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Flight test of anti-tank guided missile Helina successful

Anti-tank guided missile Helina successfully completed a flight test at a high-altitude range as part of user validation trials, the Defence Ministry stated. "The flight test was jointly conducted by teams of scientists from Defence Research and Development Organisation (DRDO), Indian Army and Indian Air Force," the ministry said in a statement. The trial was conducted from an advanced light helicopter and the missile was fired successfully at a simulated tank target, it mentioned. The missile is guided by an imaging infra-red seeker system, it said. "It (missile) is one of the most advanced anti-tank weapons in the world," the ministry stated. Defence Minister Rajnath Singh congratulated the DRDO and the Indian Army for the maiden achievement through joint work, it mentioned.

Source: https://www.deccanherald.com

CURRENT AFFAIRS

217 pieces of space debris orbiting earth from India

India has 103 active or defunct spacecraft and 114 objects categorised as 'space debris' in orbit and it has embarked on a research to reduce such fragments from outer space. "Presently, the Indian Space Research Organisation (ISRO) has taken up research activities to study the feasibility and technologies required to undertake active debris removal (ADR)," Minister of State in PMO Jitendra Singh told parliament. According to Orbital Debris Quarterly News issued in March by NASA, India had 103 spacecraft, including active and defunct satellites, and 114 space debris objects, including spent rocket bodies orbiting the earth. So, the country has a total of 217 space objects orbiting the earth. Singh said Active Debris Removal (ADR) was one of the active methods suggested by the Space Debris Research Community to contain the growth of space debris objects. "ADR is a very complex technology and involves policy and legal issues. Technology demonstration studies have been taken up by many countries, including India. Developmental studies for finalising necessary technologies are initiated to demonstrate ADR," he said. A top ISRO official had told a technology conclave last year that the space agency was working on futuristic technologies such as self-eating rockets and vanishing satellites as part of measures to reduce space debris. According to the Orbital Debris Quarterly News, the US has 4,144 spacecraft (active and defunct), and 5,126 objects that can be categorised as space debris in the earth's orbit. China has 517 spacecraft, active and defunct, and 3,854 objects, including spent rocket bodies, orbiting the earth. Singh said ISRO has also set up the Directorate Space Situational Awareness and Management at its headquarters to deal with issues related to space debris. A dedicated Space Situational Awareness Control Centre is set up in Bengaluru to coordinate all space debris related activities within ISRO and to safeguard Indian operational space assets from collision threats, he said. The minister added that ISRO was also planning to have its own observational facilities to track and catalogue the space objects.

Source: https://www.deccanherald.com

HAL hands over Gaganyaan hardware to ISRO

State-owned aviation major Hindustan Aeronautics Limited (HAL) handed over the first set of hardware for India's first manned space mission Gaganyaan to the Indian Space Research Organisation (ISRO). On the occasion, ISRO Chairman S Somanath said HAL has and will continue to play a significant role in India's current and future space programmes, including the Gaganyaan mission, given the skills and knowledge base within the company. He identified indigenisation and cost reduction as major challenges in space missions. Apart from HAL, private players will have a role in achieving these goals, he added. HAL's PS2/GS2 stage integration facility was also inaugurated recently. Besides, HAL also handed over 150th Make Satellite Bust Shelter on the occasion. HAL's Chairman and Managing Director R Madhavan recalled HAL's long association with ISRO for over 40 years and said it is well poised to play a bigger role in the integration activities related to the launch vehicles. The PS2 stage is the second stage of the PSLV launch vehicle in which earth storable propellants are used for propulsion.

Source: https://www.deccanherald.com

HAL Commences Main Airframe Fatigue Test of LCA Mk1

HAL has commenced the Main Airframe Fatigue Test (MAFT) of LCA Mk1 airframe at its Ground Test Centre of the Aircraft Research and Design Centre (ARDC) in Bengaluru. The MAFT test facility was inaugurated by Mr. Arup Chatterjee, Dir (Engg. and R&D), HAL. "Despite the setbacks due to COVID-19 pandemic, HAL has been able to commence the MAFT testing within the timelines planned", says Mr. Chatterjee. Dr. Girish Dheodhare, PGD

(CA) & DG-ADA, Air Vice Marshal K V R Raju, Director IAF-PMT, Dr A.K. Bakare, Scientist 'G', Director (Aircraft)-CEMILAC and officials from HAL, ADA, CEMILAC and ORDAQA were present. Mr. R Madhavan, CMD, HAL and Dr. Dheodhare expressed their satisfaction on timely commencement of the MAFT testing. AVM Raju cited the importance of the commencement of the MAFT testing towards clearance of the full life of LCA fleet and urged the team to keep up the momentum to ensure that the continuous flying requirements of IAF are met. As per the military airworthiness requirements, MAFT has to demonstrate the capability of the airframe to withstand four times the service life. These tests will be carried out on the LCA (Air Force) Mk1 airframe over a period of eight to nine years. The successful completion of MAFT will qualify the LCA (Air Force) Mk1 airframe for its full-service life. The test plan and schedule for the MAFT has been jointly arrived at by the designers from HAL and scientists from Aeronautical Development Agency (ADA) in coordination with the Regional Centre for Military Airworthiness (RCMA), CEMILAC. The testing and inspection will be carried out by ARDC under the supervision of DGAQA with the participation of designers from ARDC and ADA.

