



E-NEWS

EVERY MONTH FROM THE AERONAUTICAL SOCIETY OF INDIA

VOLUME - 15

OCTOBER - 2020

RELEASE - 10

Current Affairs

Technology

Awards

Advertisements

CURRENT AFFAIRS



HAL's Indigenous LUH Completes Hot and High Altitude Trials in Himalayas

Indigenously developed Prithvi-II missile test fired



TECHNOLOGY



Publisher

Journal of Aerospace Sciences
And Technologies
The Aeronautical Society of India
Bangalore Branch Building
New Thippasandra Post
Bangalore 560 075
Karnataka, INDIA
Phone No : +91 80 25273851
Email: editoraesi@yahoo.com
Website: www.aerjournalindia.com

Publication Team

Dr R Balasubramaniam
Dr S Kishore Kumar
Dr P Raghothama Rao
Mrs Chandrika R Krishnan
Mr Hemanth Kumar R
Mr Kumaran A K M

Advertisement – Tariff

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

Head Quarters

The Aeronautical Society of India
13-B, Indraprastha Estate
New Delhi 110 002, India
Tel: +91 11 23370516
Fax: +91 11 23370768

Article on

Satish Dhawan: The man who made India's space dream a reality

B. R. Guruprasad

India conducts successful flight test of ABHYAS from Odisha test range

India successfully conducted the flight test of ABHYAS - High-speed Expendable Aerial Target (HEAT) vehicles from a test range in Odisha, defence sources said. The trial, carried out by the Defence Research and Development



Organisation (DRDO) from the Integrated Test Range (ITR) at Chandipur near here, was tracked by various radars and electro-optic systems, the sources said. Congratulating DRDO on its achievement, defence minister Rajnath Singh said ABHYAS can be used as a target for evaluation of missile systems. "The DRDO achieved a milestone today with the successful flight test of ABHYAS - High Speed Expandable Aerial Target from ITR Balasore. This can be used as a target for evaluation of various Missile systems. Congratulations to @DRDO_India & other stakeholders for this achievement," he tweeted. During the trial, two demonstrator vehicles were successfully test-flown, DRDO sources said. ABHYAS has been designed and developed by the Aeronautical Development Establishment (ADE) of the DRDO. The air vehicle is launched using twin underslung boosters. It is powered by a small gas turbine engine and has an Inertial Navigation System (INS) along with a Flight Control Computer (FCC) for guidance and control. The vehicle has been programmed for fully autonomous flight. The check out of the vehicle is done using laptop-based Ground Control Station (GCS), a defence statement said. During the test campaign, the user requirement of 5 km flying altitude, vehicle speed of 0.5 mach, endurance of 30 minutes and 2g turn capability of the test vehicle were successfully achieved, it said. "It proved its performance in a fully autonomous waypoint navigation mode," a DRDO source added.

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

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

For more information about Journal of Aerospace Sciences and Technologies Log on to our Website : www.aerjournalindia.com

