E-NEWS

Every Month From The Aeronautical Society of India

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CURRENT AFFAIRS

BIG BOOST: 1st Made-in-India Apache Fuselage Delivered Before Schedule

Tejas gears up for Aerial Refuelling

Agni-5 successfully test-fired

Long-range ballistic missile Agni-5 was successfully test-fired off the Odisha coast, proving its reliability. This is the sixth successful test of the missile and the second in its pre-induction configuration. “Agni-5 missile was successfully flight-tested from the Dr. A.P.J. Abdul Kalam Island (Wheeler Island). All the radar, electro optical and telemetry stations tracked the vehicle through the course of the trajectory. All the mission objectives have been achieved,” the Defence Research and Development Organisation (DRDO) said in a statement. Agni-5 can carry nuclear warheads weighing 1.5 tonnes to a distance of over 5,000 km and is the longest missile in India’s arsenal capable of reaching most parts of China. With a smaller payload the range can go up much higher. The missile features many new indigenously developed technologies, including the very high accuracy Ring Laser Gyro based Inertial Navigation System (RINS) and the most modern and accurate Micro Navigation System (MINS) which improves the accuracy of the missile.

Source: http://www.thehindu.com/

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CURRENT AFFAIRS

ISRO to monitor more crops via satellites

Indian Space Research Organisation (ISRO) is building more remote-sensing satellite capacity as it looks to expand space-based agricultural forecast to cover over 23 crops from the existing eight in the country, according to a top official. So far, the agriculture ministry tracks the production of eight crops, including rice, cotton, sugarcane and jute, looking at total area of crop acreage and its development to forecast the produce for harvest. The improvement in forecast has led to demand for satellites to cover more crops, ISRO chairman Dr K Sivan told ET. ISRO has over a dozen remote sensing satellites but the demand for applications has increased its focus to plan at least six more satellites dedicated to land and water, cartography, oceanography and environment, including meteorology and weather monitoring. It includes cartosat-1 and 2, Resource sat, Risat-1 for all weather, dawn-to-dusk imaging, disaster management and agricultural monitoring. These satellites will help in more accurate crop acreage and production estimates; assessment of flood and drought damage, environmental monitoring.

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

CSIR invention BGR-34 enlisted as major achievement in Delhi

The Union Science and Technology Ministry enlisted the cost-effective, herbal drug for diabetes - BGR 34, as one of their major achievements of the last four years under the Mr Modi government at a conference in Delhi. Created by the Council for Scientific and Industrial Research (CSIR), the drug has already acquired number one slot in an anti-diabetic ayurvedic product category in the IMS Health ranking. “Derived from Ayurvedic plant extracts, the BGR-34 anti-diabetic herbal drug is matching the efficacy level of any branded modern medicine in controlling the sugar level,” said Dr Girish Sahni, Director General, Council for Scientific and Industrial Research (CSIR). Dr Harsh Vardhan, Union Minister of Science and Technology pointed out that the Ayush ministry too has approved it after it was tested on patients over a period of 18 months in Delhi, Himachal Pradesh, Haryana, Punjab, and Karnataka. The drug has been developed jointly by scientists of National Botanical Research Institute (NBRI) and Central Institute for Medicinal & Aromatic Plants (CIMAP), the Lucknow, based research units of the CSIR. The drug is taken as an add-on or adjuvant to existing diabetes treatment. It helps in maintaining normal blood glucose level, releasing anti-oxidants and checking free radicals. About 67 per cent of the patients showed normal blood sugar levels within three to four days of drug usage. A study published in the Journal of Traditional and Complementary Medicine, an international journal too has found that BGR-34, is effective in cutting down heart attacks by 50 per cent in diabetic patients. According to the experts, in 2015, there were 415 million adults living with diabetes and this number is expected to increase to around 642 million by 2040.

Source: http://www.dnaindia.com/

NASA unmanned Ikhana aircraft makes history flying without escort

This isn’t your grandma’s drone. NASA’s Ikhana aircraft looks like a full-sized airplane, but there’s something important missing. There’s no pilot on board. The Ikhana passed a milestone for unmanned aircraft by flying in public airspace without a safety chase plane for the first time. NASA got special permission from the Federal Aviation Administration to conduct the test flight. “This historic flight moves the United States one step closer to normalizing unmanned aircraft operations in the airspace used by commercial and private pilots,” NASA says. The plane is remotely operated by a pilot on the ground and is equipped with a host of high-tech systems that help it navigate and avoid mid-air collisions or close calls. The detect-and-avoid technologies include an airborne radar system and a satellite positioning system that broadcasts Ikhana’s position to other planes. Ikhana took off from Edwards Air Force Base in California and cruised at an altitude of 20,000 feet (6,100 meters) through airspace shared with commercial flights. It later descended to a lower altitude shared with general aviation flights.

Source: https://www.cnet.com/

Boeing expands its footprint in aerospace engineering in India

Boeing announced in Bengaluru on its expansion of engineering and technology centre and said it would accommodate another 1,000 new employees to drive aerospace innovation. Boeing India Engineering and Technology Centre (BIETC)

inaugurated recently will work on cutting-edge technologies that will drive aerospace innovation from India, Boeing stated. As the centre grows over the next few years, it will develop into a team of over 2,500 employees in specialized fields of IT, engineering and R&D, it added. With this facility, Boeing is expected to scale up its aerospace, R&D and engineering activities in its existing facilities. The facility will also have an integrated lab for IoT, Analytics and Mobility, a 3DX lab to develop 3D experiences, a systems integration lab and a proof of concepts lab. Over 25 collaboration areas in the centre will enable teams to develop, scale and deliver aerospace innovations with agility. The facility will also drive strategic initiatives like Digital Transformation, the statement claims. The teams will innovate in digital aviation, electrical, mechanical and systems design and provide support for lab and flight testing for aircraft. The company is also developing skills in the Indian aviation sector by partnering with vocational training institutes, industrial training institutes and its local partners to train workers for the aerospace industry.

Source: https://www.stattimes.com/

India to train scientists of countries lacking satellite-building capability

India has decided to train space scientists of countries that lack satellite-building capability. The country announced this initiative during the UNISPACE+50 meeting in Vienna recently. Talking to TOI, ISRO chairman Dr K Sivan, who led the Indian delegation at the four-day summit from June 18, said, “India has taken the initiative to train scientists of countries like UAE and African nations that lack the technical knowhow and capability to build a satellite. India won’t charge for this capacity-building programme but will play a role in short listing scientists for the training programme.” Dr Sivan said, “India will also launch the satellite built by ISRO-trained scientists of a country if the spacecraft is well-built and clears all tests.” The Indian move was welcomed by member countries of UNISPACE+50. “The Indian delegation also had bilateral talks with space scientists of 12 countries, including France, Israel and Japan, on the sidelines of the meeting. The talks focused on enhancing space collaboration.” Some months ago, India had a pact with Israel on development of atomic clocks, electric propulsion for small satellites and GEO-LEO optical links. With France, the country had in March signed an agreement for close collaboration on inter-planetary missions. The discussion on the fringes of the Vienna summit was meant to boost cooperation in these fields. India’s initiative came at a time when the forum commemorated the 50th anniversary of the ground-breaking 1968 UN Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE). The symposium also gave an opportunity to the international community to consider the future course of global space cooperation for the benefit of the humankind. The conference took place around a regular session of the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS), the committee that works on problems from sustainability on Earth through space activities to the sustainable use of space environment.