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

Second flight test of anti-tank guided missile Helina successful

A second flight test of anti-tank guided missile Helina was successfully completed at a high-altitude range as part of user validation trials, the Defence Ministry said. The first flight test of Helina was successfully done, the ministry's statement said. Both the tests were conducted from advanced light helicopters, it said. "Today's trial was carried out for different range and altitude. As per the plan, the missile engaged the simulated tank target accurately," it mentioned. The trials were witnessed by senior Army Commanders and scientists of Defence Research and Development Organisation. "With the flight-test, consistent performance of the complete system, including imaging infra-red seeker, has been established, which will enable the induction of the Helina into the armed forces," the ministry stated. Helina has all-weather day and night capability and can defeat battle tanks with conventional armour as well as with explosive reactive armour, it added.

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

Second successful high-altitude flight-test of Anti-Tank Guided Missile 'HELINA'

As part of the ongoing user validation trials, indigenously-developed Anti-Tank Guided Missile 'HELINA' was again successfully flight-tested from Advanced Light Helicopter on April 12, 2022. Teams of Indian Air Force and Indian Army, along with Defence Research and Development Organisation (DRDO), conducted the trial at the high altitude range. This is the second successful flight-test in successive days. trial was carried out for different range and altitude. As per the plan, the missile engaged the simulated tank target accurately. The trials were witnessed by senior Army Commanders and scientists of DRDO. With the flight-test, consistent performance of the complete system, including Imaging Infra-Red Seeker, has been established, which will enable the induction of the 'Helina' into the Armed Forces. Earlier, validation trials of the 'Helina' were conducted at Pokhran in Rajasthan, which proved the efficacy of the missile in desert ranges. 'Helina' is the third generation, fire and forget Anti-Tank Guided Missile that can engage targets both in

direct hit mode as well as top attack mode. The system has all-weather day and night capability and can defeat battle tanks with conventional armour as well as with explosive reactive armour.

Source: https://pib.gov.in/

IAF commemorates 60 years of glorious service by chetak helicopters

Commemorating 60 Glorious years of service by Chetak Helicopter in IAF, Hon'ble Raksha Mantri Shri Rajnath Singh inaugurated a Conclave hosted by Indian Air Force at Air Force Station, Hakimpet on 02 April 2022. Chief of the Air Staff Air Chief Marshal VR Chaudhari and AOC-in-C Training Command Air Marshal Manavendra Singh were present along with other distinguished dignitaries and senior officers of the Armed Forces. Former Chiefs of Air Staff, Air Chief Marshal FH Major (Retd), Air Chief Marshal NAK Browne (Retd) and Former Chief of the Naval Staff, Admiral Karambir Singh (Retd) were among the key attendees. On the occasion, Hon'ble Raksha Mantri released a Special Cover, a Coffee Table Book and a Commemorative Movie on Chetak Helicopters. 7 During his keynote address, the Hon'ble RM highlighted the stellar performance of the Chetak helicopter, both during peace and in conflict, in the past six decades, as also its contributions to foster the spirit of integration and jointmanship. He also acknowledged the immense contribution of all those involved in keeping the machine flying successfully, especially HAL, which has been the flag-bearer for 'Aatmanirbharta' by manufacturing this machine under licence since 1965. He brought out how HAL built up cutting edge helicopters design, development and production capabilities based on this experience. The Chief of the Air Staff, during his inaugural address, acknowledged the immense contributions by the Chetak in all conflicts since its induction in 1962, as well as its peacetime effort all across the country, including the Siachen glacier. The Hon'ble RM witnessed the photo exhibition showcasing sixty years of glorious service of Chetak helicopter and interacted with Armed Forces veterans and other dignitaries who were present at the Conclave. Celebrating the event, a remarkable fly-past by 26 aircraft including Chetaks, Pilatus, Kirans, Hawks, Advanced Light Helicopters and a Light Combat Helicopters was an eye catcher for everyone. The finale was a diamond formation fly past by eight Chetak helicopters, the machine which continues to render yeomen service across the length and breadth of the country. This magnificent machine still operates across all the terrains and is the basic training helicopter for pilots of the three Services.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=1812826

