never wanted another PSU to come up. So we are a private company which is owned and run by the government,” he added. He said 70-75 per cent of the Brahmos systems were being manufactured in an indigenous manner and more than 200 industries have employed 20,000 workers for the development and manufacture of the missile. These industries include L&T which manufacturers canisters for the missile near Vadodara.

Source: <https://indianexpress.com/>

Chandrayaan-3 to be launched in first half of 2021

Chandrayaan-3 will be launched in the first half of 2021, Union Minister Mr Jitendra Singh said, indicating that there could be a slight delay in the launch of the third moon mission. In written response to a question in Lok Sabha, Minister of State in the Prime Minister’s Office Mr. Singh said four biological and two physical science experiments related to microgravity will be conducted during the Gaganyaan project, India’s manned mission to space. Mr. Singh said the revised configuration takes care of the robustness in design, capacity enhancement for mission flexibility and at the same time retained the heritage of Chandrayaan-II to the extent possible. “The tentative launch schedule for Chandrayaan-III is first half of 2021. Chandrayaan-III mission has been configured based on the lessons learnt from Chandrayaan-II,” Mr. Singh said. The Indian Space Research Organisation had then resolved to launch the project again. It had said the project is likely to be launched by the end of the year. Elaborating on the progress made on Gaganyaan, Mr. Singh said hardware realisation has commenced for ground test and space flight training of four astronaut candidates has also commenced. “Four biological and two physical science experiments related to microgravity from academic institutions are short-listed...,” Mr. Singh said. National collaboration for design, development and delivery of human centric products such as crew medical kit, crew health monitoring system, emergency survival kit, dosimeters, earmuffs and fire suppression system has started, Mr. Singh said. A three-week training programme for flight surgeon was also completed at ISRO with participation of CNES, the space agency of France, he added.

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

10 earth-observing satellites among 36 missions lined up by ISRO for FY21

The Indian Space Research Organisation (ISRO) lined up s many as 36 missions including ten earth observation satellites in 2020-21. Union Minister of State for Atomic Energy and Space, Mr Jitendra Singh said that besides 10 earth observation satellites, the space agency lined up three communication satellites, three space science satellite, two navigation satellite and one technology demonstration. Gaganyaan (unmanned) is also part of ISRO’s mission for 2020-21. As far as the rockets are concerned, ten PSLV launches, three GSLV MkII, one GSLV Mk III have been lined up. Two small satellite launch vehicle have also been lined up, said the Minister. “Indian Space Programme is focused on the peaceful use of outer Space. Towards this end, space technology should be used for the benefit of the country and society, and should provide solutions for developmental activities,” said the Minister. ISRO has completed 11 missions so far this fiscal year. These include four eEarth observation satellites, one communication satellite and one space satellite. Four PSLV and one GSLV MkIII were completed in 2019-20.

Source: <https://www.business-standard.com/>

US successfully tests nuclear-capable hypersonic missile

The United States announced it has successfully tested an unarmed prototype of a hypersonic missile, a nuclear-capable weapon that could accelerate the arms race between superpowers. The Pentagon said a test glide vehicle flew at hypersonic speeds — more than five times the speed of sound, or Mach 5 — to a designated impact point. The test followed the first joint US Army and Navy flight experiment in October 2017, when the prototype missile demonstrated

