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TOP 25 MILITARY COMPANIES**

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20 YEARS**

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please contact: editor@arabiandefence.com | editor@aeromagasia.com
Tel : + 919448447509 | + 91 9480551925 | +91 80 43747492



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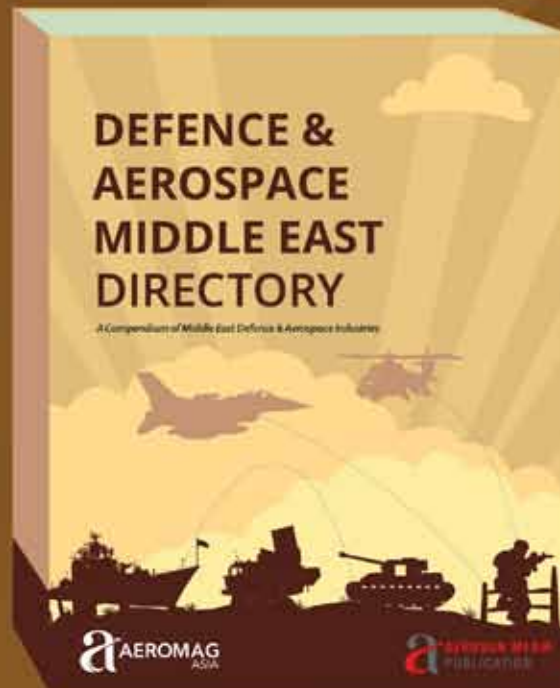
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For details contact:
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IDEX, NAVDEX offer much needed hope in New Year



Sunny Jerome
Managing Editor

The upcoming International Defence Exhibition (IDEX) and the Naval Defence Exhibition (NAVDEX) to be hosted by Abu Dhabi, UAE will be the first mega global event in the defence sector as the world makes a recovery from COVID-19. The event offers huge business opportunities as it showcases the latest developments in the defence sector.

IDEX and NAVDEX 2021 will be a platform for the Global Aerospace and Defence Industry to develop partnerships, share new technologies and explore new domains as over 1,300 exhibitors from 60-plus countries are expected to take part.

Another significant aspect of IDEX and NAVDEX-2021 is that it will witness the participation of Israel for the first time, along with Luxembourg, Macedonia, Portugal, and Azerbaijan. The path-breaking development of the UAE formally normalizing its relations with Israel would certainly reflect at IDEX and lead to measures that ensure peace as well as stability in the region.

In other words, the New Year brings much hope. Moreover, with efforts to contain the pandemic showing signs of success, global business is expected to witness a revival.

As the world looks ahead for better times, ARABIAN DEFENCE wishes everyone a New Year full of Peace, Happiness, and Success in Business.

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Editor, Araabian Defence, Aeromag Asia, Aeronautical Society of India Building
Suranjandas Road, Off old Madras Road, Bangalore 560075. Karnataka, INDIA
Call: +91 94490 61925 Tel: +91 80 43747492 Email: editor@arabiandefence.com
www.arabiandefence.com

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NIMR Celebrates 20 years



NIMR Celebrates 20 Years: With a 37,500-sq. m production facility, NIMR is the largest military vehicle manufacturer in the region.

NIMR, the leading manufacturer of combat-proven wheeled military vehicles,

marked its 20th anniversary in serving the defence sector in the UAE and beyond. Following extensive

investments in building battle-proven platforms, NIMR is widely recognised as the foremost manufacturer

of armoured vehicles in its class, and offers end-to-end solutions including mission system integration



and logistics support.

NIMR commenced operations in the year 2000 with its first vehicle, NIMR1. Since then, the company has delivered thousands of vehicles to

regional and international clients. Over the past 20 years, NIMR's business has grown from strength to strength, with its vehicles building a reputation for their versatility, ruggedness

and exceptional performance in some of the world's harshest environments. Highly customisable, NIMR platforms are renowned for their plug-and-play electronic

architecture that allows for seamless integration of multiple weapons and mission systems.

Today, NIMR has a portfolio of 20+ mission-proven military vehicles



capable of addressing the most demanding duty-cycle requirements across complex mission-critical scenarios and has the largest facility among similar military vehicle manufacturers in the region. Over the years, NIMR has successfully grown its global footprint through joint ventures and partnerships with defence operators in countries including Algeria and the Visegrád Group of nations (Czech Republic, Hungary, Poland, and Slovakia).