CURRENT AFFAIRS

HAL's Dornier is all set to get new wings, Flybig wings

Flybig, a regional airline that is gearing up to have its first commercial flight by mid-October under the Ude Desh ka Aam Naagrik (UDAN) project, would become the first airline to launch a new service in the Covid-19 era. The airline that is promoted by Big Charter has received a No Objection Certificate from the Ministry of Civil Aviation and is in the process of getting Air Operators Certificate with a fleet of aircraft comprising ATR-72-500s and the Hindustan Aeronautics Limited (HAL)-manufactured Dornier Do-228 (Upgraded) civil aircraft. "As we will be operating under the UDAN scheme, we would have flight services to many sectors in the North East and Central India which are typically not airports but airstrips where the ATRs cannot operate. The 17-seater Dornier Do-228 is an ideal aircraft to operate from these sectors," Rajarshi Sen, CFO, Big Charter Pvt. Ltd told Bangalore Mirror. He added that the airline has been holding talks with HAL to get three Do-228s as a committed order and three more as an optional order. "We are holding talks with the HAL management and have already signed a Letter of Intent (LOI). Commercial discussions are going on with them. Getting the Do-228s from HAL would also mean supporting the Make in India initiative," he added. Earlier in February, the Bengaluru-headquartered HAL had received the modification document of Do-228 (Upgraded) civil aircraft from the DGCA to produce the aircraft for the UDAN scheme. According to HAL, the Do-228s will be equipped with a digital cockpit which will ensure more accurate readings, precise information and ergonomic data displays with feedback loops and capability for self-check to alert pilots in emergencies. Besides it said that it has also incorporated civil certified turbo-prop minus 10 Engine to ensure more reliable torque sensing system, higher component life, lighter in weight and higher time between overhaul (TBO) as compared to previous minus 5 engine. In the coming years, there would be a demand for over 200 aircraft under the UDAN scheme. Meanwhile, Flybig's proposed network is to have a base in Indore, Guwahati and Varanasi. The airline has bid for a minimum Viability Gap Funding (VGF) of Rs 313 crore for FY 2020-21. The VGF will be allowed for a period of three years from date of allotment. What does it mean for HAL? In the coming years, there would be a demand for over 200 aircraft under the UDAN scheme. Apart from HAL, NAL is also involved in the development of its 19-seater aircraft Saras and both the aircraft are competing to be the Make in India aircraft to operate under the UDAN scheme. While the Saras is still under developmental stage, HAL has an upper hand as two civil demonstrator aircraft of the DO-228-201 have already been manufactured and Certificate of Airworthiness has already been received from DGCA. With this, HAL, which has so far been involved only with the production of military aircraft, will be entering into the civilian domain.

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

Rafale jets conduct 'familiarisation sorties' over Ladakh

The country's latest fighter jets, the omni-role Rafales, have now begun to fly in the skies over Ladakh amid the ongoing almost five-month long military confrontation with China in the high-altitude region. Defence sources said the five Rafales, which were formally inducted into service at the Ambala airbase on September 10, have conducted some "familiarization sorties" in Ladakh in recent days. "Rafale pilots have flown the jets from Ambala to Ladakh to familiarize themselves with the operational environment there," said a source. Without midair refueling, the 4.5-generation Rafales have a combat range of 780-km to 1,650-km, depending on the nature of their mission. Moreover, the fighters are armed with long stand-off weapons like the over 300-km range 'Scalp' air-to-ground cruise missiles. "As such, the Rafales don't have to be based at Leh," said the source. At the induction ceremony, which was attended by defence minister Rajnath Singh and his French counterpart Florence Parly, IAF chief Air Chief Marshal R K S Bhadauria had said the twin-engine Rafales were now "good to go and deliver" for the country. The induction of Rafales, with their ability to "rapidly access" the country's areas of interests, "could not have happened at a more opportune time considering the security scenario today". Rafales will "intimidate and dominate whenever and wherever" they are deployed, he said. Defence minister Rajnath Singh, in turn, said the induction of the game-changing Rafales was "a strong message for the world and especially for those who challenge India's sovereignty". The five Rafales, after they touched down at Ambala from France on July 29, have also been flown in day and night sorties in different terrains, including the mountainous one in Himachal Pradesh, towards integrating them with the overall war-fighting machinery. All the 36 Rafales, under the Rs 59,000 crore deal inked with France in September 2016, are slated to be delivered by 2021-2022. Armed with their 'Meteor' air-to-air missiles (120-150 km strike range), 'Scalp' missiles and other armaments, they will be able to outgun their Pakistani and Chinese rivals like F-16s, JF-17s and J-20s. The IAF currently has

deployed an “adequate number” of frontline Sukhoi-30MKI, Mirage-2000, MiG-29 and other fighters as well as Chinook heavy-lift and Apache attack helicopters in Ladakh as well as other stretches along the 3,488-km Line of Actual Control to cater for any contingency. The Rafales, if required in an emergency, can also be combat deployed swiftly. The Ambala and Hashimara airbases are eventually slated to house 18 Rafales each for the western and eastern fronts.

