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Defence, Aerospace, Homeland Security News

Boeing Affirms its Commitment to the UAE's Defense Strategy During IDEX 2023

Boeing affirmed its commitment towards its longstanding partnership with the UAE and support for the country's defense strategy during a Defense and Services media briefing, which took place on the sidelines of IDEX 2023.

During the event, Vince Logsdon, Vice President International Business Development, Boeing Defense, Space & Security and Global Services, Rick Lemaster, Regional Sales and Marketing Leader in the Middle East, Dave Fluker, International Business Development Leader, Insitu, and Mark Ballew, Business Development Leader, International Government Services, took center stage to showcase Boeing's advanced technologies and capabilities and how they have been utilized in enhancing the UAE's safety and carrying out international humanitarian missions.

Vince Logsdon, Boeing International Business Development Vice-president, said: "The UAE is an important market for Boeing, and we have had a long history of partnership and collaboration for the past 45 years, working closely with the UAE government and armed forces to achieve the country's objectives and ambitions. We consistently strive to build on our offerings and present a full-spectrum of capabilities including training, supply chain management, aircraft modernization, platform sustainment, and data optimization, so our customers have the support and expertise of the world's largest global aerospace company."

The Defense and Space Market Outlook 2022–2031 predicts that the global defense, space, and security market will be worth \$2.8



Vince Logsdon, Vice President International Business Development, Boeing Defense, Space & Security and Global Services in a press conference at IDEX.

trillion in the next decade. This projection is based on the ongoing demand driven by geopolitical and security challenges and the continued importance of military aircraft, autonomous systems, satellites,



spacecraft, and other defense products and services. As of the fourth quarter of 2022, Boeing Defense, Space & Security's backlog was \$54 billion, of which 28% represents orders from customers outside the U.S.

In the UAE, Boeing works with the country's armed forces to facilitate the most advanced Boeing products and services, which include the AH-64 Apache, CH-47 Chinook and C-17 Globemaster III. Boeing

also has a long history of working closely with industry partners to contribute to the country's industrialization success including a partnership with Tawazun Economic Council. Since its initiation, the collaboration has enabled key industrial initiatives and has expanded the UAE's aerospace base.

Boeing continues to support the efforts of the UAE in economic diversification, and adoption of advanced technology as it accelerates its digital transformation journey. With the aviation industry also setting goals for carbon-neutral growth from 2020 onward, Boeing shares a common vision with the UAE on sustainability and will work in tandem with the country in reaching its sustainable development goals and targets of net zero by 2050.

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AED 8.14b worth of total deals signed on second day of IDEX and NAVDEX 2023

Tawazun Council - the independent government entity that works closely with the Ministry of Defense, security agencies and Abu Dhabi Police, to maximize value through acquisition systems - announced signing 12 deals, worth AED 8.14 billion, with local and international companies on the second day of the International Defence Exhibition (IDEX) and the Naval Defence Exhibition (NAVDEX) 2023.

The cumulative value of deals signed at IDEX and NAVDEX 2023 is now AED 12.64 billion.

The announcement was made during a press conference held by Tawazun Council's official spokesmen Majed Ahmed Al Jaber and Zayed Saeed Al Meraikhi.

Zayed Saeed Al Meraikhi said: "The number of contracts signed with local companies has reached 8, with a total value of AED 7.6 billion, while the number of contracts signed with international companies has reached 4,

with a total value of AED 543 million.

The biggest contract- worth AED 4.7 billion, was awarded to Halcon, a subsidiary of Edge Group to procure Desert Sting P5 system. Also signed with Halcon is an AED 1.1 billion contract to procure Hunter systems.

A contract worth AED 1.33 billion was signed with ADASI, a subsidiary of Edge Group, to procure Shadow system.

Other announced deals with local companies included two contracts with Trust International Group, the first, worth AED 179 million to procure Minimi machine gun and the second, worth AED 20 million to procure 7.62 mm machine gun.

An AED 175 million contract was signed with ADSB, a subsidiary of Edge Group, to procure rescue boats and an AED 40 million contract with International Golden Group to procure telecom systems.

Also signed is an AED 20 million contract with Marakeb to develop Golden Unit

of multi-mission unmanned boat.

Announcing the second day's deals with international companies, Al Jaber said: "Tawazun Council is a government entity that works closely with the Ministry of Defense, the security agencies and the Abu Dhabi Police - is pleased to announce the contracts that were signed/ on behalf of the Ministry of Defense on the second day of IDEX and NAVDEX 2023."

The international contracts announced today included two with France's Thales Six, one is worth AED 316 million to develop and support ground station radio and the other is an AED 159 million contract to procure CMS systems.

The other two signed contracts were an AED 57 million contract with the German company Rheinmetall, to provide technical support for engagement simulation and an AED 11 million contract with the US company Harris International to procure telecom systems and intercom units.

HAL Hands Over ALH to Mauritius, Ahead of Schedule

HAL successfully handed over an Advanced Light Helicopter (ALH) to the Government of Mauritius at Helicopter Division.

Nikhil Dwivedi, General Manager, Helicopter Division handed over the Certificate to A K Dip, Commissioner of Police, Mauritius Police Force (MPF) in the presence of E P Jayadeva, Director (Operations), HAL, S Anbuvelan, CEO (HC) and others.

Speaking on the occasion, Jayadeva said HAL has handed over the helicopter way ahead of schedule. This order is in line with the Govt. of India's vision to boost defence exports to Friendly Foreign Countries. The handing over of export helicopter has further bolstered the ties between both countries. The ALH Mk III helicopter will meet the operational requirements of Mauritius Police Force. The helicopter with its state of the art equipment will further enhance the operational requirements of MPF, he said.

Dip opined that the induction of a new helicopter into the stables of Mauritius Police Force will enhance the aerial capabilities



of Mauritius Police. The helicopter will contribute immensely in ensuring the territorial integrity and enhancing the speed and effectiveness of the police intervention during critical incidents and disasters.