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

After aid for defence buys, India gifts plane to Seychelles

India gifted a Dornier maritime patrol aircraft to **Seychelles** which will enhance the surveillance capabilities of the island nation. Prime Minister Mr Narendra Modi announced a $100 million line of credit under which Seychelles can purchase military hardware from India. However, confusion remains on the nature of the cooperation between the two countries over the development of the Assumption Island. The Hindustan Aeronautics Limited (HAL) built Do-228 aircraft was formally handed over by External Affairs Minister Ms Sushma Swaraj who presented its airworthiness certificate to the President of Seychelles, Danny Faure who is on an official visit in India. “The handing over of HAL Do-228 to Seychelles reflects the firm commitment and continued engagement of the Government of India in further developing, consolidating and expanding the comprehensive multifaceted cooperation between India and Seychelles,” Ms. Swaraj said at the ceremony. Taking delivery of the aircraft, Mr. Faure called it a “historic day” and said it would bolster the coastal surveillance of Seychelles and provide strategic depth to policing its extensive Exclusive Economic Zone (EEZ). The aircraft is expected to be flown at the upcoming 42nd Independence Day celebrations of Seychelles on June 29. It will be operated by personnel from the Seychelles Air Force who have already been trained on its operation and maintenance. “We have provided hands-on training to the pilots and technical staff from Seychelles. We are committed to extend full-fledged support to the teams involved with its maintenance and operations of the aircraft,” Mr T. Suvarna Mr Raju, CMD, HAL said. This is the second Dornier to be gifted by India to Seychelles after the first one in January 2013. The second aircraft was announced by Mr. Modi during an official to the island nation in March 2015 following which the contracts were signed in March 2017. The Dornier is equipped with a 360 degree surveillance radar, forward looking Infra-red system, satellite communication, traffic collision and avoidance system, enhanced ground proximity warning system and other sensor as requested by the operator. The Do-228 can be used for multiple

purposes like EEZ monitoring, maritime surveillance, pollution monitoring and control, search and rescue and commuter services.

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

NRDC pays royalty to DSIR and CSIR

The National Research Development Corporation (NRDC) has paid ₹ 7.6 crore to the Department of Scientific and Industrial Research (DSIR) as royalty for commercialising their technologies to SMEs, start-ups and corporates for the year 2017-18. The cheque was presented to Mr Girish Sahni, Secretary, DSIR, by Mr H Purushotham, CMD of NRDC at an event for the technology licensing agreement for the technology on 'recycling of waste plastic into useful tiles' developed by CSIR-NPL, New Delhi. NRDC is engaged in commercialisation of Intellectual Properties, Technologies developed by various public funded R&D institutions under different ministries of the Central government. During the last 4 years it has paid ₹ 28 crores royalty to DSIR & CSIR, a press release stated.

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

India supports Russia at Chemical Weapons Meet

India voted against UK at the Special Session of the Conference of State Parties to the Chemical Weapons Convention in Hague in what can be viewed as support for Russian position. It was convened by UK to propose that Organisation for Prohibition for Chemical Weapons (OPCW) should be empowered not just to investigate whether chemical weapons have been used in an incident but also to identify the group or government responsible for it. India voted against UK proposal along with 23 other countries. As many as 82 OPCW member states of OPCW voted in favour of UK proposal. The proposal needed support of 71 member states. 106 members were present. India called for consensus over move to create new mechanism rather than unilateral proposal. Russia, already at loggerheads with the UK over the use of a nerve agent in Salisbury, fiercely resisted the move, saying it will politicise the OPCW. Earlier in an oblique criticism of UK's move for unilateral proposal, India even as it opposed use of chemical weapons, called for constructive engagement, dialogue and unity of purpose at the Convention. Addressing the Special Session in The Hague, Ambassador and Permanent Representative of India to the Organisation for the Prohibition of Chemical Weapons (OPCW), Mr Venu Rajamony had said it is important that the extensive support and universality that the OPCW enjoys is not dissipated, as this would undermine the long-standing credibility of the organisation. India attaches the highest importance to this organisation and has therefore always emphasised the importance of consensus and the need for all decisions to be taken by the members of OPCW in consultation with each other while taking on board different points of view. Mr Rajamony had said while there is unity on the goal, there are strong differences on how to achieve this goal. Any long-lasting and effective solution to the challenges faced by the OPCW can only be found through wide ranging consultations among States Parties. "It is important to maintain the credibility and integrity of the Convention. All investigations of alleged use of chemical weapons should be conducted in an impartial and objective manner and strictly in accordance with the provisions of the Convention, "he said. He urged that all provisions of the Convention be utilised to address these concerns.

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

The F-16 Gives India Great Leverage In Defence Diplomacy

As Boeing Defence's former man in India, Dr Vivek Lall was the visible campaign chief for the F/A-18 Super Hornet in India's erstwhile 126 Medium Multirole Combat Aircraft (MMRCA) jet contest, a contest that spiralled out of existence and resulted in India contracting for 36 Rafale jets with France's Dassault Aviation. the campaign for the F/A-18 was one of the most aggressive during the contest. But while the Super Hornet didn't end up making the cut at the time, Dr Lall is still credited with Boeing Defence's major early successes in India, including contracts for C-17 and P-8I aircraft. After a stint at U.S. firm General Atomics, best known as makers of the Predator family of combat drones, Dr Lall now leads the F-16 campaign at Boeing's rival, Lockheed-Martin, giving him the unique distinction of having led two separate fighter campaigns in India. Responses from Lockheed-Martin and five other entities are expected to be submitted to the Indian MoD. Lockheed-Martin's F-16 Block 70 enters a prospective contest against Boeing's F/A-18E/F Super Hornet, Dassault's Rafale, Eurofighter Typhoon, Saab's Gripen and Russia's MiG-35, an identical pack to the earlier contest.

Source: https://www.livefistdefence.com/

BIG BOOST: 1st Made-in-India Apache Fuselage Delivered Before Schedule

In what will — and should — be seen as a demonstration of local industrial prowess, the first Indian-built AH-64 Apache fuselage has been delivered ahead of schedule, a major contributor to customer satisfaction in the enormously expensive aerospace business. Tata Boeing Aerospace Ltd (TABL), the joint venture between the U.S. and Indian giants, today announced the delivery of the first AH-64 fuselage built at its Hyderabad facility. This first fuselage, which will be transported to Boeing's Apache final integration and test facility in Mesa, Arizona, is understood to be for the U.S. Army. The Indian Air Force is scheduled to begin receiving 22 contracted AH-64E Apache helicopters in March next year. Later fuselages could come from Hyderabad, though initial deliveries will be from Boeing's current fuselage supplier, Korea Aerospace Industries (KAI). According to Boeing, the Hyderabad facility "Will be the sole global producer of fuselages for AH-64 Apache helicopter delivered by Boeing to its global customers including the U.S. Army. The facility will also produce secondary structures and vertical spar boxes for the multi-role combat helicopter." The early delivery of the first Indian Apache fuselage is hugely significant, coming as it does at a time when the government's Make in India campaign remains under harsh scrutiny on what it has really been able to deliver, years after its high profile unveiling. On the other hand, the achievement comes from the Tata stable, a group that has slowly but robustly built up a reputation for efficiency in the difficult defence space, managing to forge sourcing and manufacturing partnerships with practically every major airframer in the world, including Lockheed-Martin, Airbus, Saab and Sikorsky. The true test of the Make in India template will be in India's quest for new fighter jets, a contest in which Tata teams up with Lockheed-Martin for the F-16, while Boeing has partnered with HAL and Mahindra Defence. Early deliveries usually translate into hundreds of thousands of dollars in savings, and are generally transferred to buying customers. For instance, the Indian government benefited from nearly $10 million in cost savings on its acquisition of C-130J Super Hercules transport aircraft as a result of early deliveries to Lockheed-Martin from its airframe suppliers. Boeing and Tata will be looking to sustain the tempo of early deliveries, a major incentive and draw for further orders and industrial work from the Hyderabad facility. The wave of confidence it sends out at a time of spiralling costs will be timely too. "This is a major step forward in Boeing and Tata Advanced Systems' continued commitment to make advanced, high quality aerostructures in India," said Mr Pratyush Kumar, president, Boeing India. "Our investments in technology, capability and skilling are clearly paying off as evident from the quality and speed at which this delivery milestone has been achieved. As we accelerate our efforts, we see this as a major step towards future opportunities to pursue the co-development of integrated systems in aerospace and defence." Mr Sukaran Singh, Managing Director and Chief Executive Officer, Tata Advanced Systems, said, "The timely delivery of the AH–64 Apache helicopter fuselage marks a milestone in our collaborative journey with Boeing. Our partnership reflects a continued commitment to develop aerospace and defence manufacturing ecosystem in India. The delivery of the fuselage within a year of the facility being operational is a huge boost to indigenous manufacturing and also demonstrates our commitment to deliver high quality products within a short span of time." India's total fleet of AH-64E Apaches could go up to 61 units, depending on decisions made following the delivery of the original 22 for the IAF and six for the Indian Army.