In its milestone 20th year, NIMR is excited to have a very healthy order pipeline to enable it to sustain and grow well into the future. The company is currently preparing to roll out second generation of its product

portfolio that will reinforce its sophisticated technical and engineering capabilities.

Over the years, NIMR has successfully grown its global footprint through joint ventures and partnerships with defence operators in countries including Algeria and the Visegrád Group of nations (Czech Republic, Hungary, Poland, and Slovakia).

Dr. Fahad Al Yafei, President – EDGE Platforms & Systems, said, “NIMR’s story is one of focused ambition and progress. We are proud to witness the company’s surge from a small, homegrown

enterprise to the highly competitive and globally recognised armoured vehicle

manufacturer it is today. Through relying on its passion and determination to succeed, the company has pioneered many firsts in the region over 20 eventful years. We now have our sights set firmly on the

next 20 years of growth.”

Abraham Du Plessis, Chief Executive Officer of NIMR, said: “NIMR has always sought solutions that differentiate its value proposition to stay ahead of the curve and we are pleased and proud to celebrate this milestone. We owe our success to the competencies and skills of our people and will continue to leverage these to ensure our offerings remain innovative and differentiated. We also reiterate our commitment to complying with the highest standards in design and manufacturing to ensure protection and mobility. Only through doing so can we deepen our global synergies as we continue to expand.”

The company is currently preparing to roll out second generation of its product portfolio that will reinforce its sophisticated technical and engineering capabilities.

NIMR offers complete end-to-end solutions in its area of specialisation, including mission systems integration support. The company's vehicles are manufactured at its state-of-the-art facilities that conform to international quality and military standards and are designed to endure a diverse scope of mission requirements. NIMR is part of the Platforms & Systems cluster within EDGE, an advanced technology group which ranks among the top 25 military suppliers in the world.

NIMR is a leading regional manufacturer of combat-proven, high-performance light- and medium-weight wheeled military vehicles. The company designs, assembles, manufactures,

integrates and provides after-sales service for a range of armoured and soft-skinned vehicle platforms. Established in 2000, NIMR vehicles are recognised for their battle-tested versatility, ruggedness and performance, and are built at state-of-the-art facilities in compliance with international military standards. NIMR vehicles are designed to meet the most demanding duty cycle requirement for off-road performance and its specialist applications provide market-leading vehicle mobility, crew safety and reliability over life in-service. The company's extensive testing regimen gives soldiers the confidence they require during the most gruelling

missions, under highly demanding conditions.

EDGE is an advanced technology group that develops disruptive solutions for defence and beyond. Solving real world challenges, it is dedicated to bringing innovative technologies and services to market with greater speed and efficiency. Consolidating over 25 entities and employing more than 12,000 brilliant minds, EDGE offers expertise in five core clusters: Platforms & Systems, Missiles & Weapons, Cyber Defence, Electronic Warfare & Intelligence and Mission Support. Today, EDGE is reimagining capabilities through technology leadership with research and development at its core. ■



Preparations in full swing for IDEX, NAVDEX 21



Abu Dhabi is all set to host the fifteenth edition of the International Defence Exhibition (IDEX 2021) and the Naval Defence Exhibition (NAVDEX 2021), which will be

the world's first mega event in the defence sector held during the recovery phase from COVID-19. To be organised from February 21-25, 2021 at Abu Dhabi National Exhibition Centre (ADNEC) in Abu

Dhabi, UAE, the event will witness the participation of over 1,300 exhibitors from 60-plus countries. Meanwhile, the International Defence Conference is also scheduled alongside the exhibitions at

Abu Dhabi on February 20.

The Higher Organising Committee for IDEX 2021, NAVDEX 2021 and the International Defence Conference, held under the patronage of His Highness Sheikh Khalifa bin Zayed Al Nahyan, President of the UAE, announced that the exhibitions will see the participation of five new countries for the first time: Israel, Luxembourg, Macedonia, Portugal, and Azerbaijan.

IDEX 2021, NAVDEX 2021 and the International Defence Conference are organised by the Abu Dhabi National Exhibitions Company (ADNEC), in cooperation with the Ministry of Defence and the General Command of the UAE Armed Forces. The events showcase the latest developments in the defence sector. In addition, the exhibitions forge new strategic relationships between



entities attending the event and major international companies specialised in these sectors. Both the exhibitions and the conference will be discussing how technological adoption can meet shifting global challenges, as well as exchanging ideas on strategic development that can contribute towards world peace.