Source: Times of India

Indian choppers ready for winter operations in Ladakh, says HAL chief

India-made helicopters are fully geared to support troops deployed at forward posts through the winter season in Ladakh, with two new types of choppers also proving their worth during recent flights at the high altitude cold desert. The in-service Advanced Light Helicopter (ALH), which has proved its worth in supply missions to the Siachen glacier, is being used by the army and air force, with its manufacturer Hindustan Aeronautics Limited NSE -2.48 % (HAL) confident that the aircraft will perform even better in the coming winters season to carry payloads for soldiers. “Both the army and air force are operating the chopper that has high altitude capability and can carry a meaningful payload where others find it difficult to go. More than 20 of the choppers are flying and support teams are in place,” HAL chairman R Madhavan told ET. The ALH has been performing exceptionally well, with a record no aircraft on ground, which means that all machines are serviceable and flying without problems. Madhavan said that in the coming winters, it will be even easier to carry payloads as a temperature drop improves performance. Besides the ALH, the state-owned company has also supplied two Light Combat Helicopters (LCH) to the armed forces in Ladakh, which are combat ready. While an order for the LCH is yet to be placed, HAL has sent the two choppers as demonstrators, with Madhavan saying that their performance has been appreciated. While the air force has also deployed the heavier Apache attack choppers to Ladakh, the home developed LCH has been designed especially for operations in high altitude areas. “During the Kargil war, the lack of such a platform was felt. We started the LCH development based on that experience and it is a great asset for the army and air force as it is designed for high altitude operations,” Madhavan said, adding that the chopper is extremely manoeuvrable and is hard to detect on radars. Though the choppers are fitted with pods that can carry missiles and rockets, the armaments are still to be ordered, leaving it currently only with a gun pod for attack missions. The third home developed helicopter that has conducted trials in Ladakh is the Light Utility Chopper, meant to replace the legacy Cheetah series of choppers that are used for a variety of missions, from dropping supplies to reconnaissance and casualty evacuation. “We have conducted high altitude hot climate tests for the LUH that have been completed about two three weeks back. The chopper had proven itself to the air force last year and now has been validated by the army as well,” the official said. As winters approach, making road access to several critical areas along the border impossible, choppers will be the lifeline for soldiers deployed at frontline posts in Eastern Ladakh. Besides transporting troops, they will be critical for dropping supplies besides being on standby for medical emergencies.

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

Naini Aerospace to make satellite launcher loom

The Sangam city would soon be having a say in future space expeditions of the country. The Naini Aerospace Limited (NAeL) of the city would be making the looms for the satellite launchers of Indian Space Research Organization (ISRO), which would be imparting training to the staff members of the Naini based company. Eight employees of the NAeL would be sent to Trivandrum for being trained by ISRO in respect to the technical expertise required to manufacture the state of the art looms (bunch of wires used to transfer signals) for satellite launchers of the country. The training will be in two phases, four employees each would be trained in each phase. After going through the meticulous training, the staff of NAeL would have to qualify the exam and earn a certificate for the same. Staff, who have achieved this certificate would be engaged in making these looms. Chief Executive Officer (CEO) of Naini Aerospace Limited Rajinikanth Mishra said, “A delegation of ISRO had visited NAeL in the month of November 2019 and inspected the facilities before approving the ambitious plan for manufacturing looms for satellite launcher. The delegation gave its report after inspecting the unit at Naini and following the report, ISRO has given the green signal to NAeL to make the loom”. The present facility at NAeL is presently making structure and looms for helicopters and looms of LCA Tejas fighter jets. “We have been making structures and looms for Dhruv chopper being used in the country and Tejas fighters and soon we would be making looms for LCA MK IA, as soon as Hindustan Aeronautical Limited (HAL) gets the order from the government”,

said Mishra, who is superannuating by end of this month. Indian Air Force (IAF) would be placing the order for 83 LCA MKIA to HAL.