Source: https://www.livefistdefence.com/

Taiwan would love to buy Brahmos among other weapons to defend itself against china

No country is more threatened by China's growing military and economic power than the island of Taiwan. Beijing has always considered Taiwan a renegade province that it vows to once again control. For most of their history since 1949, however, China did not have the military power to conquer Taiwan by force. Indeed, for many decades Taiwan's military was qualitatively superior to the mainland's. Furthermore, even after the United States established diplomatic relations with the People's Republic of China, it has promised (somewhat ambiguously) to defend Taiwan from a Chinese invasion. This was often backed up in action such as when Bill Clinton sent two U.S. aircraft carriers into the Taiwan strait after China tried to intimidate Taipei with missile tests around the island in the mid-1990s. The dynamics between Taiwan, China and the United States are changing rapidly as a result of Beijing's meteoric rise. Making matters worse, President Mr Xi Jinping has taken a much more aggressive stance towards Taiwan since he took power This has included increasingly frequent and intense military exercises around Taiwan. After decades of double-digit growth in its defence budget, China's military is now vastly superior to the Taiwanese armed forces. Nonetheless, conquering Taiwan would not be a walk in the park for China. The reason is simple: Beijing would need to mount an amphibious invasion. Amphibious invasions have always been among the most difficult military operations to pull off, but this is especially true in the era of precision-guided missiles and stealth submarines. Still, Taipei desperately needs to strengthen its military capabilities, and doing so could be best achieved by looking abroad. Here's three weapons that Taiwan could purchase to defend itself against a superior Chinese military.

BrahMos Anti-Ship Missile

Besides submarines, the centrepiece of any Taiwanese A2/AD strategy would be anti-ship missiles (ASM). Although Taiwan already has ASMs, it could use an upgrade. Unfortunately, the United States has let its capabilities in this area lag in recent decades. Although Washington is trying to rectify this with the Long-Range Anti-Ship Missile (LRASM), this missile is still being developed. Plus, it is only being built for air and ship-launched purposes at this time. Enter the BrahMos, a supersonic missile jointly developed by Russia and India. Although variants of the missile have now been developed for all sorts of missions, it began as an ASM. It is also extremely diverse, with land, ship, and air-based ASM variants. As far as capabilities, BrahMos Aerospace, the joint organization created to develop the missile, explains that it is a "two-stage missile with a solid propellant booster engine as its first stage which brings it to supersonic speed and then gets separated. The liquid ramjet or the second stage then takes the missile closer to 3 Mach speed in cruise phase. Stealth technology and guidance system[s] with advanced embedded software provides the missile with special features." Along with its high-speed and stealthy features, it flies close to the ground to evade enemy defences. It usually carries a two-hundred-kilogram warhead, although the air-launched variant can carry a three-hundred-kilogram one. But Brahmos' greatest advantage remains its incredible speed. As Mr Kyle Mizokami has explained: "The missile's speed of Mach 2.8 translates to 952 meters per second. Assuming the defender's radar is mounted at a height of twenty meters; Brahmos will be detected at a range of twenty-seven kilometres. This leaves the defender with just twenty-eight seconds to track, illuminate and shoot down Brahmos before it impacts the ship." It does have a limited range of roughly 180 miles, but this should be sufficient given Taiwan's proximity to China.

Won-Il-Class Submarines

Taiwan's best approach for stopping a Chinese invasion is to pursue an anti-access/area-denial (A2/AD) strategy. And, as other countries like Japan and Vietnam have correctly surmised, an A2/AD strategy against China should make heavy use of submarines as Beijing's anti-submarine warfare (ASW) capabilities have traditionally been fairly weak. In the scenario considered in this article, Taiwan's submarines would lie in wait and pick off Chinese naval ships, including those transporting troops for the invasion. They could also protect the Taiwanese homeland by taking out Chinese land targets such as missile systems. Taiwan's undersea capabilities have atrophied in recent decades in part because no country has been willing to sell it submarines for fear of Chinese reprisals. But for this exercise we can ignore these political realities. Thus, while ultimately it is more likely (although still unlikely, if the recent past is any guide) that a country like Japan or a European country would sell Taiwan submarines, here we go with a South Korean boat. Tokyo's Soryu-class submarines are much larger and capable but also more expensive. Since Taiwan wouldn't need its submarines to operate far distances, it makes sense to go with larger numbers of smaller and less capable boats. Plus, Won-Il-class vessels are no pushovers. Based on Germany's Type-214 submarines, the vessels displace about 1,800 tons with a length of 213 feet and a width of twenty-two feet. Unlike South Korea's Chang Bogo -class boasts, Won-il-class subs are equipped with Air Independent Propulsion (AIP), which allows them to stay submerged for about two weeks (roughly twice as long as the Chang Bogo -class). They also have a diving depth of 1,312 feet, and their underwater speed is reportedly about twenty knots. The ISUS-90 submarine combat systems allows the Type 214 vessels to engage three hundred targets simultaneously. And they reportedly can "operate various missions such as anti-ship, anti-air and anti- submarine warfare as well as ship-to-land precision strikes with cruise missiles." This means that while their main objective would be to sink Chinese ships, they could also conduct targets on the Chinese mainland. For instance, South Korea's Won-il-class subs are equipped with the Haeseong-3 missile, a supersonic, stealth precision-guided ship-to-surface missile with a range of 1,500 kilometers. Seoul would use these to target key North Korean missile sites in the event of a conflict. Taiwan could similarly target Chinese missile sites.

Terminal High Altitude Area Defence

That would be important because one of the biggest threats that China poses to Taiwan comes from its extensive missile arsenal. According to Taiwan's Defence Ministry, Beijing keeps roughly 1,500 missiles pointed at the island nation at all times. In the opening salvo of a conflict, China would rain missiles all over Taiwan in anticipation of an invasion. Given the sheer numbers involved, there is no way Taiwan can protect the entire country from Chinese missiles. But not all parts are equally important. China is likely to target key parts of Taiwan's defence capabilities, such as command and control centers, Taiwan's aircraft and airstrips, and its air defence and missile systems. Enter America's Terminal High Altitude Area Defence (THAAD). As the name implies, THAAD is designed to destroy missiles in their terminal (Final) phase whether inside or outside the atmosphere. That is ideal given the short distance missiles would be travelling from China to Taiwan. Each THAAD battery comes with six launchers with roughly eight interceptors per launcher. Thus, each THAAD battery should have at least forty-eight interceptors, although Lockheed Martin, which manufacturers the system, has claimed there are actually seventy-two interceptors per battery. While all missile defence systems are highly imperfect, THAAD has proven better than most in testing. The system doesn't have great range but it wouldn't need to. For Taiwan's purposes, THAAD would simply be deployed near key assets to prevent

them from being destroyed at the beginning of a war. For instance, having a THAAD battery near important air strips could allow its fighter jets to disperse rather than be destroyed on the ground. THAAD is also mobile and therefore less vulnerable to Chinese missile attacks.