Anbuvelan said HAL & Govt. of the Republic of Mauritius share a strong business relationship spanning over three decades, with HAL manufactured helicopters already being operated in Mauritius. HAL would provide all the necessary technical, logistic, and maintenance support for ALH Helicopters in Mauritius.

HAL had signed a contract with Govt. of

Republic of Mauritius in January 2022 for export of one ALH Mk III to Mauritius Police Force. ALH Mk III is a multi-role, multi-mission versatile helicopter in 5.5 tonne category. It has proven its mettle in various utility roles, including numerous lifesaving missions during natural calamities in India and abroad. More than 335 ALH has been produced till date logging a cumulative of more than 3,75,000 flying hours. HAL also ensures technical assistance and product support to the customer to ensure healthy serviceability of the helicopter.

Indian Aims to triple its Defence Exports to \$5bn



There is a paradigm shift in India's defence exports but a quantum jump is prospective in the coming years under the guidance of Prime Minister Narendra Modi. As per the latest statistic from the Ministry of Defence, the export of military equipment and technology has increased significantly in recent times. India clocked Rs 13,000 crore during 2021-22, which is the highest ever export number recorded in Indian defence history. Boosting defence exports, which is vital for desired expansion of the defence industrial base, is inevitable to give impetus to enhanced participation by domestic private industry in design, development and manufacture of defence products. India's aims to clock defence exports worth \$5bn and it testifies the true of potential of Indian industry.

For decades, India has been just one of the world's biggest importers of defence equipment but the nation has rejuvenated its defence sector in the last 8-9 years and now exports to 75 countries. Over these years, India has emphatically embarked on the path of self-reliance and indigenisation in defence with focus on 'Make-in-India' and 'Atmanirbhar Bharat'. Narendra Modi, Prime Minister of India, recently set out a defence export target three times higher than India's current military export of \$1.5 billion over the next three years, a big ask considering that India still remains one of the world's top arms importers. However, as the nation considers, defence exports as a major pillar of India's drive to attain self-sufficiency in defence production, the confidence to attain the new target testifies the true of potential of Indian industry.

The consistent efforts of the central government under the leadership of Prime Minister Narendra Modi have helped the country in harnessing the potential of the Indian industry, both public and private, and clocking its best in terms of

defence exports recently. Touching Rs 13,000 crore during 2021-22, which is the highest ever export number recorded in Indian defence history, is a significant milestone for a country that was, at one point, totally dependent on imports.

However, there is a lot of ground yet to be covered in terms of development of new products and the scale of production. Hence, boosting defence exports, which is vital for desired expansion of the defence industrial base, is inevitable to give impetus to enhanced participation by domestic private industry in design, development and manufacture of defence products. India's defence exports target of Rs 35,000 crore by 2025 may appear very ambitious, but considering the potential of Indian industry and recent triumphs, it is not impossible to achieve.

Boosting exports is crucial as the Indian Industry cannot rely solely on domestic demand, because then the industry will have little incentive to invest in R&D and production facilities due to obvious lack of economies of scale as well as low frequency of award of contracts. It would further

result in reduced probability of winning prospective supply orders and feasibility of under-utilisation of manufacturing capacity. Traditionally, India has been among the global top five arms importers, but the latest figures showed that there is an increasing global interest in what India has to offer thus making 'Made in India' a reputable brand in the global defence arena.

A Growth of 334% in Five Years

India's defence exports have grown by 334 per cent in the last five years and the country is now exporting to over 75 countries due to collaborative efforts. It is a testimonial that India can make significant gain in defence export business. With the private sector accounting for 70 percent of the exports, it further hints at the potential Indian industry has.

According to the Defence Minister Rajnath Singh, the nation's global standing has grown manifold under Prime Minister Narendra Modi and India's defence exports will reach Rs.40000 to 50000 crore by 2025. He added that a target of Rs 2.75 lakh crore worth of defence exports by 2047 has been set, exuding confidence



that India is well on course to achieve the objective. Singh said that the country having exported defence items and technology worth Rs.13,000 crore in 2021-22 was a record leap from the Rs. 800 crore defence exports about eight years ago.

The Defence Minister asserted that the foundation of 'Atmanirbhar Bharat' has been laid under the leadership of Prime Minister Narendra Modi and this strong & self-reliant 'New India' is moving shoulder-to-shoulder with powerful countries. "We took a pledge to make the country self-reliant and the results are there for all to see. Our PM decided that it was time we stopped purchasing all missiles, all aircrafts and fighter planes from other countries. We used to spend a fortune in purchasing them. But now things have changed," Rajnath said.

According to Prime Minister Narendra Modi, India is moving fast from being biggest defence importer to big exporter. India's defence imports have decreased by about 21% in the last four to five years and this has happened in such a short time, he said. Talking of the push for domestic defence manufacturing, Modi said in the last eight years, they have not only increased the defence budget, but also ensured that this budget is utilised for the development of the defence manufacturing ecosystem within the country.

"Our defence exports have increased seven times in the last eight years. Very recently, our countrymen were filled with pride when they came to know that last year, we had achieved defence exports worth ₹13,000 crore and of this 70% was from the private sector. Today, a major part of the budget is earmarked for the purchase of defence equipment from Indian companies only," he said.

The PM stressed on the fact that the goal of self-reliance of the Indian armed forces is very important and essential for the 21st century. "Learning from the approach of the past decades, today we are developing a new defence ecosystem with the strength of everyone's efforts.

The defence research and development has been opened for private sector, academia, Micro, Small and Medium Enterprises (MSME) and start-ups," Modi said.

Defence Secretary Ajay Kumar recently announced that they are in the process of starting the development of a marine diesel engine within the country. Till now India has been dependent on imports, and the proposed engine when ready would power naval ships.

"We are also in the process of manufacturing heavyweight helicopters of 10 tonnes and above to meet requirements of all three services, which will be taken up shortly in partnership with the industry. Hindustan Aeronautics Limited (HAL) has taken up the design and development of an indigenous Multi-Role Helicopter intended to replace the Mi-17s in service," Ajay Kumar said.