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

In a first, 2 women officers to operate helicopters from Indian Navy warships

In a first, two women officers have been selected to join as 'Observers' (Airborne Tacticians) in the Indian Navy's helicopter stream that would ultimately pave the way for women being posted in frontline warships. Sub Lieutenant (SLt) Kumudini Tyagi and SLt Riti Singh would, in effect, be the first set of women airborne tacticians in India who would operate from the deck of warships. Earlier, entry of women was restricted to the fixed wing aircraft that took off and landed ashore. The two are a part of a group of 17 officers of the Navy, including four women officers and three officers of the Indian Coast Guard, who were awarded 'Wings' on graduating as 'Observers' at a ceremony held today at INS Garuda, here, a Defence statement said. The group comprised 13 officers of Regular batch and four woman officers of Short Service Commission batch. The ceremony was presided over by Rear Admiral Antony George, Chief Staff Officer (Training) who presented the awards and coveted wings to the graduating officers. In addition, the chief guest also awarded the Instructor Badge to six other officers, (five from the Indian Navy including a woman and another from Indian Coast Guard) who had successfully graduated as Qualified Navigation Instructors (QNI). The Rear Admiral Antony highlighted the fact that it was a landmark occasion wherein for the first-time women are going to be trained in helicopter operations which would ultimately pave way for the deployment of women in frontline warships of Indian Navy. The officers of the 91st Regular course and 22nd SSC Observer course were trained in air navigation, flying procedures, tactics employed in air warfare, anti-submarine warfare and exploitation of airborne avionics systems. These officers would serve on-board Maritime Reconnaissance and Anti-Submarine Warfare aircraft of the Indian Navy and Indian Coast Guard, the statement said.

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

Goa Shipyard begins production of stealth frigates for Navy, delivery likely by 2026

Goa Shipyard Ltd commenced production of the two guided missile frigates, which are being built in collaboration with Russia's Yantar Shipyard for the Indian Navy. GSL expects to deliver the first ship to the Navy by 2026. Though the frigates are based on a Russian design, they will have significant indigenous content, including an Indian-built radar, sonar systems and sensors, communication suites and anti-ship BrahMos missile systems. Initiating the production process, vice chief of naval staff, vice admiral G Ashok Kumar said that the frigates would help the Navy meet maritime challenges. India and Russia entered into a government to government agreement for four stealth frigates, with two being built in Russia and two at Goa Shipyard. The stealth frigate project is the largest contract in GSL's history and represents a quantum leap in the shipyard's capabilities. "These two frigates will put GSL in a different league because this is the first time that frigates are being constructed at the yard," said Kumar. Once completed, the two frigates will be advanced variants of the Talwar-class stealth frigates that are already in service with the Indian Navy. "The project will provide a significant boost to the indigenous shipbuilding sector in Goa and across the nation creating employment opportunities. We are expanding our vendor base three-fold to over 1,000 entities to encourage MSME participation in the project," said chairman and managing director of GSL B B Nagpal.

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

7,000 small satellites expected to be launched by 2027: V K Saraswat

Niti Aayog member and former Defence Research and Development Organisation chief V K Saraswat said that small satellites will dominate the global space sector as around 7,000 such satellites are expected to be launched by 2027 with a total value of \$38 billion (Rs 2.7 lakh crore). Sensing the importance of such small satellites, ISRO is planning to launch a small satellite launch vehicle (SSLV) that will be used extensively to launch small and nano-satellites, Saraswat said during a presentation at the inaugural session of the International Space Conference and Exhibition 'Ushering the New Era in Indian Space Sector', organised by the Confederation of Indian Industry. Currently, Saraswat said, the Indian space economy is valued at \$7 billion, which is around 2% of the global space economy worth \$348 billion. In 2012, small satellites began to see significantly increased usage. Over 1,000 small satellites were launched from 2012 to 2017. The government and commercial sectors are capitalising on this heightened interest in small satellites. In fact, cubesats have dominated the smallsat market as over 700 cubesats had been launched from 2012