Source: http://www.indiandefensenews.in/

Our Defence ties have never been stronger, says french ambassador to India Alexandre Ziegler

In 2016 India inked an agreement with France to acquire 36 Rafale multi-role combat aircraft to boost the depleting squadron strength of the Indian Air Force. Collaboration had already begun by then with the French Naval Group for six Scorpene-class submarines. Mr Manish Kumar Jha of BW Businessworld chats with French ambassador to India Mr Alexandre Ziegler on the growing ambit of the defence partnership between the two countries. Excerpts:

Do you see any substantial change in the business of defence in India since 2014?

Defence ties between India and France are strong and very old, dating back to India's Independence. More than in any other sector, they must be based on a very solid relationship of trust and an identical concept of strategic independence. We have already done a lot together, not only on industrial cooperation, but also on operational aspects. Together with India, we are currently developing a strong operational cooperation in the field of maritime security in the Indian Ocean, which will also uphold our technological and industrial partnerships. Our partnership is a long-term partnership. When you engage in a program like the Rafale, for example, you commit to the next fifty years. This is to say how much our defence relationship has always been, is and will be trans-partisan. This is what characterised our strategic partnership, since its inception in 1998. The main armament contracts signed in recent years between our two countries (Scorpene in 2005, renovation of Mirage 2000 in 2011 and 2012, Rafale in 2016) have been concluded with different governments both in India and France. But it is true that our defence ties have never been stronger than today and the State visit of the President of the French Republic to India in March has given it a new impetus. I would especially mention the Indo-French collaboration in the Indian Ocean, around which we are developing a very ambitious partnership of security and defence. There is also a growing emphasis on Make in India and technology transfer, not just offsets, but through the consolidation of long-term industrial partnerships between our defence companies and their Indian partners.

French shipbuilding conglomerate Naval Group has a partnership as part of a transfer of technology (ToT) arrangement with Mazagon Docks Shipbuilders Limited (MDL) for the $3.75-billion 'Project 75' (P-75 I). What is the progress so far?

The P-75 Scorpene program has given us extensive experience in working with Indian industry to produce modern and high performance submarines. The delivery of the first Scorpene-class submarine, Kalvari to the Indian Navy late in 2017, is greatly illustrative of this exemplary strategic and industrial partnership. The second Scorpene, the Khanderi, is completing its trials at sea and the third was launched early in the year. The program is proceeding satisfactorily and in total six Scorpenes should equip the Indian Navy by 2022. We obviously wish to continue and deepen this partnership in the field of submarines. The French group, Naval Group, responded favourably to the request for information on the Project 75 India project issued in mid-2017, proposing a new design, even more efficient than the Scorpene, with the best available technologies and weapons package, perfectly suited to the high ambitions of the Indian Navy.

What comes next in the sphere of Indo- French collaboration?

It is up to India to decide whether or not to pursue its acquisitions, and with which partner. In the field of combat aircraft, Dassault Aviation responded favourably to the Navy's request for information to supply 57 multi-role fighters onboard with the Rafale M, which equips the French aircraft carrier, Charles de Gaulle. Dassault Aviation is also studying the information request recently issued by the Air Force for 110 multi-role combat aircraft. France is currently participating in several other major competitions, including missiles (MBDA Mistral missiles for the VSHORADS competition), artillery (Nexter Group's Trajan system for the TGS competition), or helicopters (responses from Airbus Helicopters to the NUH and NMRH requests), in partnership with the Indian public and private companies.

How could the defence ecosystem in India be made more proactive?

We have a sustained dialogue with the Indian authorities on all matters concerning the development of our cooperation around the defence industries. Sixty years ago, with General de Gaulle, France decided to opt for strategic sovereignty.

Over the years it helped establish a strong and autonomous defence industry which must also be maintained by significant investments year after year. India has also made the choice of developing a strong, self-sustaining defence industry.

Is there any update on the Rafale G to G program?

The signing in September 2016 of the Inter-governmental Agreement on the acquisition of 36 Rafale aircraft by India has been a major breakthrough that paves the way for unprecedented industrial and technological cooperation between our two countries for the next 50 years. We are working to implement it as soon as possible, to the satisfaction of both parties. Contractually, the first Rafale will be delivered to India in September 2019. The state-to-state framework of this contract guarantees India the full involvement of France in its implementation, in the level of performance expected by the Indian Air Force and in keeping with the delivery schedule.

Source: http://www.indiandefensenews.in/

Tejas gears up for Aerial Refuelling

The Light Combat Aircraft Tejas is all set to commence its Air-to-Air Refuelling (AAR) flight trials. Aeronautical Development Agency has been carrying out various tests regarding the AAR for the past few months which have been successful. But, the process is a challenging one, and hence, it is very much important to make it flawless. All the simulated ground tests have been successfully completed as Tejas was refuelled by placing it at various attitudes. The technical integration for AAR has been completed and the trials were commenced on the ground. We expect to make Tejas ready for air-to-air refuelling by May. Once Tejas achieves the operational aerial refuelling capability, it will help the fighter to extend its flight duration considerably, says Dr. Girish S Deodhare, Program Director (Combat Aircraft) and Director, Aeronautical Development Agency (ADA) Dr. Girish S. Deodhare is the Program Director (Combat Aircraft) and Director, Aeronautical Development Agency (ADA), the nodal agency for the design & development of LCA. He did his B. Tech in Electrical Engineering (1984), M. Tech in Controls and Instrumentation (1986) both from IIT Bombay and Ph.D. (1990) in Control Theory from University of Waterloo, Canada. He has started his career in DRDO as Scientist in Centre for Artificial Intelligence and Robotics (CAIR), Bangalore from 1990 till 2007. In March 2007, he has joined the Aeronautical Development Agency as Scientist 'G'. He has been elevated to Outstanding Scientist/Sc 'H' in July 2012. He is a Lead Member of the National Control Law (CLAW) team for LCA and is Project Director (CLAW) since 2016. In 2013, he has taken over as the Technology Director (Integrated Flight Control Systems), ADA and held additional charge of Associate Program Director (New Programs and Systems Engineering) from 2015. He is involved in the design and development of flight control systems for the Indian Light Combat Aircraft using both classical and modern control synthesis techniques. On April 28, 2017 he has taken over as the Program Director (Combat Aircraft) and Director, ADA to lead the Tejas (LCA) program.

1. Could you share the latest developments on the LCA Tejas program?

The LCA Tejas program is having a very fast progression. Currently, we are focusing on increasing the flying rate of the Mk1 aircraft to 60 flights every month. We expect to get the Final Operational Clearance (FOC) for the Mk 1 by June-July 2018. Most of the tasks for the FOC are in the final stage and the rest will be completed soon. Some of the tasks under focus are the completion of integration of all FOC weapons including flight envelope expansion with the Derby BVR missiles. The software fine tuning for complete carefree manoeuvring is also in progress. Hindustan Aeronautics Limited (HAL) and ADA are working together to speed up the FOC activities. The experienced IAF/IN pilots of National Flight Test Centre (NFTC), who have been involved in flight testing the aircraft from day one, are continuously improving the flight capabilities with their inputs and suggestions. Another important task we are working on now is the AAR of Tejas. We have been carrying out various tests regarding the AAR for the past few months and have been successful. But, the process is a challenging one, and hence, it is important to make it flawless. The technical integration for AAR has been completed and the trials have been commenced on the ground after initial carriage flight trials. All the simulated ground tests have been successfully completed as Tejas was refuelled by placing it at various attitudes on the ground. This was to monitor the pressure at which the fuel is pumped into the aircraft. The aerial refuelling must be done without taking much time. We are very much careful about even minute things that should be considered during the process. We expect to make Tejas ready for air-to-air refuelling by May. Once Tejas achieves the operational aerial refuelling capability, it will help the fighter to extend its flight duration and endurance considerably. Last year in December, HAL has confirmed the order of 83 aircraft of Mk 1A configuration in addition to the earlier 40 aircraft. From the 124th aircraft onward, LCA Mk II will enter service. It will be a bigger aircraft with a higher capacity engine, higher

range and payload capacity, improved aerodynamics etc. The Mk II project is in the detail design stage. We have received the approval to prove unmanned technologies like auto take-off and landing on LCA for future uses. The unmanned version will sport Flush Air Data Systems technology for stealth feature. The design of the front also will be modified. The project will begin immediately after receiving the FOC for Mark 1.