Tata firm hands over indigenously developed infantry vehicles to Army Chief

The IPMV is a co-development project with DRDO The Tata Advanced Systems Limited (TASL) handed over the first lot of the indigenously developed Infantry Protected Mobility Vehicles (IPMVs) to Chief of the Army Staff General Manoj Naravane at a ceremony in Pune, becoming the first private sector company in the country to produce and deliver wheeled armoured combat-ready vehicles for the armed forces, it said in a statement."In addition to supply, TASL will also provide 24x7 support to maintain the vehicles at the deployment locations," the company stated. The IPMV is a co-development project with Defence Research and Development Organisation (DRDO). The vehicles inducted include quick reaction fighting vehicle medium, infantry protected mobility 4 vehicle, ultra long range observation system developed by the TASL and monocoque hull multirole mine protected armoured vehicle developed by Bharat Forge, the Army said in a statement. Gen Naravane, accompanied by Vice Chief of the Army Staff Lt. Gen. Manoj Pande is on a twoday visit to Pune. Stringent field trials The vehicles have undergone stringent field trials in deserts as well as high altitude areas by the Army, the statement noted. The IPMVs also include TASL's in-house designed and developed remote-controlled weapon station with thermal sights and external add-on armour protection panels developed by the Defence Metallurgical Research Laboratory of the DRDO. "The successful delivery of IPMVs is a major milestone for the TASL and the Indian defence manufacturing sector, as it marks the first commercial sale of a strategic platform that has been co-developed by the DRDO and a private player," Sukaran Singh, Managing Director and Chief Executive Officer, TASL, explained. The IPMVs have been developed and manufactured at the TASL's Pune facility. They have

been built on the strategic 8x8 Wheeled Armoured Platform (WhAP), indigenously designed and developed by the TASL along with the Vehicles Research & Development Establishment (VRDE), a unit of the DRDO.

Source:https://www.thehindu.com/news/national/tata-firm-hands-over-indigenously-developed-infantryvehicles-to-army-chief/article65315246.ece

Defence platforms of DRDO to use AI

Artificial intelligence (AI) will have a major role in defence technology and all defence platforms to be developed by the Defence Research and Development Organisation (DRDO) in the future will make use of AI, said DRDO chairman and secretary of department of defence research and development (DD R&D), G Satheesh Reddy. Addressing mediapersons in Kochi after inaugurating the International Women's Day (IWD2022) celebrations, Shakti, organized by DRDO's Naval Physical & Oceanographic Laboratory (NPOL), Reddy said that anti-drone technology, which is the need of the hour, has been successfully demonstrated by the organization and the transfer of technology (ToT) to multiple agencies is complete. "DRDO's priority is to become a leader in developing advanced technologies. AI has been introduced in all DRDO labs and it will be part of every system that comes out of DRDO in future. India is one among the few nations that have successfully developed and demonstrated anti-drone technology. The armed forces and security agencies have started placing orders to get the systems installed for them. Lot of trials too are underway with regard to anti-drone technologies," Reddy said. Lauding the efforts and contribution of women scientists in the defence research and development under DRDO, Reddy said that their service has been valuable and women's participation is increasing in defence projects. 3 "Now, DRDO has three women directors general. Also, three women are serving as directors of major defence laboratories, and another three women are serving as corporate directors at the agency's headquarters," he said. The event marked the conclusion of month-long activities connected with the International Women's Day and was attended by over 250 women from all 52 laboratories and establishments of DRDO. Shoba Koshy, former chief postmaster general, Kerala Circle, and former chairperson of Kerala state commission for protection of child rights was the chief guest. S Vijayan Pillai, Outstanding scientist and director of NPOL, M Rema Devi, Scientist-G and convener IWD2022, Nidhi Bansal, DRDO women's forum president, etc also spoke at the event. Later in the day, Reddy also visited startup incubator Maker Village in Kalamassery and interacted with leaders of startups working on technologies specifically for the defence sector.

Source:https://timesofindia.indiatimes.com/city/kochi/defence-platforms-of-drdo-to-useai/articleshow/90855303.cms

Navy accelerates indigenisation efforts, focus on weapons and aviation items

The Navy which has taken an early lead towards indigenisation decades ago and in 2014 promulgated the Indian Navy Indigenisation Plan (INIP) 2015-2030 to enable indigenous development of equipment and systems is further ramping up indigenisation efforts especially in weapons and aviation related items. This falls in line with the Government's push to cut down on defence imports and boost domestic manufacturing which has gained further urgency due to ingoing Russian war in Ukraine and the large scale dependency of Indian military on Russian arms and equipment. "Till date, Navy has indigenised around 3400 items under INIP, including over 2000 machinery and electrical spares, over 1000 aviation spares and over 250 weapon spares. The existing Naval Aviation Indigenisation Roadmap (NAIR) 2019-22 is also under revision. All fast moving aircraft mandatory spares and high cost indigenous repairs are being included in the revised NAIR 2022-27," one official said. There is particular focus on the fight component (which is weapons) as there is still a long way to go compared to the float and move components, the official stated. Float consist of the ship, move comprises the propulsion and fight consist of weapons and sensors. "The Navy has a head start. Several initiatives have been taken early on," a Navy official noted in this regard. Towards this, four in-house indigenisation committees have been formed to handle indigenisation of spares with respect to naval aircraft. In addition, the Naval Liaison Cells (NLCs) located at various places have been nominated as 'indigenisation cells'. There are currently 41