to 2017, Saraswat said, adding that the smallsat revolution was possible due to new technological platforms, reduced lifecycle, up-to-date technology and other factors. The Niti Aayog member said that there should be a clear demarcation of space and defence activities as issues around national security will always be a concern when an actor (country) chooses to pursue space activities. Holding possible commerce possibilities in utilising outer space hostage under the garb of national security will only hold back the country in expanding space products and services, Saraswat said. If Indian industry needs to claim a greater traction in the international space market, there is a need to develop a model for promotion of startups with independent technology ideas, Saraswat said. He also said that the Modi government should consider instituting a national fund to promote entrepreneurship in the space sector, as was done by US space agency Nasa and European Space Agency. "With no particular, dedicated, independent space commerce assessment body for space-related activities or a dedicated road map within ISRO for commercial space in India, there is a need to establish an 'Office of Space Commerce' that is independent of ISRO, he said. Saraswat said new frontiers of the space industry are opening up like space-based tourism, space-based energy and power, space manufacturing, asteroid mining and deep space missions. Innovative space technologies, services and business models will be game-changing to the space industry. Under the new space economy, the low-cost launch of small satellites into low-earth orbit will remain the focus for international satellite communication worldwide. However in India, absence of assured, high-speed, low-cost connectivity throughout the country will make it impossible to achieve PM Modi's Digital India target. "By 2030, the new space economy will find ways we can live sustainably beyond our planet, creating new jobs, companies and opportunities," he said.

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

ISRO's next PSLV launch likely in November, to carry Kleos Space's satellites

Kleos Space, a Luxembourg-based company that provides radio frequency reconnaissance data-as-a-service (DaaS), said that the four-satellite Kleos Scouting Mission will be launched onboard a PSLV in the first half of November 2020. In a release, the company said the satellites would be launched in ISRO's PSLV-C49 mission from the Satish Dhawan Space Centre, Sriharikota. The company is launching the scouting satellites under a rideshare contract with US-based Spaceflight Inc, with the launch managed by NewSpace India Limited (NSIL), the commercial arm of ISRO. The release further said the four Kleos Scouting Mission satellites have been mission-ready since the middle of 2019. They were shipped to the launch site during February 2020, anticipating the launch during March 2020. But due to the prevailing Covid-19 pandemic situation, there has been a delay in the launch. NSIL via Spaceflight Inc has informed the company that the launch of the four Kleos satellites planned on-board PSLV-C49 mission is being targeted during the first half of November 2020, based on the current status of planning of activities, it said. This schedule is subject to change due to operational circumstances beyond NSIL control. NSIL via Spaceflight Inc will confirm the exact launch date once the activities at the launch base progresses successfully.

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

HAL's Indigenous LUH Completes Hot and High Altitude Trials in Himalayas

HAL's indigenously developed Light Utility Helicopter (LUH) demonstrated high altitude capability in Hot and High weather conditions in the Himalayas recently for about 10 days. A comprehensive test plan was executed at Leh (3300 MAMSL) in temperatures up to ISA+32 degree C which included envelope expansion, performance and flying qualities.

LUH took off from Leh and demonstrated its hot and high hover performance at Daulat Beg Oldie (DBO) Advanced Landing Ground (ALG) at 5000 MAMSL. The helicopter also demonstrated its payload capability in Siachen glacier high altitude. During the trials, pilots landed the helicopter at the highest helipads of Amar and Sonam. HAL has once again proved its indigenous capability in design & development. The Army version of LUH is now ready for Initial Operational Clearance, says Mr. R. Madhavan, CMD, HAL. According to Mr. Arup Chatterjee, Director (Engineering and R&D), HAL, the performance of the helicopter and its systems are satisfactory fulfilling the requirements of the users. All planned tests were successfully demonstrated. The flights were carried out by composite trial team which included pilots from HAL, Wg Cdr (Retd) Unni Pillai, CTP (RW), Wg Cdr (Retd) Anil Bhambani, Gp Capt (Retd) Pupinder Singh and Gp Capt V Panwar along with Gp Capt R Dubey, Sq Ldr Joshi (from Indian Air Force) and Lt Col R Grewal & Lt Col Pawan (from Indian Army). Representatives from certification authority witnessed the trials. The Initial Operational Clearance for basic LUH was accorded by CEMILAC for IAF variant on February 7, 2020 during DefExpo 2020 at Lucknow in the presence of Defence Minister and the Chief Minister of Uttar Pradesh

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

Airbus reveals concepts of new hydrogen-powered zero-emission commercial aircraft, could enter service by 2035