India's Defence Exports

The increased partnership with the private sector has led to a substantial rise in India's defence exports. The consistent progress in the indigenisation of weaponry is in line with the mission to become self-reliant, reduce dependence on imports, and give more weightage to the export of military equipment to friendly countries. India has imposed a phased import ban on 310 different weapons and systems during the last two years, which helped boost export. These weapons and platforms will not only be indigenised in phases over the next five to six years, but also will be made available for exports.

India accounted for 0.2% of defence exports in the world during 2017-21. India exported defence equipment to a total of 84 countries. The main exports in the last financial year were to the United States followed by the Philippines. In January 2022, India signed a USD 374.96-million deal with the Philippines, its single biggest defence export order, for the supply of three batteries of shore-based anti-ship variant of the BrahMos supersonic cruise missile. The Brahmos missile deal with

Philippines further opened the doors for sales to various other Asian countries.

Over 30 Indian defence companies have exported arms and equipment to countries like Italy, Maldives, Sri Lanka, Russia, France, Nepal, Mauritius, Sri Lanka, Israel, Egypt, UAE, Bhutan, Ethiopia, Saudi Arabia, Philippines, Poland, Spain and Chile. As of now, the exports include missiles, personal protective gears, surveillance systems, defence electronics systems, engineering mechanical equipment, offshore patrol vessels, advanced light helicopters, avionics suits, radio systems and radar systems, tear gas launchers, simulators, loading mechanisms for aircraft, torpedoes, night vision binoculars, fire control systems for armoured vehicles, high-frequency radios, weapon locating radars, and coastal radar systems.

Among the systems and weapons that cannot be imported, there are missile destroyers, light transport aircraft, light combat aircraft, long-range land-attack cruise missiles, multi-barrel rocket launchers, mini-UAVs, next-generation corvettes, and artillery guns, specified types of helicopters, airborne early warning and Control (AEW&C) systems, assault rifles, sniper rifles. India is going to update this list with more items.

There is a paradigm shift in India's defence exports but a quantum jump in the exports is only possible if Indian industry is ready to export large weapon systems and platforms. In 2020 December India approved the export of Akash surface-to-air missile systems to friendly foreign countries. Besides Akash, India has a lot of potential in exporting, Astra beyond visual range air-to-air missile systems, tanks, sonars, radars and Light Combat Aircraft (LCA) Tejas. Six countries including the USA, Australia, Argentina, Egypt, Indonesia and the Philippines showed interest in buying the indigenously developed LCA Tejas. Malaysia already placed an order for procuring 18 Tejas twin-seater variant fighter jets.

Boosting Cutting-edge Technologies For Futuristic Requirements



DRDO has been working on empowering the nation with indigenous defence technologies and systems, with focus on developing the defence R&D ecosystem in the country. Excerpts from the interview with Dr Samir V Kamat, Secretary, Department of Defence R&D and Chairman, DRDO.

Dr. Samir V Kamat

*Chairman, DRDO & Secretary Defence R&D
Ministry of Defence, Govt. of India*

DRDO celebrated its 65th Foundation Day on January 1 and you commended the fraternity for achieving a number of milestones in 2022. How much productive was 2022 for DRDO when the industry survived the impact of the Coronavirus pandemic?

Year 2022 has been a very good year for the nation as well as DRDO. Several systems developed by DRDO have been delivered, handed over to or inducted by the users.

These include: Three firing units of Medium Range Surface to Air Missile for IAF, Shakti EW system, InfraRed Signature Suppression System for ships, 1000lb Thermobaric bomb, Brake Parachutes for Su-30 fighters aircraft, Commanders Thermal Imaging Sight with Laser Range Finders for T-90 Tank, Dhvani Automated Sonar Trainer, Four types of Radiation Contamination Monitoring Systems, MIG-29 Aircrew Helmet & Pressure breathing Oxygen Mask.

Acceptance of Necessity has also been accorded by Defence Procurement Boards and Defence Acquisitions Council for induction of several DRDO developed systems. Some of the notable systems include: Sarang ESM system, Light Tank, Tactical Advance Range Augmentation Kit (TARA), Long Range Guided Bomb (LRGB) Gaurav, Naval Anti Ship Missile-Medium Range (NASM-MR), Air surveillance radar for NGMV, Low Level Transportable Radar

(LLTR) Ashwini, New Generation Anti Radiation Missile (NGARM), Pralay Guided Extended Range Rocket Ammunition for Pinaka, Self-Propelled Mine Buri, Infantry Combat Vehicle-Command, Anti-Personnel Fragmentation Mine 'Ulka', Infantry Floating Foot Bridge, Bridge Laying Tank (BLT) T-72 and ACADA.

DRDO has been working on empowering the nation with indigenous defence technologies and systems, with focus on developing the defence R&D ecosystem in the country and strive to realise Prime Minister's vision of 'Aatmanirbhar Bharat'.

India has achieved a considerable level of self-reliance in critical defence technology but there is still a long way to go. What are DRDO's plans to increase the pace of attaining Atmanirbharata in defence?

DRDO has taken several initiatives to strengthen the indigenous defence R&D ecosystem in the country. DRDO is focusing on working in products and technologies which are at low readiness level. While technology which has now matured is being handed over to industries, many industries are now working with DRDO as Development Cum Production Partner (DcPP). Young scientist laboratories of DRDO are dedicatedly working in futuristic technologies namely Artificial Intelligence, Quantum Technologies, Cognitive Technologies, Asymmetric Technologies and Smart Materials. DRDO has established 15 Centres of Excellence in collaboration

with various academia institutes all over the country to develop critical technology for meeting futuristic requirements of Armed Forces. DRDO also funds research under its various Grant-in-Aid Schemes to undertake research in the fields of Aeronautics, Armaments, Naval and Life Sciences to strengthen funded research.

DRDO has also identified 108 systems and subsystems for designing and development by the Indian Industry only. All DRDO system laboratories have AI technology groups to introduce AI features in products under development.

Increasing defence export share is crucial for India considering its ambitions in the industry. How strong is DRDO's export business?