it could glide in the direction of a target at hypersonic speed. “Today we validated our design and are now ready to move to the next phase towards fielding a hypersonic strike capability,” Vice Admiral Johnny Wolfe said in a statement. Hypersonic weapons can take missile warfare, particularly nuclear warfare, to a new — and, for many, frightening — level. They can travel much faster than current nuclear-capable ballistic and cruise missiles at low altitudes, can switch direction in flight and do not follow a predictable arc like conventional missiles, making them much harder to track and intercept. Even as conventionally armed, non-nuclear weapons, they are viewed by analysts as raising the danger of conflict, because an adversary might not know how they are armed when launched. The Pentagon is pressing to catch up with rivals Moscow and Beijing in the race to develop hypersonics, even as it recognizes they could dangerously raise the risks of a nuclear conflict, as countries struggle to build defenses against them. In its fiscal 2021 budget the US Defense Department requested \$3.2 billion for hypersonic programs, up from \$2.6 billion in the current year. The goal is a deployable hypersonic capability by 2023, though that could be difficult. “Delivering hypersonic weapons is one of the department’s highest technical research and engineering priorities,” the Pentagon said. The joint Army-Navy test was carried out on March 19 from the Pacific Missile Range facility in Kauai, Hawaii. The test was for the military’s common-hypersonic glide body, or C-HGB weapon, designed to be launched from a rocket that could be land-, air- or sea-based. “The glide body tested today is now ready for transition to Army and Navy weapon system development efforts,” said Mike White, the assistant director of the hypersonics program. In December, Russia declared it had placed into service its first Avangard hypersonic missile, making it the first country to claim an operable hypersonic weapon. Russian officials claimed that in tests it had reached speeds of up to Mach 27, roughly 20,500 miles (33,000 kilometers) per hour. China is also investing significantly in their development. Last October it displayed its DF-17 hypersonic glide vehicle in its national day military parade. The US military is meanwhile pouring money into advanced missile defense research to find ways to protect against hypersonics. A senior NATO official warned that in a hypersonic missile strike, it may not even be clear what the target is “until there’s a boom on the ground.” In January the Bulletin of Atomic Scientists advanced its “Doomsday Clock,” its assessment of the risk of nuclear holocaust, in part due to the rising threat of hypersonic weapons. “There is increasing investment in and deployment of hypersonic weapons that will severely limit response times available to targeted nations and create a dangerous degree of ambiguity and uncertainty,” it said. “This uncertainty could lead to rapid escalation of military conflicts. At a minimum, these weapons are highly destabilizing and presage a new arms race.”

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

BUSINESS

India inks deal for missile defence systems for desi ‘Air Force One’

The desi “Air Force One”, equipped with advanced missile defence measures, will finally be ready to fly the President or Prime Minister by the middle of next year. India has now inked the around \$190 million (Rs 1,300 crore) deal with the US for two self-protection suites (SPS), which will be retrofitted on the two custom-built Boeing-777 aircraft earlier acquired for long-haul VVIP travel. The two wide-bodied B-777s, with their fully-integrated advanced missile approach warning sensors, defensive electronic warfare systems, infra-red counter-measures, digital radio frequency jammers and other such contraptions under the overall SPS, will be akin to the US President’s iconic Air Force One or the “flying Oval office”. Though the US President’s aircraft is much more advanced, and can even serve as an airborne command centre to direct military operations during NBC (nuclear, chemical, biological) attacks, the Indian PM will be able to fly in a much more secure, and plush, manner with the new planes. The two extended-range B-777s, which will also have encrypted satellite communication facilities, will replace the almost three-decade old 747-400 jumbo jets being currently used for VVIP flights. The SPS will ensure a robust capability for automated detection and jamming of different kinds of missiles. The counter-measures dispenser systems, in turn, will swing into action by shooting flares and chaff to “misguide or divert” incoming radar-guided or heat-seeking missiles. Sources said the government-to-government deal for the two SPS was signed at the time President Donald Trump with his Air Force One was in India on February 24-25. It was in February 2019 that the US state department had notified the proposed “foreign military sale” of the SPS “to protect two Boeing-777 head-of-state aircraft” but negotiations delayed the inking of the contract till now. “The two aircraft were slated for delivery in June 2020 after customisation at the Boeing facility in Dallas. But the SPS retrofitting in them will obviously take much more time,” said a source. Moreover, the B-777s are set to be placed under the IAF’s control now, though the original plan was that Air India would own and operate them. A few IAF pilots have already been trained to fly the VVIP aircraft, and will take over operations from Air India pilots in the long run. With the SPS

and other sophisticated systems, the aircraft will also have a military classification. “The call-sign is likely to be Indian Air Force One, not Air India One,” said the source.