ships and submarines under construction, 39 are being built in India shipyards while in principle approval from MoD exists for 47 ships to be built in India, the Navy has stated earlier. Since 2014, 78 % of Acceptance of Necessity (AoN), by value, and 68 % of contracts, by value, have been awarded to Indian vendors, officials said. The Navy is working with the Defence Research and Development Organisation (DRDO) and the industry to cut down developmental timelines, the official cited above said. “Start-ups and Micro, Small and Medium Enterprises (MSME) are doing a great job.” Some of the focus areas include indigenous design and development and production of AntiSubmarine Weapons and sensors, Satcom and electronic warfare equipment, Anti-Ship Missiles and Medium Range Surface to Air Missile, combat management system, software defined radios, 10 network encryption devices, Link II communication system, main batteries for submarines, distress sonar system, components of missiles and torpedoes etc. The Naval Innovation and Indigenisation Organisation (NIIO) which was launched by Defence Minister Rajnath Singh in August 2020 provides a flexible and accessible interface for academia and industry with Indian Navy capability development apparatus, officials said. In the last two years, 36 IPR (Intellectual Property Rights) applications have been filed by Navy personnel. Over two IPR applications are filed every month since the creation of NIIO and Transfer of Technology to 12 MSMEs has already been undertaken,” another defence official said. Navy has now forward deployed user inputs through Naval Project Management Teams at cluster Headquarters of DRDO and two such clusters are already operational. These have interfaced with the DRDO labs and their Development cum Production Partners (DcPP) to provide user inputs at every stage to 15 futuristic Technology and 100 plus DRDO projects underway for development of Indian Navy’s combat capability, the official added. The Navy has more than 20 Make I & Make II cases being progressed, under various domestic development routes of the procurement procedure. Comparing the highly skilled and technology intense warship production compared to commercial ship building, Navy Chiefs in the past had stated that manpower employed for constructing a commercial ship of about 30,000 tonnes is less than the manpower employed in warship construction of about 6,000 tonnes. In addition, statistics show that the multiplier effect of one worker employed in a shipyard is approximately 6.4 on ancillary industries, a senior officer said in the past.

Source:https://www.thehindu.com/news/national/navy-accelerates-indigenisation-efforts-focus-onweapons-and-aviation-items/article65324255.ece

Sixth Scorpène submarine Vagsheer launched into water in Mumbai

The sixth and last of the French Scorpène-class submarines, Vagsheer, was launched into water at the Mazagon Docks Limited (MDL) in Mumbai. “The sixth submarine will now commence setting to work of various equipment and their harbour trials. The crew will thereafter sail the submarine for the rigorous sea acceptance trials after which the submarine would be delivered to the Navy by late next year,” the Navy said in a statement. Defence Secretary Ajay Kumar was the chief guest at the ceremony and Vagsheer was launched by Mrs. Veena Ajay Kumar, in keeping with the naval tradition of launch and naming by a lady. 4 The six submarines were being built under Project-75 by the MDL under technology transfer from the Naval Group under a $3.75 bn deal signed in October 2005. The first one, INS Kalvari, was commissioned in December 2017; the second, INS Khanderi, in September 2019; the third, INS Karanj, in March 2021; and the fourth one, INS Vela, joined service last November. The 5th one, Vagir, was launched in November 2020 and is undergoing sea trials. The Navy has drawn up plans to install an Air Independent Propulsion (AIP) module on all the Scorpenes as they go for refit, beginning with INS Kalvari, in the next couple of years to enhance their endurance. Development of an indigenous AIP module by the Defence Research and Development Organisation (DRDO) is in advanced stages. 30-year submarine-building programme Parallelly, the tender to build six more advanced conventional submarines under Project-75I is in the Request For Proposal (RFP) stage. The Navy has a 30-year submarine-building programme and after the P-75I, it intends to design and build conventional submarines indigenously. With delays in submarine induction, the SSKs - 209s (German HDWs) and EKMs (Russian Kilos), are being put through the Medium Refit Life Certification (MRLC) process, which will give them additional life of 10 to 15 years. The Navy currently has 16 conventional submarines- eight Russian Kilos, four German HDWs and four Scorpenes, and indigenous nuclear ballistic missile submarine INS Arihant in service.