DRDO developed Defence products have created a lot of interest in many countries and have been exported too. Many products based on DRDO technologies have already been exported by DPSUs and Industry.

BrahMos Aerospace Private Limited (BAPL), the joint venture company of DRDO & NPOM, Russia has signed a contract with the Department of National Defence of the Republic of Philippines last year for supply of Shore Based Anti-Ship Missile System to Philippines. This contract will give further impetus to indigenous production of critical weapon system and ammunition with active participation of our industry. Previously, DRDO developed WLR Swathi was exported to Armenia. Many naval products developed

by DRDO like Torpedoes, Sonars have been exported to the neighbouring countries.

Akash Missile System has been recently cleared for export. More export opportunities are emerging for Weapon Locating Radar, Torpedoes, Sonars, etc.

DRDO has also come out with a compendium on “DRDO Products for Export” to give impetus to export. This will provide the necessary and handy information about the DRDO products, which are ready for export. We will see tremendous increase in defence exports in next few years.

Acceptance of Necessity (AON) has been accorded by the Defence Procurement Boards and Defence Acquisitions Council for induction of several DRDO developed systems. Could you elaborate?

Defence Acquisition Council (DAC) in January this year accorded Acceptance of Necessity (AoN) for procurement of HELINA Anti-Tank Guided Missiles, launchers and associated support equipment which will be integrated on the Advanced Light Helicopter (ALH) and will further strengthen the capability of Indian Army. Besides, DAC also accorded AoN for procurement of VSHORAD (IR Homing) missile system under design and development by DRDO. Procurement of VSHORAD, as a robust and quickly deployable system, will further strengthen the Air Defence capabilities.

Prior to this, in December 2022, the DAC headed by Hon'ble Raksha Mantri Shri Rajnath Singh had accorded approval for AoN of Futuristic Infantry Combat Vehicles, Light Tanks, Naval Anti-Ship Missiles, Multi-Purpose Vessels, new range of missile system, Long Range Guided Bombs, Naval Anti-Ship Missiles etc., which will further modernise our Armed Forces and will provide substantial boost to the defence industry to achieve the goal of 'Aatmanirbhar Bharat'. The AoNs accorded will equip the Indian Army with platforms and equipment such as Futuristic Infantry Combat Vehicles, Light Tanks and Mounted Gun System providing a quantum jump to Indian Army's operational preparedness. Similarly, Indian Air Force will be further strengthened with enhanced lethal capabilities by induction of new range of missile system, Long Range Guided Bombs etc.

Several major systems developed by DRDO have either been completed or are in the final stages of user evaluation. Could you talk more about it?

Several major systems developed by DRDO have either been completed or are in the



final stages of user evaluation. These include Advanced Towed Artillery Gun System (ATAGS), Third Generation Helicopter Launch Anti-Tank Guided Missile 'Helina', NAMIS (Tracked) and 'Nag' Anti-Tank Guided Missile, Quick Reaction Surface to Air Missile, Medium Range Surface to Air Missile, Mechanical Mine Layer (self-propelled), 84 mm Anti-Thermal/Anti-Laser Smoke Grenade, HEPF and RHE (Enhanced) Rocket Ammunition for Pinaka MRLS, 125 mm FSAPDS, Air Defence Fire Control Radar 'Atulya', Weapon Locating Radar for Mountains, V/UHF Manpack Software Defined Radio, P-16 Heavy Drop System, Portable Diver Detection Sonar System, Advanced Light Weight Torpedo, and Sea Water Purification Kit for Gaganyaan Mission.

Several other systems are also undergoing developmental trials. These include Electronic Warfare Systems for Naval platforms under the programme Samudrika,

Phase-II Ballistic Missile Defence Interceptor AD-1 Missile, extended range version of BrahMos from Su-30 aircraft, Very Short Range Air Defence System, Naval Anti-Ship Missile-Short Range, Agni Prime, Vertical Launch-Short Range Surface to Air Missile (VL-SRSAM), Akash-New Generation, Man-Portable Anti-Tank Guided Missile (MPATGM), Enhanced Range Pinaka Rocket System, High speed expendable Aerial Target 'Abhyas', Small Turbo Fan Engine, Kaveri Dry Engine, WhAP-CBRN, Shatrughat and EW Systems for Plains and Desert Active Electronically Scanned Array Radar 'Uttam', Advanced Light Towed Array Sonar among others. It is expected that most of the systems under trials will be handed over to the users in the coming year.

What are the latest updates on the Electronic Warfare Systems for Naval platforms under the programme



Samudrika, Naval Anti-Ship Missile-Short Range and Advanced Light Towed Array Sonar, which are undergoing developmental trials?

Programme 'Samudrika' will result in achieving hundred per cent indigenisation of Electronic Warfare fit onboard Indian Naval Platforms Electronic Warfare (EW) Systems for Naval platforms. The Programme SAMUDRIKA is undergoing developmental trials. The programme aims at design and indigenous development of a family of Seven Electronic Warfare Systems meeting the requirements of Navy for different platforms viz., Ships, Helicopters and Aircrafts, with a firm commitment from Navy for quantity production and induction of these Systems.

Advance Light Towed Array Sonar (ALTAS) development is critical to underwater defence of the Indian Navy. This will enhance the Navy's capabilities to detect quieter enemy submarines underwater. It is useful in Anti-Submarine Warfare (ASW)

operations and is the apt sensor for warships to locate silent submarines capable of launching high speed torpedoes. With NPOL emerging as a leading and high performing R&D laboratory working in the area of underwater surveillance systems, Sonar systems developed by it are being used in Indian Navy's frontline platforms for last few decades and many of them have entered into third and even fourth generation products.

Aiming to improve logistics for operations in the Himalayas DRDO has developed an unmanned aerial vehicle (UAV) recently. Could you talk more about it?

With an aim to carry out logistic operations in the Himalayan frontier, DRDO has developed an untethered multi-copter payload, an unmanned aerial vehicle (UAV). The multi-copter can carry out autonomous missions with waypoint navigation. The multicopter was exhibited by DRDO at recently held 108th Indian

Science Congress in Nagpur, Maharashtra.