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

Defence ministry clears Rs 38,000 cr deal for 83 advanced Tejas jets

The defence ministry gave a green light to the purchase of 83 Light Combat Aircraft Mk-1A advanced Tejas jets from Hindustan Aeronautics Limited and the proposal would be sent to the Cabinet Committee on Security for final approval soon, a ministry spokesperson said. The deal, expected to be worth Rs 38,000 crore, is critical for 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 — especially for the 83 jets — are critical for continuity in production. “While orders of 40 Tejas aircraft had been placed with HAL in initial configurations, the Defence Acquisition Council paved the way for procurement of 83 of the more advanced Mk-1A version of the aircraft from HAL by finalising the contractual and other issues,” the spokesperson said after a DAC meeting. He said the purchase would provide a significant boost to the Make in India initiative. The deal for the 83 Mk-1A jets will take the total number of Tejas variants ordered to 123. The 40 LCAs already ordered by the IAF 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. The deal was earlier expected to be worth around Rs 50,000 crore but it turned out to be cheaper as the air force reduced its requirements for spares and support facilities for the fighter jets. The Mk-1A jets will form the bulk of the IAF's combat squadrons as it attempts to make up the shortfall in its fighter fleet, said Air Vice Marshal Manmohan Bahadur (ret), additional director general, Centre for Air Power Studies. “The Mk-1A jets will also serve as a stepping stone for the Tejas Mk-2 fighters on which the IAF has placed high hopes,” Air Vice Marshal Bahadur added. The IAF is struggling with a shortage of warplanes. Compared to an optimum strength of 42-plus units required to fight a two-front war, the count of the IAF's fighter squadrons has shrunk to 31. 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. The DAC, headed by defence minister Mr Rajnath Singh, also approved the acquisition of indigenous military hardware worth Rs 1,300 crore including aerial fuses and twin-dome simulators for the IAF's Hawk trainer aircraft. The council also approved an amendment to the Defence Procurement Procedure (DPP)-2016 to enable review by a ‘costing committee’ of bids submitted by joint ventures of defence public sector undertakings/Ordnance Factory Board /Defence Research and Development Organisation from whom purchases are made on a nomination basis. “This will bring about more transparency in costs and compress the timelines for negotiation of the contract,” the spokesperson added.

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

India to go ahead with \$2.3 billion Turkish shipyard deal

India is going ahead with a \$2.3 billion (about Rs 15,000 crore) deal to manufacture fleet support vessels (FSVs) in collaboration with a Turkish shipyard following a review after questions were raised on Turkey's links with Pakistan and the recent diplomatic tiff with the Recep Tayyip Erdogan government. The formal contract was signed days after India issued a strong statement rejecting all references made to Jammu and Kashmir in a joint declaration by Turkey and Pakistan during President Erdogan's visit to Islamabad last month. Turkey's TAIS had emerged as the lowest bidder for a contract to manufacture five of the 45,000-tonne FSVs at the Vizag-based Hindustan Shipyard Limited (HSL) last year, but the contract signing was put on hold in October following the repeated raising of Kashmir issue by Erdogan at international forums. The contract was signed by HSL last month after clearances were given by the Ministry of Defence (MoD), said people aware of the matter. They said the Ministry of External Affairs was also consulted before the decision was taken. HSL had been keen to resolve the matter at the earliest and had written several letters to the defence ministry over the past few months. “MoD has directed HSL to put the project on temporary hold in view of recent diplomatic developments with Turkey. HSL inputs regarding the legal and financial implications of cancelling the bid of M/s Anadolu shipyard have been submitted to the MoD,” the ministry told the parliamentary standing committee on defence. The defence ministry's vigilance department was asked to review the order and gave a go-