2. Could you elaborate on the plans to upgrade the weapons capability and advanced technologies of LCA Tejas? What is the future roadmap for LCA Tejas?

We are planning to enhance the combat capabilities of the Mk 1A by integrating new weapons. Tejas has already completed precision bombing with laser-guided 1,000lb bombs and unguided bombs. The integration of Rafael's Derby fire-and-forget missile will be completed soon, and it will serve as the Tejas' initial medium range air-to-air armament. The integration of Active Electronically Scanning Array (AESA) radar is underway, and it is expected to be done soon. The AESA radar will improve air-to-air superiority and strike missions and to achieve long detection ranges and multi-target tracking capabilities. The Mk II is being designed to sport an array of upgraded weapons system along with all sensors and will be capable of carrying all futuristic indigenous weapons. The major thrust of the aircraft will be its ability to carry missiles like Astra and BrahMos. It will have Software Defined Radios (SDR) and all equipment to wage electronic warfare. The Mark II will be much superior in terms of its combat capabilities and will belong to the Medium weight class.

3. Kindly share your thoughts on increasing the annual production of LCA Tejas to meet the requirements of IAF.

ADA is helping HAL in every possible way to increase the production of LCA Tejas. In fact, we conduct coordination meetings every day to discuss on accelerating the project and secure the FOC at the earliest. Meetings are also held with members of LCA Squadron to get suggestions from them regarding what should be improved in terms of design. HAL has opened its new assembly line and it will increase the rate of production. In the case of MK II, it will be easier for HAL to manufacture it as ADA is making a production-friendly design for the aircraft. We are leveraging the experience got from the Mk 1 and Mk 1A. Now, the designers are familiar with the production processes and they know its challenges. Hence, we are focusing on a design for manufacture for the Mk II. Also, it will make the maintenance process easy.

4. Are there any further plans to promote the Make in India program of the Central Government through the absolute indigenisation of more vital components of Tejas?

The indigenisation of the components of LCA Tejas is one the major thrusts at present. The production of Tejas is closely on the line of promoting the government's Make in India program. Initially, the idea was to develop a new light combat aircraft indigenously to prove the technology. Hence, in the beginning we had to rely mostly on proven imported components. But now, more than 60% of the LRUs of Tejas are indigenously made. We are also aggressively encouraging the vendors/developers who are ready to take up the development of the components. For the Mk II, we will provide completely upgraded Flight Control Systems, avionics, sensors etc. of which the indigenous development has already started.

5. Tejas is acclaimed as the lightest and smallest multi-role supersonic fighter aircraft. How does Tejas outweigh its rivals in this segment?

LCA Tejas is the smallest and lightest Multi-Role Supersonic Fighter Aircraft of its class. This highly manoeuvrable combat aircraft is designed for specific roles. Tejas is often compared to JAS 39 Gripen of Sweden, Pakistan's JF-17 Thunder etc. Every aircraft is built for a specific purpose. Hence, it is not easy to compare them with each other and reach on a conclusion on the better one. But, taking into consideration Tejas's far superiority in terms of avionics, digital flight control systems, advanced digital cockpit and manoeuvrability, it is competitive enough to lock horns with any of the multi-role aircraft in its class.

6. The Naval Version of LCA for operation from Aircraft Carriers has successfully completed its test flight. What are the latest updates on this project?

The naval version of Tejas has completely mastered the ski jump, take-off from aircraft carriers, even at night time also. But, the arrested landing of the aircraft is still a challenge to be overcome. The hook for the arrested landing has been

integrated and we are now progressing towards demonstration of arrested landing. We expect to prove Carrier Compatibility of Tejas by the end of the year.

7. Kindly shed more light onto the Advanced Medium Combat Aircraft project of ADA

The Advanced Medium Combat Aircraft (AMCA) is a 5th generation fighter concept. The feasibility study of the AMCA has been completed and a feasible configuration has been evolved. The design of AMCA will meet the requirements specified by the IAF. The AMCA will feature a twin-engine and single-seat layout. It will have inherent stealth mode and will be able to carry advanced weapons. Initially it is planned to build two Next Generation Technology Demonstrators (NGTD). These will leverage the existing technology of the LCA to achieve the target of first flight within five years.

8. What are the vision, goals and priorities you have set for the Aeronautical Development Agency (ADA) during your term as the Director? What are the new initiatives?

These are exciting times for aerospace industry. ADA is fully confident about developing the optimal design for aircraft that will bolster the Indian defence sector. When we started the LCA program the most often heard question was “Can you make an aircraft?”. But, we have proved the capabilities by presenting a fully operational LCA Tejas. Now the question is “How long will it take to make an aircraft?”. We are backing the HAL in the production of Tejas by providing design-friendly design and essential up gradations. Our focus is currently on the LCA Mark II, along with giving equal importance to the production of Mark 1A. The development of AMCA is another priority. A lot of youngsters have joined ADA’s design team. We are focusing on transferring the rich experience of our senior designers to the younger generation to make them capable to take up the projects efficiently in future. ADA is also promoting the involvement of women scientists and more than 40% of the designers are women. The government policies are giving a huge impetus to aerospace industry in India. With the support of the government, we are confident to take the industry to further heights.

Source: http://www.indiandefensenews.in/

TECHNOLOGY

ATIRA-made composites to lighten ISRO satellites

Soon, satellites launched by the Indian Space Research Organization (ISRO) will be significantly lighter, as several metal parts will soon be replaced by composite textiles, manufactured by the Ahmedabad Textile Industry Research Association (ATIRA). Union minister of textiles, Ms Smriti Irani, inaugurated the Vacuum Assisted Resin Infusion Centre (VARIC), which will manufacture these spacecraft parts using carbon composites. Mr R M Sankar, Assistant Director of ATIRA, said, “VARIC has been established with a Union government grant of Rs 25 crore, to manufacture carbon composites. Carbon fabric is infused with polymer resin, to give high durability. These composites are light, have high heat resistance and durability and are suitable for space applications.” According to experts at ATIRA, replacing metal parts of satellites with composites will bring down weight significantly. This in turn helps cut launch costs. “A satellite cost roughly Rs 500 crore. Of this, 80% is the cost of electronic components while 20% is structural expenses. We can help reduce the latter. Reducing every kilogram of satellite weight brings down the launch costs by Rs 10-15 lakh per unit,” said Dr T Gangopadhyay, deputy director (composites) at ATIRA. Ms Irani said, “ATIRA has been instrumental in furthering the Union ministry of textiles’ vision to improving fabrics to create a better finished product and make India a global hub of technical textiles.” Scientists at ATIRA have so far designed parts such as reflectors, the outer cover of the satellite, feed horn and camera structure. This has already been done for GSAT-VI, X and XI and Chandrayaan, said Mr Sankar. “Currently, ISRO had provided a list of 26 satellite parts that can be made using carbon composites. We’re exploring possibilities on how many are feasible,” he added. Ms Irani also inaugurated the Materials and Product Innovation Centre (MAPIC), which has been established after a memorandum of understanding was inked between the National Institute of Design (NID) and ATIRA, to encourage collaborative multi-disciplinary R&D work at the national level.