Could you talk about DRDO-Industry-Academia Centres of Excellence which are important in developing the defence R&D ecosystem in the country?

DRDO has established a total of 15 DRDO-Industry-Academia Centres of Excellence (DIA-CoEs) in collaboration with various academia institutes all over the country to develop critical technology for enabling futuristic requirements of Armed Forces. Currently, 867 projects are on-going with academia at a cost of Rs 1,183 crore. DIA-CoEs have been established to conduct directed research in advanced technologies for defence and security and to create a world-class research centre developing cutting-edge technologies. DRDO funds directed research through DIA-COE in the identified research areas. It will also make a major contribution towards 'Aatmanirbhar Bharat' in defence sector.

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IDEX & NAVDEX 2023 pictures



The Indian Team and the EDGE Group, UAE team after signing the MOU between EDGE Group and BDL.





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H3 GROB AIRCRAFT:

The successful path from aircraft manufacturer to complete service provider in the field of military pilot training



One of the world's leading providers of military pilot training systems is expanding its presence to countries in the NATO alliance with the G120TP. Sweden, USA, UK and Germany are the first NATO countries to benefit from the company's complex G120TP training system.

Since the company was founded in 1971, GROB AIRCRAFT has impressed with innovative ideas in aircraft construction. While at the beginning the buyers were mainly private aircraft enthusiasts, the tide turned in the mid-1980s with the introduction of the G115. The extended version, the G115E, was already being used as a military training aircraft by the British Royal Air Force and Royal Navy. All G115s were made entirely of composite materials and were designed for maximum g-forces of +6/-3g, making them fully aerobatic.

As a result, the company was one of the leading manufacturers of composite aircraft with excellent flight characteristics at an early stage. With the introduction of the G120A at the end of the 1980s, the course for further development was set, and with the granting of FAR 23 certification in 2001, the company's success was finally assured.

The German, Israeli and Canadian Air Forces operated the first G120A fleets from 2001, followed by the French Air Force in 2007.

When the company was acquired by the family-run H3 AEROSPACE GROUP in 2009, another decisive chapter began on the way to becoming a global provider of training systems. The first thing the company focused on was the further development of the G 120A into the G 120TP. Conceived as a variant of the G 120A, however, the G 120TP has been virtually redeveloped over the years, resulting in a stand-alone aircraft that is no longer comparable to the former G 120A.

Training Aircraft Grob G 120TP

Powered by a high-performance Rolls Royce (Allison) turbine engine, the G 120TP enters completely new dimensions of military pilot training and sets new standards in pilot training.

The GROB G120TP training aircraft are equipped with a modern glass cockpit and the latest digital technology. The combination of simplicity in basic training and a high-tech mission system for advanced pilot training enables the Air Force to use a highly efficient and economically unique training system. A costly change of aircraft types is completely eliminated. Thanks to the modular and perfectly coordinated training system, trainee pilots are excellently prepared for different aircraft types when they complete their training. This ensures a smooth transition for further training and specialisation of the young pilots, for example for jets, transport aircraft or helicopters.

It is not only air forces that benefit from massive savings. Above all, the pilot benefits from better training quality, which increases his skills and safety. Radar navigation, HOTAS and weapons management



simulation are just a few examples of what is trained on the new G120TP.

This 'new generation' cockpit will also provide for possibilities to download a substantial amount of training syllabus modules, normally flown on more sophisticated aircraft, with a much bigger price tag and higher operating cost. Not only will the operator benefit on substantial savings, but primarily the pilot will enjoy a better training quality, enhancing proficiency and safety. Radar Navigation, HOTAS and Armament Management Simulation are just a few examples to be downshifted to the newly available G120TP.

Cockpit G 120TP

Theoretical training takes place within the framework of the H3 GROB TRAINING SYSTEM (GTS). The central component of the GTS is the G 120TP flight simulator. The cockpit of the Flight Training Device FTD corresponds to the actual aircraft configuration. The dome display system (300° x 160° FOV) provides realistic visualization of different environments and flight scenarios, complemented by simulation of significant acoustic cues for training rapid decision-making processes.

FTD dome display system

Added to this is the specially developed "Computer-Based Training" (CBT). It provides the theoretical learning content in the form of software that allows trainee pilots to learn at their own speed and regardless of location using preconfigured tablets - but always connected to the CBT server and under the supervision of the flight instructor (FI).

In addition, there is a fully functional cockpit that is used as a Procedure Trainer (CPT). The CPT enables rapid learning of basic cockpit and instrument layout and checklist procedures before the flying phase on the G 120TP begins.

Another milestone is the current



development of interactive learning processes in the context of Virtual Reality applications. The VR-training environment combines state-of-the-art hardware, including VR-Headset, hand-tracking, and physical flight controls, with custom-tailored software to provide users with a virtual training platform that fulfils their specific requirements.

VR-training environment

The system allows for the familiarization of physical controls and operating elements, including engine, aerodynamics while the VR-headset provides a realistic flight impression that follows every head movement of the student. The system erases boundaries and limits in previous existing flight simulation models. It trains cognitive skills, motor skills and mechanisms.

In combination with the element of virtual reality, the trainee can learn through an all-encompassing flight experience from basic flight training, procedures and

maneuvers. It reduces error rates and costs significantly while expanding the learning experience for pilot students.

It is therefore fair to say that H3 GROB AIRCRAFT provides a training system that is second to none. The holistic training system is offered and sold worldwide under the in-house label ACE - Aviation Centers of Excellence. The complete planning of hangars and training buildings is also part of the ACE concept. Everything from one source is not just an advertising slogan here, but actually lived reality.

The advantages are obvious, as this concept allows all resources of the company to be used cost-effectively and highly efficiently: From the provision of one of the most modern training aircraft in the world, the in-house maintenance of the aircraft, the GTS training system for all theoretical aspects of the training to the planning and construction of the complete environment in the ACE package.