Aviation major Airbus has unveiled three concepts for the world's first zero-emission commercial aircraft, projected to enter operational service by 2035. One of these is a revolutionary new 'blended-wing body' design where the wings merge with the aircraft's main body. Designed to eventually decarbonise the entire aviation industry, the three concepts rely on hydrogen as a primary power source. Airbus says hydrogen holds exceptional promise as a clean aviation fuel and a solution for aerospace and other industries to meet climate-neutral targets. Airbus Chief Executive Officer (CEO) Guillaume Faury articulated this approach when he said, "I strongly believe that the use of hydrogen - both in synthetic fuels and as a primary power source for commercial aircraft - has the potential to significantly reduce aviation's climate impact." One of the three concepts - all codenamed "ZEROe" - uses a Turbofan design, the second one, a Turboprop design and the third, a 'blended-wing body' design. The 'blended-wing body' design will have a seating capacity of up to 200 passengers and a range of over 2,000 nautical miles. "The exceptionally wide fuselage opens up multiple options for hydrogen storage and distribution, and for cabin layout," an Airbus spokesperson explained. Seating 120-200 passengers, the aircraft with Turbofan design will be capable of operating trans-continently and powered by a modified gas-turbine engine running on hydrogen, rather than jet fuel, through combustion. "The liquid hydrogen will be capable of traveling more than 1,000 nautical miles. This could be an option for short-haul trips. As Faury put it, the transition to hydrogen as the primary power source for these concept planes will require decisive action from the entire aviation ecosystem. It is anticipated that airports will require significant hydrogen transport and refueling infrastructure to meet the needs of day-to-day operations.

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

TECHNOLOGY

DRDO completes key process relating to Pinaka missiles production

The Defence Research and Development Organisation (DRDO) kick started a key process for production of Pinaka rockets, launchers and related equipment, officials said. They said the DRDO handed over to the Directorate General of Quality Assurance (DGQA) all relevant details for mass production of the Pinaka rocket systems. The DGQA is responsible for ensuring quality specifications and standards of all defence equipment. "An important milestone was achieved today when Authority Holding Sealed Particulars (AHSP) responsibility of Pinaka weapon system was handed over by DRDO to DGQA," the defence ministry said in a statement. The AHSP is the authority responsible for collecting, collating and analysing key defence items in accordance with the laid down procedure. Pinaka is a free flight artillery rocket system having a range of 37.5 km. Pinaka rockets are launched from a multi barrel rocket launcher which has a capability to launch 12 rockets in 44 seconds. The weapon system is designed and developed by Pune-based DRDO lab, Armament Research and Development Establishment (ARDE).

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

Indigenously developed Prithvi-II missile test fired

India conducted a successful night test fire of its indigenously developed nuclear capable surface-to-surface Prithvi-II missile as part of a user trial by the Army from a base in Odisha, defence sources said. The state-of-the-art missile was test fired from the Integrated Test Range (ITR) at Chandipur near here in darkness and the trial was successful in meeting all the parameters, they said. The trial of the missile, which has a strike range of 350 km, was carried out from a mobile launcher from launch complex-3 of the ITR, a DRDO official said. Describing the trial as a routine exercise, he said, the missile trajectory was tracked by radars, electro-optical tracking systems and telemetry stations by the DRDO along the coast of Odisha. The missile was randomly chosen from the production stock and the entire launch activity was carried out by Strategic Force Command (SFC) of the Army and monitored by scientists of Defence Research and Development Organisation (DRDO) as part of the training exercise, official sources said. The downrange teams on board a ship deployed near the designated impact point in the Bay of Bengal monitored the terminal events and splashdown. The last night time test fire of Prithvi-II was conducted successfully from the ITR on November 20, 2019. Prithvi-II is capable of carrying 500 to 1,000 kg of warheads and is powered by liquid propulsion twin engines, the sources said. The state-of-the-art missile uses an advanced inertial guidance system with maneuvering trajectory to hit

its target, they said. Already inducted into the armoury of the defence forces in 2003, nine-metre long 'Prithvi' was the first missile to have been developed by DRDO under the Integrated Guided Missile Development Programme (IGMDP).