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

ISRO gets nod for semi-cryogenic engine, will boost GSLV's lift capability by 1 tonne

The Space Commission has given approval to Indian Space Research Organisation (ISRO) to develop a semi-cryogenic engine, which will increase the lifting capability of its GSLV Mk III rocket by one tonne. Talking to TOI about the new project, ISRO chairman Dr K Sivan said, "After a presentation before the Space Commission, ISRO has got the approval for developing the semi-cryogenic rocket stage. The deadline to develop this stage is 29 months. Once the stage is ready, the carrying capability of GSLV Mk III will increase from the existing four tonnes to five tonnes." Explaining the project, Dr Sivan said, "A GSLV Mk III rocket comprises two strap-on boosters (to provide thrust during a launch), middle stage that carries liquid fuel nitrogen tetroxide and unsymmetrical dimethylhydrazine, and the second stage, which consists of a cryogenic engine. Once the semi cryogenic stage is developed, we will simply replace the middle liquid fuel stage with it. The new stage is likely to be an exact fit and the rocket will look like the earlier one from outside." He said, "The first launch of ISRO's heaviest rocket GSLV Mk III DI last year carried 3.1 tonne weight. The second launch of Mk III D2, scheduled in July this year and which will carry Gsat-29 satellite will have the load capability of 3.7 tonnes. We can easily raise the weight up to 4 tonne. With the semi cryogenic stage, the same rocket will be able to carry the load up to five tonne. With the increased capability, we don't have to depend on foreign spaceports to launch our satellites weighing over 5 tonnes." Dr Sivan said, "ISRO's satellites will now track the production of 25 crops from earlier eight crops. The satellite forecast about the crop acreage and production helps farmers and the government plan better management of the yield." ISRO has over a dozen remote-sensing satellites like Cartosat, Resource sat and Risat-1 for agriculture forecast and other social welfare applications. However, the demand for such applications in recent times has increased and therefore the space agency is planning to launch six more satellites dedicated to land and water, cartography, oceanography and environment.

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

SpaceX hopes to launch 4,000 satellites, mostly from Florida, NASA report says

SpaceX has plans to launch more than 4,000 satellites, the majority of which will head into space from the Space Coast, according to an environmental impact study done by the Elon Musk-led company and NASA. If it comes to fruition, the work would further solidify Cape Canaveral as the world's busiest private launch center. Buried in a 73-page study released in April was a reference to a project SpaceX has been pursuing that would establish a constellation of small, Internet-beaming satellites for the company. SpaceX has been working toward launching up to 4,425 satellites, the building blocks of a project called Starlink that could end up providing near-global access to Internet services. The company sent two demonstration satellites into space from Vandenberg Air Force Base in California in February. SpaceX officials did not return emails seeking comment but did provide a statement about its Florida plans. "As SpaceX's launch cadence and manifest for missions from Florida continues to grow, we are seeking to expand our capabilities and streamline operations to launch, land and re-fly our Falcon family of rockets." SpaceX received FCC approval in March to provide broadband services to consumers, marking the first time the agency had given the OK to a business seeking to do so through low-Earth orbiting satellites. The project is expected to bring 150 construction jobs to the Space Coast, along with 70 SpaceX employees. "The Proposed Action is not expected to cause appreciable changes in the overall traffic volume at KSC, however, some components could affect the level of service at intersections or roadways both on and off the Center," an environmental impact study said. In the same study, SpaceX explored the environmental impact of a project that would ramp up the space company's presence in Florida. The company has plans to build a 133,000-square-foot rocket refurbishment facility, a rocket garden that would display recovered rockets, a 32,000-square-foot control center and utilities yard. The facility would be located between the Kennedy Space Center's visitor complex and the famed Vehicle Assembly Building, just west of Kennedy Parkway along Roberts Road, according to materials supporting the study.

Source: http://www.orlandosentinel.com/

Water aerodromes to be a reality soon

Airports on water, where seaplanes and amphibian aircraft can land, will soon be a reality in the country with the Directorate General of Civil Aviation (DGCA) issuing licensing norms for setting up 'water aerodromes'. A 'water aerodrome' is explained in the latest Civil Aviation Requirement (CAR) as a "defined area on water, including any buildings installations and equipment, intended to be used either wholly or in part for the arrival, departure and movement of ... The DGCA issued the CAR last following the growth of aviation industry and India is expected to witness an increase in the area of aircraft operations including seaplanes, particularly due to Regional Connectivity Scheme

(RCS). “This will also require operation of seaplanes from coastal/river/canal as well as terrestrial water bodies. Thus there is a necessity to regulate these water bodies for seaplane operations on regular basis through license by DGCA,” the CAR said. The water runway shall be free from large obstructing coral rubbles to a definite depth and located inside protected waters which are safe to use during landing or take-off by a definite aircraft. The water aerodrome should have an ‘Accountable Manager’, who will be in-charge for the operations and maintenance of the facility. Anyone seeking to set up a water aerodrome has to take approvals from various authorities, including the Defence, Home, Environment and Forests and Shipping ministry. Kerala, Maharashtra and Gujarat have already expressed keenness in starting large-scale seaplane operations. Last year, no-frills carrier SpiceJet had announced that it has signed a Memorandum of Understanding with Japan’s Setouchi Holdings to buy up to 100 amphibian aircraft, which can make a landing both on land and water, in a deal valued at $ 400 million.

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

Taking technology to the common man: CSIR-SERC

For over a year now, the CSIR-Structural Engineering Research Centre (CSIR-SERC), Chennai, has developed geopolymer concrete (GPC) building block technology. “This technology will bring down the use of water necessary for curing and also time required for curing. It is a green alternative to cement since in the production of cement,” said Mr P.S. Ambily, senior scientist, Advanced Materials Laboratory, SERC. “For the production of each kilo of cement, 0.8 kilo of CO2 is released into the atmosphere. Materials like flyash and slag are used in GPC as aggregate,” explained Mr. Ambily, whose team has developed the technology. Recently, during the institution’s foundation day, the technology was transferred to Kiran Global Geocements Ltd, a private company, which is expected to begin commercial production shortly. “Flyash obtained from thermal power stations that use coal, granulated slag from blast furnace (from steel plants) and geoactivator (which is a bonding agent) are the major materials that will go into making the blocks. Since alkaline materials are used, it will increase longevity. It will also bring down costs by at least 10%,” said Mr S. Singaravelu, managing director of the company. Mr Santhosh Kapuria, Director, CISR- SERC said that GPC blocks can be extensively used in buildings, footpaths, parking lots and even in landscaping.

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

Bezos’ blue origin planning commercial space flight in 2019

While SpaceX has postponed its space tourism plans, the Amazon founder’s company will sell tickets for commercial flights next year While the Elon Musk-founded SpaceX is hitting all the headlines on future space travel, Amazon chief Mr Jeff Bezos-owned Blue Origin is catching up fast, aiming to sell tickets for commercial flights to space next year. Both SpaceX and Blue Origin are in the race to develop reusable rockets and are part of NASA’s sub-orbital reusable launch vehicle flight contract. Powered by Amazon Web Services’ (AWS) high-performance computing, artificial intelligence (AI) and machine learning (ML) capabilities, Kent, Washington State-based Blue Origin is aiming to solidified its mission to see “millions of people” working and living in space. “We need to dramatically cut down the cost to send humans in space so that we can expand humanity in our solar system. To begin this journey, we plan to sell tickets for commercial flights from next year,” Mr Rob Meyerson, senior vice president at Blue Origin, said at an AWS summit. “Setting up colonies on the Moon and other planets is our primary target and we will need large payloads for surface landing. We are building the appropriate technology for that,” Mr Meyerson informed. The statement is in line with US President Donald Trump’s directive to put NASA on a path to lead the return of Americans to the Moon. Meanwhile, SpaceX has postponed its plans to send space tourists this year to circle the Moon, owing to technical and production challenges. Another space junkie and Virgin Galactic founder Sir Richard Branson in May said he is training to become an astronaut and will be one of the first space tourists “within months”. In Blue Origin’s kitty is New Shepard – a fully reusable vertical takeoff, vertical landing (VTVL) space vehicle, consisting of a pressurised capsule atop a booster that can be reused at least 25 times. Named after the first American in space, Alan Shepard, it can carry six astronauts to spend three minutes in a high-quality, microgravity environment at an apogee of over 100 km. April 30 marked the company’s first test-flight of New Shepard in 2018 and second flight of the New Shepard 2.0 spacecraft. Blue Origin launched New Shepard to a target altitude of about 107 km, slightly higher than the typical target of about 100 km. It was Blue Origin’s eighth spaceflight since the company began flight testing New Shepard. “The sub-orbital space tours will make a good market for us and our customers are very excited. Once we become the most-skilled reusable rocket company in the low-orbit, we can plan to go further, deeper into the space,” the Blue Origin executive noted. The company is currently hiring principal technologists and talent in machine learning and data learning who can help the company make a long and viable space road-map. 3D printing or additive manufacturing is crucial for the development of new materials and the company has deployed the technology for rocket propulsion