The fact that NATO countries Sweden, USA, Great Britain and also Germany have recently chosen H3 GROB AIRCRAFT proves that the future for state-of-the-art training concepts "Made in Germany" has just begun and that the long tradition of German aircraft manufacturing will be continued. ■



EDGE, ADSB and IAI presents an unmanned maritime system



In historic first, Israel and the United Arab Emirates participated in a joint unmanned maritime demonstration where they performed a range of military and commercial missions. EDGE, ADSB and IAI held the joint demonstration at NAVDEX exhibition in Abu Dhabi. The jointly-produced autonomous vessel is fitted with sensors, sonar, and imaging systems integrated into a partially or entirely remotely-operated unified command & control system, which does not require human intervention.

The new system is being presented a year after a commercial cooperation agreement was signed between the companies, under which EDGE, and ADSB (Abu Dhabi Ship Building) the region's leading shipyard, would use their capabilities in design, production, maintenance, adaptation, and conversion of commercial and other vessels. ADSB will design the platform, integrate the sensors and control systems on board the vessel, and develop its operational concept. IAI will develop and supply the autonomous

control system, and integrate a range of dedicated sensors into the control unit, all in accordance with the needs of the program.

Military applications made possible by autonomous vessels include intelligence-related activities, tracking, observation, border and coastal surveillance, the means for conducting maritime security, mine-detection, submarine detection and anti-submarine warfare, and the deployment of platforms for vertical takeoff and landing. The vessels are also suitable for civilian applications including oceanography, pollution detection and monitoring, oil and gas drilling, liquid material transportation, search & rescue, firefighting, and the early interception of threats.

Boaz Levy, Israel Aerospace Industries' President & CEO, added: "The unmanned maritime vessel we are exhibiting represents a historic moment: for the first time, cooperation between Israel and the United Arab Emirates has resulted in an advanced technological product which includes

autonomous systems and robotics. This joint realization is taking place in the UAE, and incorporates the very best technological knowledge of EDGE and ADSB, specialists in maritime and commercial activities, together with Israel Aerospace Industries. Our advanced technology allows us to leverage business opportunities ensuring the growth of both companies for many customers around the world."

David Massey, ADSB's CEO, said: "ADSB is very pleased to have worked with its partners to develop a cost effective autonomous inshore and harbor protection mine countermeasure (MCM) vessel which minimizes risks to personnel and can be put into production according to customer specifications significantly faster than larger vessels. Strengthening strategic partnerships to enhance our capabilities is a strategic priority for both ADSB and EDGE for the wider benefit of our customers both locally and globally."

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BEL signs MoU with Globals for Cyberwarfare & Cyber Defence Systems

Defence PSU Bharat Electronics Ltd (BEL) has signed an MoU with Globals ITES Private Ltd for co-operation in technology development, co-creation and co-innovation, joint marketing and sales, in the fields of cyberwarfare and cyber defence systems during Aero India 2023.

The MoU aims at leveraging the complementary strengths and capabilities of BEL and Globals. The two parties shall work in close co-ordination, providing all the key assistance to each other for R&D as well as Joint Go to Market for Cyber Security Solutions.



Manoj Jain, Director (R&D), BEL, and Suhas Gopinath, CEO, Globals ITES Private Ltd, exchanging the MoU document signed between BEL and IAI, Israel.

“This partnership with BEL comes at a crucial time when there is an exponential rise in cyber attacks globally, and as a corollary, a huge demand to protect both critical and non-critical infrastructure from cyber-attacks,” said Mr Bhanu Prakash Srivastava, Director (Other Units), & Additional Charge, Chairman & Managing Director & Director (Marketing).

BEL and Globals will jointly create sector-specific Cyber Security Solutions, Integrated Threat Management Systems, modern Security Operations Centres (SOC), and Artificial Intelligence (AI)-driven Cyber Defence Systems.



The EDEX team welcoming the Egypt Chief of Staff (centre) to the EDEX2023 booth at IDEX2023. He was joined by the Chief of Arms & Ammunition and the Minister of Defence Assistant. From the EDEX team Hassan Bakr, Managing Director and Thomas Gaunt, CEO are also seen.



IAI, Israel, & BEL to form JV to provide Product Support for India's Defence Forces



Bhanu Prakash Srivastava, CMD, BEL, and Dror Brar, VP & GM, IAI, Israel, pose for a photo with Minister Ajay Bhat, Air Vice Marshal Sharad Jain, VSM, ACAS (MP), Rear Admiral B Sivakumar, AVSM, VSM, ACOM (IT&S), and other senior officers of BEL and IAI, Israel, after the announcing of the MoA to form a joint venture that aims at a single point of contact for extending long-term product support services for India's Defence Forces.

Navratna Defence PSU Bharat Electronics Limited (BEL), India's leading manufacturer of defence electronic products and systems, and Israel Aerospace Industries (IAI), Israel's leading aerospace and defence company, have concluded the MoA to form a joint venture that aims at a single point of contact for extending long-term product support services for India's Defence Forces.

The announcement was made by the Minister of State for Defence Ajay Bhat, at Aero India 2023.

The partnership is another significant step in cementing the relationship between the two companies that have a long history of association. BEL and IAI are engaged in several joint programmes for the Indian Defence Forces. The new joint venture is being established for providing life cycle support for MRSAM air-defence systems in the country. The new venture will have its headquarters in New Delhi and provide the required technical and maintenance support to the Armed Forces.

MRSAM is an advanced path-breaking air and missile defence system that

provides protection against a variety of aerial platforms. It is used by the Indian Air Force, Indian Army, Indian Navy and Israeli Defence Forces. The system includes an Advanced Phased Array Radar, command and control shelter, mobile launchers and interceptors with an advanced RF seeker. MRSAM is jointly developed by IAI and DRDO in collaboration with India and Israel for India's Defence Forces.