Source:https://www.thehindu.com/news/national/sixth-scorpne-submarine-vagsheer-launched-intowater-in-mumbai/article65338261.ece

IIT-BHU, DRDO mull tie-up in defence tech

The Defence Research and Development Organisation (DRDO) and the Indian Institute of Technology, Banaras Hindu University (IIT-BHU) jointly organized brainstorming sessions on collaboration related to defence technologies. IIT-BHU is already working on various indigenously developed defence technologies. The institute is a knowledge partner in the UP Defence Corridor and hosts an academic centre of Indian Space Research Organisation (ISRO). The planned collaboration with DRDO is likely to strengthen our efforts related to developing indigenous defence technologies," said IIT-BHU director Prof. Pramod Kumar Jain. "The aim of such defence related activities jointly with DRDO and other organisations is to decrease India's defence imports and make India 'atmanirbhar' (self-reliant) in defence sector," he added. He said that detailed discussions/interactions took place between the scientists from DRDO and faculty members of different departments of IIT-BHU to accelerate research in the area of powder metallurgy, electronic and functional materials as well as high-power microwave sources and devices. Several areas of mutual interests were identified for defence technology development jointly."Considering the decision of the Union government to import defence equipment from foreign industry only in exceptional cases, development/ upgrades of indigenous defence technologies has become very important," he said, adding that the collaboration between DRDO and IIT-BHU is likely to play a crucial role in this direction. Dr. S. V. Kamat, director general (NS&M), Dr. Hari Babu Shrivastava, director general (TM) and Dr. Kailash Kumar Pathak, director, DRDO headquarter, New Delhi led the DRDO team of 20 scientists from 2 various DRDO labs, including DMRL, Hyderabad, SSPL, New Delhi, LRDE/MTRDC, Bangalore and DMSRDE Kanpur. The IIT-BHU team was led by Prof. Jain, who said that this Centre of Excellence at IIT-BHU will make significant contributions towards Atmanirbhar Bharat in the defence sector aligned with the vision of the Prime Minister. The event was coordinated by the dean (R&D), Prof. Vikash Kumar Dubey and associate dean (R&D), Dr. Santosh Kumar. The team of DRDO scientists also visited different departments, facilities and labs of the institute.

Source:https://timesofindia.indiatimes.com/city/varanasi/iit-bhu-drdo-mull-tie-up-in-defencetech/articleshow/91136595.cms

TECHNOLOGY

India successfully test fires missile system SFDR booster

Defence Research and Development Organisation (DRDO) successfully flight-tested a propulsion system that enables a missile to intercept aerial threats at very long range at supersonic speeds. The Solid Fuel Ducted Ramjet (SFDR) booster was tested at the integrated test range in Chandipur off the coast of Odisha. The successful trial of the SFDR is expected to help the DRDO in extending the range of air-to-air missiles, officials said. The SFDR-based propulsion enables a missile to intercept aerial threats at very long range at supersonic speeds. The defence ministry said the flight testing of the SFDR was successful and it demonstrated the reliable functioning of all critical components involved in the complex missile system. "The test successfully demonstrated the reliable functioning of all critical components involved in the complex missile system and met all the mission objectives," it said in a statement. It said the performance of the system has been confirmed from the data captured by a number of range instruments like telemetry, radar and electro-optical tracking systems. "The SFDR has been developed by Defence Research and Development Laboratory, Hyderabad in collaboration with other DRDO laboratories such as Research Centre Imarat, Hyderabad and High Energy Materials Research Laboratory, Pune," the ministry said. Defence Minister Rajnath Singh congratulated the DRDO for the successful trial of SFDR. He termed it an important milestone toward the development of critical missile technologies in the country. Complimenting the teams involved in the design, development and

testing of the system, DRDO Chairman G Satheesh Reddy said, with the successful trial of SFDR, the range of air-to-air missiles can be enhanced.

Source: https://www.deccanherald.com

India successfully test-fires Pinaka missile systems

A new version of the Pinaka rocket system has been successfully flight-tested by the DRDO and the Indian Army at the Pokhran firing ranges, the defence ministry said. As many as 24 Pinaka Mk-I (Enhanced) Rocket Systems (EPRS) were fired for different ranges during the last fortnight and the weapons met the required accuracy and consistency, it said. The EPRS is the upgraded version of the Pinaka variant that has been in service with the Indian Army for the last decade. The ministry said the rocket system has been upgraded with advanced technologies enhancing its range to meet emerging requirements. “Pinaka Mk-I (Enhanced) Rocket System (EPRS) and Pinaka Area Denial Munition (ADM) rocket systems have been successfully flight-tested by Defence Research and Development Organisation (DRDO) and Indian Army at Pokhran firing ranges,” the ministry sai... “With these trials, the initial phase of technology absorption of EPRS by the industry has successfully been completed and the industry partners are ready for user trials/series production of the rocket system,” it added. The Pinaka rocket system has been developed by Armament Research and Development Establishment, Pune, supported by High Energy Materials Research Laboratory, another Pune-based laboratory of the DRDO. After establishing the performance efficacy of the enhanced range version of Pinaka, the technology was transferred to Munitions India Limited (MIL) and Economic Explosives Limited, Nagpur. “Rockets manufactured by MIL under transfer of technology from DRDO were flight-tested during this campaign. Different variants of munitions and fuses which can be used in the Pinaka rocket system were also successfully test evaluated the Pokhran field firing range,” the defence ministry said. DRDO Chairman G Satheesh Reddy has congratulated the teams involved in the project for completing the flight trials of the rockets.