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

India test-fires hypersonic technology demonstrator vehicle; joins select group

India successfully flight-tested the indigenously-developed hypersonic technology demonstration vehicle (HSTDV), joining a select group of countries having the capability to develop the next-generation hypersonic cruise missiles, officials said. The HSTDV, based on hypersonic propulsion technologies and developed by the Defence Research and Development Organisation (DRDO), will help India develop futuristic space assets like long-range missile systems and aerial platforms, they said. The HSTDV is capable of powering missiles to attain a speed of around Mach 6 or six times the speed of sound, the officials said, adding only a very few countries like the US, Russia and China have such a capability. "The DRDO has successfully demonstrated the hypersonic air-breathing scramjet technology with the flight test of hypersonic technology demonstrator vehicle at 1103 hours from APJ Abdul Kalam launch complex at Wheeler Island, off the coast of Odisha today," the defence ministry said in a statement. The HSTDV operates on a scramjet engine, as against the ramjet engine which is used on most missiles. The ramjet engines operate at supersonic speeds of up to Mach 3. The ministry said all the performance parameters have indicated a resounding success of the mission. The successful test comes over a year after a similar attempt did not provide expected results. Defence Minister Rajnath Singh congratulated the DRDO over the successful test-flight of the HSTDV, calling it a "landmark achievement". "I congratulate DRDO on this landmark achievement towards realising PM's vision of Atmanirbhar Bharat. I spoke to the scientists associated with the project and congratulated them on this great achievement. India is proud of them," he tweeted. A DRDO official said that with the successful test flight of the HSTDV, India has demonstrated capabilities for highly complex technology that will serve as the building block for next-generation hypersonic vehicles in partnership with the domestic defence industry. The defence ministry said the parameters of launch and cruise vehicle, including the scramjet engine, were monitored by multiple tracking radars, electro-optical systems and telemetry stations. "The scramjet engine worked at high dynamic pressure and very high temperature. A ship was also deployed in the Bay of Bengal to monitor the performance during the cruise phase of hypersonic vehicle," the ministry said. With the successful test, it said many critical technologies such as aerodynamic configuration for hypersonic manoeuvres, use of scramjet propulsion for ignition and sustained combustion at hypersonic were proven and validated. It said the hypersonic cruise vehicle was launched using a proven rocket motor, which took it to an altitude of 30 kilometres where the aerodynamic heat shields were separated. "The cruise vehicle separated from the launch vehicle and the air intake opened as planned. The hypersonic combustion sustained and the cruise vehicle continued on its desired flight path at a velocity of six times the speed of sound," the ministry said. It said the critical events like fuel injection and auto ignition of scramjet demonstrated technological maturity and that the scramjet engine performed in a "textbook manner".

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

AWARDS

HAL Designer bags prestigious IETE award

Mr Ajay Khare who works at HAL as Deputy General Manager (Design) has been bestowed with the prestigious IETE (The Institution of Electronics and Telecommunication Engineers) award for the year 2020 for his outstanding work in Full Life Cycle Development of Indigenous Mission and Safety Critical Avionics Systems, starting from conceptualization and design to certification and production. He received the award at the digital event held today on the occasion of the 63rd IETE Convention. The award consists of a citation, a medal and a plaque. Mr Khare delivered a lecture on the occasion. The annual award instituted by Dr R K Tyagi, former Chairman of HAL in memory of his late father Devi Singh Tyagi in 2016 is given to an eligible technocrat or a scientist or an engineer or an academician for outstanding contribution in the field of avionics and defence electronics that results in strategic and commercial advantage towards meeting the national objective of 'Make in India'. "I am proud that Mr Khare has received the award this year. Over the years, HAL has been making concerted efforts in its R&D programs and is also facilitating indigenisation at a greater scale. We are seeing positive results", says Mr. R Madhavan, CMD, HAL. Mr. Khare's remarkable contribution has resulted in establishing two successful avionics product lines (Mission Computers & Solid State Flight Data Recorders) in HAL. The variants of indigenously designed and developed Mission Computers & Solid State Flight Data Recorders

have been deployed in different aircraft platforms. MrKhare works at Mission and Combat System (MCSRDC), HAL's R&D Centre in Bengaluru. The awardee list includes Shri P Balasubramanian (2019, Scientist F, DRDO), Shri Amit Tiwari (2018, BEL), DrJayakumar M (2017, Scientist G, ISRO) and Ms T S Padma Priya (2016, HAL).