Through this Joint Venture, IAI reiterates its support to the Indian Government's vision of an Atmanirbhar Bharat (self-reliant India). It also goes a long way in demonstrating the company's commitment to the strong partnership with DRDO in developing and supporting advanced systems for the Indian Armed Forces. This co-operation will leverage the synergetic capabilities of both IAI and BEL.


The minister said: "Israel is a very important strategic partner of India and the successful development and deployment of MRSAM System for the Indian Defence Forces is a shining example of the successful joint collaboration between the two countries. This Joint Venture

between two prestigious companies of India and Israel will certainly play a very important role as a single point of contact in delivering product support services for MRSAM Systems. It will be a driving force for the Make in India policy."


Bhanu Prakash Srivastava, CMD, BEL, said: "BEL considers IAI, Israel, as a very important strategic partner. This Joint Venture between the two companies is expected to play a pivotal role in ensuring timely Product Support services for MRSAM Systems and enable substantial indigenous workshare with active participation of the Indian supply chain."

Boaz Levy, IAI's President and CEO, had said earlier: "Our joint venture with BEL will leverage the best technology, innovation and talent to provide services matching the needs of our customers in India. It follows our announcement in 2022 about the opening of Aerospace Services India (ASI), an IAI subsidiary in New Delhi, both of which illustrate our support of the Government's 'Atmanirbhar Bharat' initiative and investment in India."

Airshows and Defence Exhibitions



SL NO	Event	Date/Year	Country
1	LAAD Security 2023	11-14 April,2023	Rio De Janeiro, Brazil
2	IMDEX ASIA-2023	3-5 May,2023	Singapore
3	DEFEA-2023	9-11 May,2023	Athens, Greece
4	LIMA -2023	23-27 May,2023	Langkawi, Malaysia
5	Milipol Asia-Pacific 2023	18-20 May,2023	Singapore
6	Paris Airshow-2023	19-25 June ,2023	Paris, France
7	Army Expo-2023	14-20 Aug,2023	Moscow,Russia
8	DSEI-2023	12-15 Sep,2023	London,UK
9	Seoul ADEX-2023	17-22 Oct,2023	South Korea
10	Defence & Security-2023	6-9 Nov,2023	Bangkok, Thailand
11	INDO PACIFIC-2023	7-9 Nov,2023	Sydney, Australia
12	MILIPOL PARIS-2023	14-17 Nov,2023	Paris, France
13	EDEX-2023	4-7 Dec,2023	Cairo, Egypt
14	World Defence Show-2024	4-8 Feb,2024	Riyadh, Saudi Arabia
15	Singapore Air show-2024	20-25 Feb,2024	Singapore
16	DIMDEX-2024	5-7 Feb,2024	Doha, Qatar
17	MILIPOL Asia-Pacific-2024	April, 2024(TBC)	Singapore
18	DSA Malaysia-2024	6-9 May ,2024	Kuala Lumpur, Malaysia
19	Eurosatory-2024	17-21 June, 2024	Paris, France
20	Asian Defence & Security (ADAS)-2024	25-27 Sept ,2024	Manila, Philippines



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HAL: India's Innovative Splendour



One of the oldest and largest aerospace and defence manufacturers in the world, Hindustan Aeronautics Limited (HAL) has made its mark as a pioneering Asian innovator in designing and manufacturing of fighter jets, helicopters, jet engine and marine gas turbine engine, avionics, software development, spares supply, overhauling and upgrading of military aircraft. Mihir Kanti Mishra, CEO, Bangalore Complex, HAL, gives us an insightful overview on the current and futuristic developments of HAL.

Mihir Kanti Mishra
CEO, Bangalore Complex, HAL

India is keen on improving its UAV fleet. Could you talk about the operational highlights of integration and testing of UAVs - Target Drones and MALE UAVs - by the aircraft division of HAL Bangalore Complex?

HAL Aircraft Division, Bangalore has been involved in production of UAVs from 1998 with Pilot Less Target Aircraft, Lakshya in association with Aeronautical Development Establishment (ADE).

With regard to MALE class UAV - TAPAS, Aircraft Division has initiated production of five airframes and shall be carrying out integration and testing of these prototypes in co-ordination with ADE.

On the Target drones, HAL has successfully delivered the first batch of Abhyas UAV to ADE in October 2022 and has been identified as Development cum Production Partner for Abhyas-HEAT platform. HAL is keen to participate with ADE for all future developments.

Last year HAL has signed an MoU with Safran Helicopter Engines to extend their cooperation and explore opportunities for new helicopter engines in civil and military markets. Could you share the latest updates on this association?

An MoU was signed between HAL and Safran Helicopter Engines in July 2022 to explore potential cooperation for the development, certification, production, sale and support of the Engine for the Helicopter

through a Joint Venture company (JVC). This JVC shall undertake development of the engine with the support of the parties with the applicable work share. The discussions are in progress between both the parties.

Can India be self-reliant in terms of aircraft engines? How does HAL support this dream? What are the challenges?

HAL has the capability for manufacturing and maintaining Aero Engines. Also, HAL has been stressing on the importance of indigenisation of LRUs/ components of aero engines to attain a higher level of self-reliance. To this effect, HAL has implemented a policy to boost indigenization of components, accessories and systems required for manufacture as well as repair and overhaul of aircraft, engine and equipment. Indigenization with the primary objective of achieving 'Make in India' and lowering dependence on foreign countries, especially for critical items, is one of the key thrust areas of HAL.

HAL has taken initiative with two design projects on engine development. For fixed wing, HAL has taken up design and development of HTFE-25 Engine, a turbo fan engine for powering medium thrust class aircraft and for Rotary wing, HTSE-1200 turbo-shaft engine for powering helicopters.

What are the latest updates of the LCA project? How does HAL respond to the need to increase the pace of LCA

production to meet the requirements of the IAF's modernization?

HAL has received three different contracts from Indian Air Force for the delivery of LCA-Tejas aircraft along with engineering support package. HAL has produced all the IOC and FOC fighter aircraft which are currently operational with two squadrons of IAF. Production of trainer aircraft against the above contracts is under progress and would be completed by FY 2023-24.