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

Future warfare likely to be in hybrid form with hypersonic missiles, computer virus: IAF

The future warfare is likely to be hybrid in nature wherein weapons such as economic strangulation, information blackout, computer virus and hypersonic missiles would be used, IAF Chief Vivek Ram Chaudhari said. “Cyber and

information" have become the modern tools for shaping the battlefield, Air Chief Marshal said in his speech at an event organised by All India Management Association (AIMA). A well-created narrative in the information domain to adversely affect the enemy, can have devastating effects, he mentioned. India may never know the perpetrators of a "Distributed Denial of Services" attack and we will not know when and from where the attack will take place, he added. In the future, India could be attacked on all fronts, ranging from economic strangulation to diplomatic isolation and military standoffs to information black outs in the form of attacks by "Distributed Denial of Services", he mentioned. All this will happen well before the first bullet is fired or the first aircraft goes across the border, he noted. Future warfare is likely to be hybrid in nature and the spectrum of conflict will be spread across all domains spanning from conventional to sub-conventional, kinetic to non-kinetic and lethal to non-lethal, all under a nuclear overhang, he said. "The weapons we are looking at would be ranging from a small computer virus to hypersonic missiles," he added. "There is a need for us to develop capabilities across the full spectrum of conflict and focus on multi-domain operations. Similarly, our doctrines, equipment, training and tactics will have to be flexible and able to adapt rapidly to these new challenges," he stressed.

Source: https://www.deccanherald.com

ISRO gets flight-grade systems from private companies

Describing them as "new vistas of industry partnership in the space sector", the Indian Space Research Organisation ( ) said private companies at the government-owned-company-operated (GOCO) facility at Vikram Sarabhai Space Centre (VSSC) have successfully realised key flightgrade systems. SFO Technologies, , and , Bengaluru, realised and delivered flight-grade RF systems and electromechanical actuators, respectively, at VSSC recently, ISRO said. The space agency added: "RF packages and actuation systems are among the most complex systems in a launch vehicle. Their realisation is equally challenging. RF system Pointing out that actuation systems encompass complex mechanical and electrical integration, ISRO said the realisation of these systems, therefore, predominantly remains an in-house activity. "However, the demand to focus on new technology developments prompted the VSSC management to open the doors to private partners by adopting the GOCO model. The success of the GOCO model elsewhere, including at VSSC for surface treatment of mechanical parts, also gave impetus to the decision," ISRO said. An expression of interest was floated and then requests for proposal were sought. Finally, SFO Technologies and Hical Technologies were contracted. "RF packages are used in the telemetry and telecommand functions of a satellite launch vehicle mission. Three RF packages were identified for realisation through the GOCO facility: programmable Sband transmitter, solid-state Cband transponder, and digital telecommand receiver. The RF GOCO facility was set up with state-of-the-art equipment for fabrication and testing of launch vehicle RF systems," ISRO added. Twelve types of electromechanical actuators for , GSLV and GSLV MkIII were identified for production in GOCO mode. The facility was established with bonded stores, a fitting shop, assembly and inspection areas, and a fully equipped Class-1000 cleanroom.

Source:https://timesofindia.indiatimes.com/city/bengaluru/ISRO-gets-flight-grade-systems-from-privatecompanies/articleshow/90629615.cms

Defence platforms of DRDO to use AI

Artificial intelligence (AI) will have a major role in defence technology and all defence platforms to be developed by the Defence Research and Development Organisation (DRDO) in the future will make use of AI, said DRDO chairman and secretary of department of defence research and development (DD R&D), G Satheesh Reddy. Addressing mediapersons in Kochi after inaugurating the International Women's Day (IWD2022) celebrations, Shakti, organized by DRDO's Naval Physical & Oceanographic Laboratory (NPOL), Reddy said that anti-drone technology, which is the need of the hour, has been successfully demonstrated by the organization and the transfer of technology (ToT) to multiple agencies is complete. "DRDO's priority is to become a leader in developing advanced technologies. AI has been introduced in all DRDO labs and it will be part of every system that comes out of DRDO in future. India is one among the few nations that have successfully developed and demonstrated anti-drone technology. The armed forces and security agencies have started placing orders to get the systems installed for them. Lot of trials too are underway with regard to anti-drone technologies," Reddy said. Lauding the efforts and contribution of women scientists in the defence research and development under DRDO, Reddy said that their service has been valuable and women's participation is increasing in defence projects. 3 "Now, DRDO has three women directors general. Also, three women are serving as directors of major defence laboratories, and another three women are serving as corporate directors at the agency's headquarters," he said. The event marked the conclusion of month-long activities connected with the International Women's Day and was attended by over 250 women from all 52 laboratories and establishments of DRDO. Shoba Koshy, former chief postmaster general, Kerala Circle, and former chairperson of Kerala state commission for protection of child rights was the chief guest. S Vijayan Pillai, Outstanding scientist and director of NPOL, M Rema Devi, Scientist-G and convener IWD2022, Nidhi Bansal, DRDO women's forum president, etc also spoke at the event. Later in the day, Reddy also visited startup incubator Maker Village in Kalamassery and interacted with leaders of startups working on technologies specifically for the defence sector.