and cryogenic systems. The company is now working on a larger rocket called New Glenn that could directly compete with SpaceX for commercial launch contracts, which is expected to be ready by 2020. Mr John Glenn was the first American to orbit the Earth. Featuring a fully reusable first stage, New Glenn will carry people and payloads routinely to Earth orbit. Blue Origin is constructing a state-of-the-art facility to build, integrate and launch New Glenn on Florida's Space Coast.

Source: https://punemirror.indiatimes.com

DRDO's unique surveillance system to guard border at high altitude

Surveillance along the border, which has been a concern for the security forces, can now be intensified with a new system developed by India's premier Research and Development agency - Defence Research and Development Organisation (DRDO). The border surveillance system designed and developed by Defraud based Instruments Research and Development Establishment (IRDE) has many unique features for monitoring border areas at high altitude. The system facilitates monitoring and surveillance of border areas by automatically detecting intrusion. It helps ease patrolling in harsh zero temperature areas and providing the armed forces the much-needed relief. A defence official said after successful trials, the system was deployed along the border in Leh and Ladakh region on a pilot basis. It has now been upgraded and made robust to deliver desired results. It will be deployed at high altitudes for day and night all-weather surveillance, he said. The system consists of electro-optic payload along with radar powered by hybrid energy source and a control station for remote surveillance. It can cover unmanned installation with 20 km remote operation capability. Powered through hybrid power source and equipped with advanced image processing feature for hassle-free surveillance, the system is open for networking. It meets all parameters of armed forces during all weather conditions. "All weather surveillance units have been developed first time for unmanned posts with 20 km remote operation capability. It provides electronic surveillance solution for high altitude border areas exposed to sub-zero temperature," the official informed. The tracking system can be stored at 55 degree Celsius to minus 40 degree and can operate at 55 degree Celsius to minus 30 degree. It can relay the real-time video and data at a distance of 20 km to control station through wireless and fibre optic link. It consists of battlefield surveillance radar and electro-optics payload mounted on the pan-tilt unit kept at the observation tower. The payload has thermal and day camera, eye-safe laser rangefinder and medium wave infrared thermal imagers, global positioning system and digital magnetic compass. "Integrated with de-icing and de-fogging module and security camera, it can record activities for 14 days on site. The best feature is it can change detection. A successful border surveillance mechanism can deter and control illegal immigration, smuggling and trafficking besides intrusion," the official added.

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

BUSINESS

Boeing ties up with Safran to push into aircraft services business

Plane maker Boeing Co will partner with French aerospace firm Safran SA to make and service aircraft auxiliary power units as it uses some its profit from record jet sales to push into other lucrative aerospace segments. Boeing and rival Airbus SE are branching into more profitable services, in a bid to emulate the wider margins of third party suppliers who traditionally control the market for repairs and services. Safran already makes APUs, which are used to start aircraft engines and run other systems, and competes with Honeywell International Inc and United Technologies Corp - the two leading manufacturers of such power units. "This move will strengthen Boeing's vertical capabilities as we continue to expand our services portfolio and make strategic investments that accelerate our growth plans," Boeing Chief Financial Officer Greg Smith said. The alliance with Safran comes about a month after the world's biggest plane maker said it would buy aerospace parts company KLX Inc to expand its aircraft services business. The partnership will not affect Safran and Boeing's 2018 forecasts and plans to return cash to their shareholders. Safran currently supplies a wide range of components to Boeing's commercial and defense programs. It also has a partnership with General Electric Co to make LEAP-1B engines for Boeing's 737 MAX. Boeing has been riding on strong demand for commercial jets, selling a record number of jets in 2017. In April, the company raised its full-year earnings and cash flow forecasts.

Source: https://in.reuters.com/

Honda targets high-flyers with domestic launch of HondaJet

The HondaJet compact plane has already proved a winner in North America and Europe, and now Japanese high-flyers will also have the chance to travel in the comfortable, fuel-efficient jets. Honda Motor Co. announced on June 6 that it has begun taking orders for the aircraft that can accommodate up to seven people and is characterized by its engines sitting above the wings. It has a flying distance of 2,661 kilometers, meaning business travelers can fly from Tokyo's Haneda Airport to Beijing or Taipei without refueling. Manufactured by Honda Aircraft Co., a Honda Motor subsidiary, the HondaJet will be priced at $5.25 million (about 577 million yen). Time will tell if the aircraft can take off among Japan's business community as it has in the West. According to the Japan Business Aviation Association, there are about 90 small jets operating in Japan in both the private and public sectors. In contrast, the United States, the world's largest market, has about 13,000 small jets. Honda Motor founder Soichiro Honda declared in 1962 that his company would develop a light aircraft. Production of the HondaJet began at a U.S. plant in 2012, and the first aircraft was delivered in 2015. Forty-three of the plane were sold in 2017, making it the best-selling aircraft weighing 5.7 tons or less.

Source: http://www.asahi.com/

ISRO to Transfer Lithium Ion Cell Technology for Rs 1 Crore

Indian space agency ISRO announced it has decided to transfer its own lithium-ion cell technology to Indian industry on a non-exclusive basis for usage in automobiles for Rs 1 crore. In a statement, the Indian Space Research Organisation (ISRO) said the initiative will accelerate the development of indigenous electric vehicle industry. The Vikram Sarabhai Space Centre (VSSC) located in Kerala will transfer the lithium-ion cell technology to the successful Indian industries/ start-ups on non-exclusive basis to establish production facilities in the country that can produce cells of varying size, capacity, energy density and power density catering to the entire spectrum of power storage requirements, ISRO said. According to ISRO, the request for qualification (RFQ) will be issued from for a price of Rs 25,000 and a security deposit of Rs 400,000 has to be paid along with the application. The RFQ contains a brief description of qualification process & technology transfer process, instructions to applicants, eligibility criteria, timelines and various forms for submitting RFQ. Interested applicants shall attend a pre-application conference scheduled on July 13. All queries or request for additional information concerning the RFQ shall be attended only in the pre-application conference, the space agency said.

Also read: Beware Android Users: Two Trojan Viruses Found Stealing Banking Data ISRO also said that the "competent firm's security deposit will be adjusted against the technology transfer fee of Rs 100 lakh. Security deposit of unsuccessful applicants or withdrawn applications will be returned, without any interest". The one-time technology transfer fee has to be paid within 30 days of qualification date. "Technology shall be transferred to all/any of the competent firms who qualify the eligibility criteria as specified in the RFQ. The required process documents shall be provided by ISRO at the time of the signing of technology transfer agreement and payment of technology transfer fee," ISRO said. Presently, the lithium-ion battery is the most dominant battery system finding applications for a variety of societal needs including mobile phones, laptops, cameras and many other portable consumer gadgets apart from industrial applications and aerospace. Recent advances in the battery technology have made it the preferred power source for electric and hybrid electric vehicles also.