LCA Mk 1A contract was signed in January 2021. Under this Contract, fighter aircraft integrated with AESA Radar, EW Suite, BVR Missile and maintainability improvement will be produced. Design and development activities of Mk1A aircraft is being progressed towards certification of above mentioned capabilities. Further, production activities have commenced concurrently to ensure the delivery of aircraft from February 2024 onwards.

To increase the pace of production of LCA-Tejas, HAL has taken various advancing steps including establishment of two dedicated production lines, one each at LCA and Aircraft Division, setting up of an additional state-of-the-art facility (Plant-II) which is spread across 35,000 sq. m built up area. In addition, productivity improvement initiatives by adopting latest simulation software packages, Diversification of internal supply chain and Enhancement of Private players in production have been taken up by HAL.



The Overhaul Division has over 80 years of experience in aircraft MRO. Could you elaborate on its facilities, certifications, achievements and ongoing projects?

HAL Overhaul Division, Bangalore was established during December 1940 and spread over an area of more than 10 hectares of land. Division has maintained and serviced 25 variety of aircraft ranging from basic trainer to fourth generation fighter aircraft such as Liberator, Fortress, Mitchell, Dakota, Curs, Tiger Moth, Canberra, Kiran, Jaguar, Mirage 2000 and Hawk, to name a few.

HAL has well-equipped Accessories Repair/ Overhaul Centres with excellent infrastructure to handle sophisticated Mechanical, Electrical, Pneumatic, Avionic accessories of aircraft/ helicopters. Over 4,500 aircraft, 6,500 piston Engines and 100K accessories were serviced till date. Highly sensitive testing equipment are employed during Repair/ Overhaul of system accessories. State of Art MRO facility for servicing of about 900 types of accessories of aircraft and helicopters has been established.

HAL is the only agency to undertake Major Servicing of Mirage 2000 aircraft other than OEM. HAL is also undertaking aircraft upgrade/ integration of new systems. Presently, upgrade of Jaguar aircraft to DARIN III standard and Mid Life upgrade of Mirage 2000 aircraft is under progress.

Also, facility is being established for Major Servicing of LCA and first aircraft is planned for induction in next one or two years.

Could you talk about the Industrial & Marine Gas Turbine Division and its latest operations?

IMGT Division of HAL is a Production, Maintenance, Repair & Overhaul Center for Industrial and Marine Gas Turbines under license from reputed OEMs. IMGT was formed in April 1998 in Bangalore to cater to the Marine Engine requirements of Defence customer for Indian Navy's Shipbuilding Programs and Industrial Engine requirements of civil customer's viz. ONGC and GAIL.

HAL under collaboration with General Electric, USA has assembled, tested and supplied LM2500 Gas Turbine (25 MW) for three major Naval Projects including India's First Indigenous Aircraft Carrier 'INS Vikrant' which was commissioned successfully during September 2022 and Stealth Frigate class ship.

HAL has acquired the required expertise in the field of marine propulsion systems. HAL is working towards becoming a complete solution provider for the Indian Navy for propulsion and power generation. HAL is also collaborating with leading gas turbine manufacturers who can provide propulsion systems with power range from 1.25 MW to 40 MW which would cover all classes of ships of Indian Navy.

Also, IMGT Division is an authorised Maintenance, Repair and Overhaul Center for repair and overhauling of 15 MW Industrial Avon and 3.9 MW Industrial 501K Gas Turbines.

How does HAL support the private participation in defence and aerospace manufacturing? How much does private companies, MSMEs & start-ups contribute to HAL's activities?

India is presently one of the biggest arms importer, however the push of the Union Government towards AATMANIRBHAR BHARAT, primarily in Defence sector, has opened the wide range of opportunities for both public and private sector enterprises. During the production of LCA-Mk 1, HAL has developed a sturdy base of around 400 vendors and with the further Mk1A contract, this number will only go up. Apart from the major private players developed by HAL for structural modules, more than 200 Indian Companies are involved in Tooling, Ground Support and Handling Equipment supplies for the program.

Further, LCA-Tejas is a strong contender in foreign market for the export. The export orders will further give the vendors a huge quantum of work share in the Indian Defence Industry.

Further, HAL Aerospace Division encourages the private participation in manufacturing of detail components, sub-assemblies, assemblies, looms etc. Division has vendor base of 115+ suppliers who supports up to 30% of manufacturing activities. The participation of private industries is expected to reach up to 45% by FY25-26.

Indo – Japan Naval Exercise “Dharma Guardian” to commence in Japan



The 4th edition of joint military exercise, “EX DHARMA GUARDIAN”, between India and Japan is being conducted at Camp Imazu in Shiga province, Japan from 17 February to 02 March 2023. Notably, in the series of military training exercises undertaken by India with various countries, Exercise DHARMA GUARDIAN which is an annual training event with Japan, is crucial and significant in terms

of security challenges faced by both nations in the backdrop of current global situation. The scope of this exercise covers platoon level joint training on operations in jungle and semi urban/urban terrain.

Troops of the Garhwal Rifles Regiment of the Indian Army and an Infantry Regiment from the Middle Army of the Japan Ground Self Defence Force (JGSDF) are participating in the exercise this year to share experiences

gained during operations in order to enhance inter-operability in planning & execution. The Indian Army contingent arrived at the exercise location on 12 February 2023 where they were accorded a warm reception.

The joint exercise will enable the two armies to share best practices in tactics, techniques and procedures of conducting tactical operations under a UN Mandate, in addition to developing inter-operability, bonhomie, camaraderie and friendship between the two armies. The training will focus primarily on high degree of physical fitness and sharing of drills at the tactical level. During the exercise, participants will engage in a variety of missions ranging from joint planning, joint tactical drills, basics of establishing integrated surveillance grids, including employment of aerial assets. The joint exercise will facilitate both armies to know each other better, share their wide experiences and enhance their situational awareness.

“Exercise Dharma Guardian” will further enhance the level of defence co-operation between Indian Army and Japanese Ground Self Defence Forces, furthering the bilateral relations between the two nations.





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