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

ADVERTISEMENTS

E-news is bringing out an exclusive slot for individuals to advertise for career opportunities. Industries and Institutions can promote advertise at very nominal charges product ranges as well as airline operators to present route and tariff

Journal of Aerospace Sciences and Technologies

The Aeronautical Society of India

Bangalore Branch Building

New Thippasandra Post

Bangalore 560 075

Karnataka, INDIA

Phone: +91 80 25273851

Website: www.aerjournalindia.com

Email: editoraesi@yahoo.com,
editoraesi.enevs@gmail.com

ARTICLE

Satish Dhawan: The man who made India's space dream a reality

During the crucial phase of its genesis, the Indian space programme was led by people who were suited to play a role that was essential for its progress: Vikram Sarabhai nurtured it during its infancy in the early and provided a vision to it. Satish Dhawan (1920-2002), who took over the space programme in 1972, consolidated Sarabhai's work and gave direction to the space programme. As APJ Abdul Kalam aptly put it, "Prof Dhawan transformed Sarabhai's vision to a truly outstanding national mission." Today, his birth centenary, is a good time to remember his contributions to the nation. Prof Dhawan, as he was respectfully referred to by his fellow academics, students and the Indian space community, had a distinguished academic career in India and the US. Even more than that, what instilled in colleagues and students great respect and appreciation for him were his towering persona and his humanism. When Prime Minister Indira Gandhi formally asked him to head the space programme following the sudden death of Sarabhai in December 1971, Dhawan is reported to have gently put forward two conditions: First, he did not wish to leave the directorship of the Indian Institute of Science, Bengaluru; and second, he would be able to assume his new duties only after completing his sabbatical at Caltech. Indira Gandhi agreed to both, and the rest is history. Dhawan set out with missionary zeal to mould ISRO. He consolidated space activities at Thiruvananthapuram and Ahmedabad into ISRO Centres. This was followed by his choice of Kalam to head India's first indigenous Satellite Launch Vehicle SLV-3 project, based on the assessment of Kalam's capability as a 'master coordinator,' as one of his juniors recently put it. Dhawan also involved the country's academia, research institutions and private and public sector industries in the space programme. Dhawan presided over the development and realisation of India's first satellite, Aryabhata, and its launch in April 1975. This was followed by three more experimental satellites, Bhaskara 1 & 2 and APPLE. Development of India's own launch vehicles also saw significant progress during his time, beginning with the SLV-3, which successfully launched the Rohini RS-1 satellite into orbit around the Earth on July 18, 1980. The first attempt to launch a satellite on the SLV-3 had failed on August 10, 1979. On that occasion, Dhawan told Kalam not to address the media, and instead took the responsibility for the failure on himself. Less than a year later, when the launch was successful, he encouraged Kalam to address the media, rather than taking the credit himself, revealing the quality of a true leader. The design of the Polar Satellite Launch Vehicle (PSLV), which has now emerged as India's workhorse rocket, was frozen during Dhawan's time as chairman of ISRO. Focused studies on the more complex Geosynchronous Satellite Launch Vehicle (GSLV) were also initiated. Other major contributions of Dhawan to the space programme include the creation of ISRO headquarters, the evolution of the participatory management philosophy, with the inclusion of senior civil servants to the ISRO Council and the pioneering of the Joint Consultative Machinery (JCM) for the welfare of ISRO/Department of Space employees. Dhawan took certain crucial decisions on cryogenic rocket technology, too, which were interpreted by some analysts as "missed opportunities." But those decisions were based on pragmatic technical considerations. Having presided over the crucial experimental era of the Indian space programme that put it on a solid foundation, Dhawan relinquished office in 1984 after steering the programme for 12 meaningful years. The grateful Indian space establishment has named India's only satellite launch centre after him. Through his pivotal contributions, Dhawan facilitated India's later emergence as a prominent space-faring nation.



NOTE : This article was earlier published in Deccan Herald on September 25, 2020

B. R. Guruprasad
Member, Editorial Committee
Journal of Aerospace Sciences and Technology
The Aeronautical Society of India