ahead, said one of the persons, who did not wish to be identified. Similarly, inputs were received from MEA on diplomatic implications, after which it was decided to proceed with the Turkish collaborator. The contract was signed last month after the defence ministry removed its temporary hold order. The Indian FSV project was initially given a go-ahead in 2016 after the Navy projected a requirement for ships that could carry fuel and other supplies for warships at sea. As reported by ET, Turkish shipyards are a major supplier of warships to the Pakistani Navy and concerns had been raised on how access to the strategic HSL by its engineers and workers could result in serious security issues. HSL is located close to the Ship Building Centre, where India's nuclear armed submarines are built, as well as the Eastern Naval headquarters. Besides four new corvettes, Turkey has designed a fleet support vessel for Pakistan, supports its submarine fleet and has signed a deal to sell 30 T-129 attack helicopters that have been developed in collaboration with Italian company Finmeccanica (since renamed as Leonardo). In September last year, Erdogan had used the ceremony to launch new corvettes for the Pakistani Navy. Last month, he raised the Kashmir issue again and attempted to draw similarities to the Palestine conflict. Since then, the Turkish President has visited Pakistan, where he repeatedly raised the Kashmir issue and said that Turkey was on Pakistan's side over the conflict and that it would support it on the issue of being censored by the Financial Task Force as well. Following Erdogan's visit in February, India issued a strong statement and on March 3 made a strong demarche with the Turkish envoy as well.

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

HAL records turnover in excess of Rs 21000 Cr

Hindustan Aeronautics Limited recorded a turnover of over Rs. 21,100 crores (provisional and unaudited) for the financial year ended on March 31, 2020 (corresponding figure for the previous year was Rs. 19,705 crores). The Company has posted a revenue growth of around 7% during 2019-20 for the second year consecutively, post listing as compared to 3.8% during 2017-18. The encouraging performance of the company in 2019-20 has been achieved in spite of difficulties in cash flows, interruptions in operations due to workmen agitation and the interruption arising in the month of March 2020 due to COVID 19 lockdown which has affected the final tests and certification of certain additional aircraft that were under final stages of production. This sustenance in financial performance during current financial year is in wake of production of 31 new aircraft / helicopters and 117 new engines and overhaul of 199 aircraft / helicopters and 490 engines. HAL has managed to sustain the growth rate and turnover in the current circumstances due to uniform production and project execution measures put in place by the company. During the financial year the company besides achieving all the physical and financial targets has also been maintaining uninterrupted supplies and services to the defence forces in spite of various constraints including cash flows. This has encouraged us to focus more on cost optimization measures including indigenisation of various components, increasing outsourcing efforts and rationalisation of manpower said Shri R Madhavan, CMD HAL. He further stated that more dedicated efforts are being made towards meeting the current and future requirements of customers. This strategy will also help HAL to be on the growth track in meeting the expectations of the shareholders further, he adds. HAL has produced 13 new ALHs against the contract of 40, out of which three were produced ahead of schedule for the Indian Army. The first Helicopter for the Coast guard is ready and awaiting customer trials at Cochin which should have been completed but for the outbreak of Covid-19. The complete test equipments are already positioned to ensure commencement of trials immediately after the situation improves. All the new systems for CG are ready and bulk of the trials are already completed satisfactorily and have met customer requirements. The first LCA-Tejas FOC standard aircraft also completed its contract flight test acceptance within 12 months of the standard of preparation release in Feb 2019. The aircraft is ready for delivery once the operations resume likely in April 2020. The Glass cockpit of Dornier -228 is an important business portfolio for the future and is expected to get us more revenues in the years to come. The Avionics upgrade of HAWK and SU-30 MKI and BrahMos missile modifications would be a game changer and is important for us. HAL has completed production of all SU 30 MKI contracted to HAL by IAF during the current year and is expecting to get few additional orders for SU-30MKI. With this and the expected order for 83 MK1A LCA which is cleared by DAC and 15 LCH limited series production aircraft, which is in final stages of discussion, the order book is likely to attain a healthy position during the next financial year 2020-21. Further to support the Government, we have already contributed a sum of Rs 26.25 Crores towards PM CARES fund and are paying the salaries of daily wage earners throughout the company in advance to support the needy in this hour of acute crisis.

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

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