Source:https://timesofindia.indiatimes.com/city/kochi/defence-platforms-of-drdo-to-useai/articleshow/90855303.cms

BUSINESS

OneWeb inks pact with ISRO commercial arm for satellite launches

Bharti group-backed OneWeb and New Space India Limited, the commercial arm of the Indian Space Research Organisation, have entered into an agreement that will help ensure OneWeb completes its satellite launch programme, a statement said. The first launch with New Space India is expected in 2022 from the Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota. The launches will add to low Earth orbit (LEO) satellite communications firm OneWeb's total in-orbit constellation of 428 satellites — 66 per cent of the planned total fleet — to build a global network that will deliver high-speed, low-latency connectivity. "This is yet another historic day for collaboration in space, thanks to the shared ambition and vision of New Space India and OneWeb. "This most recent agreement on launch plans adds considerable momentum to the development of OneWeb's network, as we work together across the Space industry toward our common goal of connecting communities globally," Sunil Bharti Mittal, OneWeb Executive Chairman, said. This launch contract follows a separate agreement announced in March 2022 between OneWeb and SpaceX to enable the company to resume satellite launches. "OneWeb has already activated service with its network at the 50th parallel and above, as demand for the company's broadband connectivity services continues to grow from multiple sectors and markets," the company said. The terms of the agreement with New Space India were not disclosed.

Source: https://www.deccanherald.com

FY 2021-22: HAL Scales New Peak, Records Revenue of Over Rs. 24,000 Crores

HAL records highest ever revenue of over Rs. 24,000 crores (provisional and unaudited) for the financial year ended on March 31, 2022 registering a 6% revenue growth over the previous financial year. The corresponding figure for the previous year stood at Rs. 22,755 crores. “Despite the challenges of the second wave of Covid-19 during the first quarter of the year and the consequent production loss, the Company could meet the targeted revenue growth with improved performance during the balance period of the year”, said Mr. R. Madhavan, CMD, HAL. The second wave of Covid-19 had compelled the Company to declare a phased lockdown at various Divisions during April and May 2021. The employees had put in additional hours in June and July 2021 to compensate for the loss of man hours due to the lock down. Further, based on the improved financial performance and cash flow position, the Credit Rating Agencies CARE Ratings and ICRA Limited have upgraded the Company’s credit rating from AA+ Stable to AAA/Stable during the financial year. HAL achieved record revenue with production of 44 new helicopters/aircraft, 84 new engines, overhauling 203 aircraft / helicopters and 478 engines. Recently, HAL bagged a contract for production of 15 Light Combat Helicopters (LCH), 10 for IAF and five for the Indian Army at a cost of Rs 3,887 crores along with Infrastructure sanctions worth Rs. 377 Crores. Considering the improved financial performance during the financial year, HAL paid an interim dividend of Rs. 40 per share representing 400% on the face value of Rs. 10 per share during FY 2021-22.

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

HAL and Israel Aerospace Industries Sign MoU for MMTT

In a move aimed at bolstering the ‘Make in India’ campaign, HAL has entered into an MoU with Israel Aerospace Industries (IAI) to convert Civil (Passenger) aircraft to Multi Mission Tanker Transport (MMTT) aircraft in India. Under the pact signed recently, HAL will convert pre-owned Civil (Passenger) aircraft into air refueling aircraft with cargo and transport capabilities. The move will provide India’s defence ecosystem with new capabilities and cost effective solutions in the market. The MoU will facilitate HAL and IAI’s decades’ long expertise in developing, manufacturing and producing leading defence platforms. The scope of MoU also covers “passenger to freighter aircraft” conversion along with MMTT conversions.A formal Memorandum of Understanding (MoU) was signed in Delhi by Mr D. Maiti, CEO (MiG Complex), HAL and Mr Yaacov Berkovitz, VP & GM Aviation Group, IAI in the presence of Mr Chandraker Bharati, JS (Aero), MoD. ”We are glad to join hands with our long standing partner IAI in this venture of MMTT conversion business which is one of the strategic diversification avenues identified by HAL”, says Mr R. Madhavan, CMD, HAL. Boaz Levy, President IAI and CEO in his message said “We are proud to come together with our counterparts to bring our best value MMTT solution in India, while utilizing local resources to manufacture and market the platform. By collaborating with HAL and bringing conversion directly to India, we are supporting the ‘Make in India’ campaign”.