Source: https://www.news18.com/

Alphabet, Airbus lead $40 mn funding for space catapult

A Silicon Valley startup called SpinLaunch is set to reveal the first details of its plans to build a machine meant to hurl rockets into space. To achieve that goal, SpinLaunch has secured $40 million from some top technology investors, said Mr Jonathan Yaney, the founder. The company remains tight-lipped about exactly how this contraption will work, although its name gives away the basic idea. Rather than using propellants like kerosene and liquid oxygen to ignite a fire under a rocket, SpinLaunch plans to get a rocket spinning in a circle at up to 5,000 miles per hour and then let it go more or less throwing the rocket to the edge of space, at which point it can light up and deliver objects like satellites into orbit. Why would anyone do such a thing? Well, Mr Yaney is trying to work around the limits that physics have placed on the rocket launch industry for decades. To overcome gravity and Earth's atmosphere, rockets must be almost perfectly engineered and, even then, can only push a relatively small payload into space. The items carried on a typical rocket, for example, make up less than 5 per cent of the rocket's mass, with the rest going toward fuel and the rocket's body. SpinLaunch's so-called kinetic energy launch system would use electricity to accelerate a

projectile and help do much of the dirty work fighting through gravity and the atmosphere. In theory, this means the company could build a simpler, less expensive rocket that's more efficient at ferrying satellites. "Some people call it a non-rocket launch," said Mr Yaney. "It seems crazy. It seems fantastic. But we are actually using relatively low-tech industrial components to break this problem into manageable chunks." An impressive group of investors have signed on to support MR Yaney's vision. The bulk of the $40 million came from Alphabet's GV (formerly Google Ventures), Kleiner Perkins Caufield & Byers and Airbus Ventures. Over the past few years, the rocket industry has become quite crowded. Following in the footsteps of Elon Musk's Space Exploration Technologies, dozens of companies have appeared, trying to make small, cheap rockets that can be launched every week or perhaps even every day. SpinLaunch has a working prototype of its launcher, although the company has declined to provide details on exactly how the machine operates or will compare to its final system. The startup plans to begin launching by 2022. It will charge less than $500,000 per launch and be able to send up multiple rockets per day.

Source: https://ahmedabadmirror.indiatimes.com/

BDL expects Rs 14k cr worth Akash-II Missile order from Def

Hyderabad, Jun 26Bharat Dynamic Limited (BDL) expects Akash-II missile order worth about Rs 14,000 crore in the next couple of years from the central government, said a top official of the Defence PSU. Chairman and Managing Director of BDL, Mr VUday Bhasker also said the current order of Akash will be completed in the next two years and expected to have five growth in revenues during the next two years. Last year the PSU clocked Rs 4579 crore. "We are trying to have a five percent annual growth in the coming couple of years. After that we are expecting to have a much bigger growth because we expect to have some high value orders. AkashII regiments is the new order. The DAC(Defence Acquisition Council) has cleared it." "That (new) order, we need to supply from 2020-21 onwards. The order is for a few years. It will be a bigger order, I can't specifically tell the size of the order. But it will be of the current order size. Currently we had Akash order worth Rs 14,000 crore in 2012 when we received it," Mr Bhasker told. Akash is an all-weather medium-range surface-to-air missile. Developed by the DRDO, the missile system has the capability to neutralise aerial targets such as fighter jets, cruise missiles and air-to-surface missiles as well as ballistic missiles. BDL, in 2011signed a Rs 14,000-crore contract with the Indian Army for the production of Akash. The present order will be completed in the next two years. He, however, said the new order will have some development component and it has to go through some development phase. The missile should have seeker, which is a specialised instrument which seeks the target, he added. Replying to a query, the BDL official said he expects five per cent growth in revenues for the next couple of years. On the upcoming Amaravati facility in Maharashtra, Mr Bhasker said it is expected to commission from this year and full scale production will start from 2021. BDL is also setting up a manufacturing facility in Ibrhimpatnam near Hyderabad. The company's proposed Ibrahimapatnam and Amravati manufacturing facilities will be utilised to manufacture new generation of Surface-to-Air Missiles (SAMs), anti-tank guided missiles (ATGMs) respectively. BDL currently has an order book of Rs 8,860 crores. Rs 4,500 crore worth of orders will be executed this year while another Rs 2000 crores next year. "However, we are also expecting an order inflow this year. We are expecting around Rs 3000 crores of fresh orders by March this fiscal," he added. BDL also started exploring overseas markets and exported Torpedoes to some countries. Citing "sensitivity," the official refused to divulge the names of the countries that the product was exported.

Source: https://www.outlookindia.com/

India to buy 6 more Apache attack gunships, 24 naval choppers in 3 bln deal

The strategic clinch with the US is set to get even tighter, with India signalling its readiness to ink two more bilateral military pacts, procure helicopters worth $3 billion and participate in a joint tri-Service amphibious exercise for the first time. Top government sources say "substantial progress" has now been made towards finalising the Communications, Compatibility and Security Arrangement (COMCASA) and the Basic Exchange and Cooperation Agreement for Geo-Spatial Cooperation (BECA) between the two countries. The previous UPA regime had stonewalled all attempts by the US to push for the inking of the three so-called "foundational military agreements" during its 10-year tenure on the ground that it would "compromise the strategic autonomy" of India. But the NDA government went ahead and inked the first one on reciprocal logistics support — Logistics Exchange Memorandum of Agreement (LEMOA) — with India-specific safeguards in 2016. Now, the stage is being set for the other two, COMCASA and BECA, which the US contends will allow India more access to advanced military technologies and platforms with encrypted communications like Predator-B and MQ-9 Reaper drones, as was earlier reported by TOI. "The broad contours of COMCASA have been finalised…only some text-based negotiations are left. The BECA draft is also under discussion. We have insisted on

India-specific assurances, much like what was done in LEMOA, and a status on par with its closest allies," said a source. This comes ahead of the first India-US "two-plus-two" dialogue between foreign minister Ms Sushma Swaraj and defence minister Ms Nirmala Sitharaman with their American counterparts, Mr Mike Pompeo and Mr Jim Mattis, in Washington. Sources say the two countries have also decided to hold their first-ever mega tri-Service amphibious exercise to supplement the flurry of war games they already hold every year from the top-notch naval Malabar (with Japan as the third participant) to the counter-terror Vajra Prahar and Yudh Abhyas between their armies. This will be only the second time India will deploy assets and manpower from its Army, Navy and IAF together for an exercise with a foreign country, after the Indra war games were held with Russia at Vladivostok last year. The US, of course, remains keen to make further inroads into the lucrative Indian arms market, having already bagged deals worth $15 billion over the last decade. While the US hard-sell to set up a F/A-18 "Super Hornet" or a F-16 fighter production line in India in still in a preliminary stage, India has virtually finalised the acquisition of six more Boeing Apache attack helicopters for $930 million and 24 Sikorsky S-70B multi-role naval choppers with potent anti-submarine warfare capabilities for around $2 billion. The IAF, incidentally, is slated to induct 12 Apache attack helicopters and 15 Chinook heavy-lift choppers in the 2019-2020 time frame under the contracts inked for them, worth Rs 13,952 crore and Rs 8,048 crore respectively, in September 2015. India, however, remains miffed about the new US sanctions regime called CAATSA (Countering America's Adversaries through Sanction Act) that targets countries buying weapon systems from Russia. As reported earlier by TOI, India and Russia are working to get around CAATSA because they have new defence projects worth over $12 billion hanging in the balance as well as the operational need to maintain the huge inventory of Russian-origin equipment held by the Indian armed forces.

Source: https://timesofindia.indiatimes.com