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

HAL Signs Contract with Nigerian Army for Phase II Training on Chetak Helicopter

HAL signed a contract with Nigerian Army for imparting Phase-II flying training on Chetak Helicopter for six officers of Nigerian Army Aviation. This marks the continuation of contract signed in April 2021 for imparting Phase-I flying

training to six Nigerian Army aviation officers, which was successfully executed in December 2021. The Phase-II flying training on Chetak Helicopter is scheduled to commence today and is planned to be completed by December 2022. As part of the training, 70 hrs flying training would be imparted for each Nigerian Army Aviation Officer. The contract was signed by Mr. BK Tripathy, General Manager, Helicopter Division and Commodore Anthony Victor Kujoh, Defence Adviser, High Commission of Nigeria in India at a programme held at Helicopter Division recently. Mr Tripathy said the platforms such as ALH and LUH, with wide range of capabilities can be of great strength for the Nigerian Army. "Nigeria would not only like to further enhance the business relationship with HAL for training, but also towards asset acquisition", said Cmdre Kujoh.

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

HAL-AASSC Hold Skill Conclave

HAL and Aerospace and Aviation Sector Skill Council (AASSC) held a Skill Conclave at HAL Management Academy today. The significant feature of the conclave was a panel discussion on various topics such as how India can be a global skills hub in aerospace technology, post Covid rebound in Indian aviation and carving skills for future, talent resource challenges in drone technology and bridging gap through skill India. Dr K. Sivan, former Chairman ISRO while presenting skill awards to various Divisions of HAL called upon HAL and AASSC to venture into new areas, apart from Aerospace as upgradation of skills is needed to achieve indigenisation goals in different sectors in India. "HAL covers nearly 16,000 employees with its well laid out and effective skill development programs which are necessary to lead the complex aerospace industry", said Mr. R. Madhavan, CMD, HAL. "The company is playing a critical role in the Skill India mission. Our skill development policy lays emphasis on a variety of programs that include continuous learning and development. Our Training within Industry (TWI) program has about 500 projects incorporating critical skilling aspects", said Mr. Alok Verma, Director, HR, HAL. The highlight of the conclave was display of aerospace components manufactured by apprentices.

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

HAL ties up with IAI of Israel to convert passenger aircraft into mid-air refuellers

In a significant development, Hindustan Aeronautics Limited (HAL) and Israel Aerospace Industries (IAI) have entered into a Memorandum of Understanding (MoU) to convert civil passenger aircraft to Multi Mission Tanker Transport (MMTT) aircraft in India. The Indian Air Force (IAF) has been looking to procure new mid-air refuellers for sometime. "Under the pact signed recently, HAL will convert pre-owned civil (passenger) aircraft into air refueling aircraft with

cargo and transport capabilities. The move will provide India's defence ecosystem with new capabilities and cost effective solutions in the market," HAL said in a statement. The scope of the MoU also covers "passenger to freighter aircraft" conversion along with MMTT conversions, it stated. A defence official said the aircraft likely to be converted was a Boeing 767 passenger jet. 'Long-standing partner' "We are glad to join hands with our long-standing partner IAI in this venture of MMTT conversion business, which is one of the strategic diversification avenues identified by HAL," R. Madhavan, Chief Managing Director HAL, said. The IAF presently has six Russian IL-78 tankers and has been looking to procure six new aircraft for sometime, but the deal has been repeatedly delayed. It has been looking to reissue the tender but the financial crunch had made it rethink the acquisition. To meet requirements in the interim, it has been looking at leasing some mid-air refuellers, an option introduced in the Defence Acquisition Procedure 2020. Mid-air refuelling significantly enhances the range and payload of fighter jets. It also allows the aircraft to stay in the air much beyond their normal limits allowing better exploitation of the platforms capabilities. As reported by The Hindu earlier, IAF officials had stated that broadly wet lease of platforms could be used for peacetime use and dry leasing to cater to operational requirements. In wet lease, the platforms have to be maintained by the company supplying them, be it the original equipment manufacturer or the aggregator. Defence Minister Rajnath Singh is all set to release the third positive indigenisation list, the items in which cannot be imported by the Services. The earlier lists have barred imports of 209 major platforms and systems. Workshop on Quantum Technologies In a separate development, a two-day Indo-Israel bilateral workshop on Quantum Technologies organised by Defence Research and Development Organisation (DRDO) and IIT Delhi 13 concluded. The objective of the workshop was to deliberate on quantum technologies, evolve a joint quantum technology road map and plan for developing technologies by collaboration between both the countries, the DRDO said in a statement. The workshop was the next step of the Bilateral Innovation Agreement (BIA) signed between the DRDO and the Directorate of Defense Research & Development, Israel, in November 2021 to promote innovation and accelerated research and development in start-ups and MSMEs of both countries.

Source:https://www.thehindu.com/news/national/hal-ties-up-with-iai-of-israel-to-convert-passengeraircraft-into-mid-air-refuellers/article65296877.ece