His Excellency Major General Staff Pilot Faris Khalaf Al Mazrouei, Commander in Chief of Abu Dhabi Police and Chairman of the Higher Organising Committee, said: "In spite of the ongoing challenging global conditions, we are ready to welcome the world once again to Abu Dhabi."

His Excellency Major General Staff Pilot Ishaq Saleh Al-Balushi, Vice Chairman of the Higher Organising Committee, said: "IDEX and NAVDEX play a pivotal role in developing both the national and international defence sectors."

Humaid Matar Al Dhaheri, Managing Director and Group CEO of ADNEC, commented: "We want to set global benchmarks in the organisation and hosting of international

exhibitions, demonstrating Abu Dhabi's continued status as the region's capital for business tourism."

The 2021 International Defence Conference will be held for the first time as a hybrid event, bringing together experts and specialists from all over the world virtually and on-ground at the ADNOC Business Centre. Participants will discuss the impact of innovation on the defence sector, alongside exploring how to use technology in the fourth

industrial revolution. The conference will demonstrate how international cooperation can lead to new ways for the global sector to face future challenges.

Diplomats briefed

The Higher Organising Committee also briefed the diplomatic and military attaché community on the upcoming exhibitions. At the meeting, His Excellency Faris Khalaf Al Mazrouei said: "Today, the defence sector is considered

an important economic pillar for major industrial countries. IDEX and NAVDEX have been transformed into global platforms, showcasing the latest innovative defence systems and bringing key international companies to compete under one roof."

Meanwhile, Naval Staff Colonel Rashed Al Mhesni, representative of the NAVDEX Committee, said: "NAVDEX 2021 will be held at ADNEC's Marina, providing over 30,000 sq m of outdoor exhibition space, dedicated for water-based exhibitions. NAVDEX 2021 will continue being the ideal venue to showcase the latest technologies in the naval defence sector."

Regarding the upcoming International Defence Conference, Dr. Yahya Al Marzouqi, Vice Chairman of the Organising Committee for the conference, said: "The global defence sector is both as fluid and as complex as ever. At the International Defence Conference, we look forward to bringing the industry together, with a wide range of governments, corporations and academics from across the world set to attend the event."





Sheikh Mohamed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the UAE Armed Forces, with the CEOs of the EDGE group companies.

UAE's EDGE ranked among top 25 Military Companies in the World

Ranking data released by SIPRI, specialist in Arms Industry Database

Marking its first year, EDGE, the UAE's advanced technology group for defence and beyond, was ranked

among the top 25 military suppliers in the world by the Stockholm International Peace Research Institute (SIPRI), a think tank that

specializes in data analysis of military expenditure and arms trade among other peace and security related matters.

With this being the first time

that a Middle East company has been named among the biggest defence original equipment manufacturers (OEMs) and security



exporters, EDGE's presence is a notable ranking for the UAE and the region more broadly. Others on the ranking included Lockheed Martin, the Aviation Industry Corp of China (AVIC), BAE Systems, Thales, Almaz-Antey, and Rolls Royce.

SIPRI reported that the sales of arms and military services by the largest 25 companies totalled US\$361 billion in 2019, with EDGE accounting for 1.3 per cent of this total

arms sales.

Commenting on the new data released, H.E. Faisal Al Bannai, CEO and Managing Director, EDGE said: "As EDGE marks its one-year anniversary, we are proud to be the first ever in the Middle East that is ranked among the top 25 largest military companies in the world by SIPRI.

He added: "Advanced technologies have enabled us to thrive, be bold, agile and

disruptive in an era of hybrid warfare. As we continue to build the UAE's sovereign capabilities and develop partnerships for export growth, we remain excited about what the future holds".

With a priority on transforming the country's advanced technology capabilities and making it fit for an evolving digital era, EDGE's forward-looking strategy will continue to focus on addressing

national security threats that are adapting through new technological means, strengthening current capabilities and industry R&D, and developing technology for export growth.

EDGE offers expertise in five core clusters: Platforms & Systems, Missiles & Weapons, Cyber Defence, Electronic Warfare & Intelligence and Mission Support, and was established on the 5th of November 2019.

SAMI Acquires Advanced Electronics Company



In KSA's Biggest Military Industries Deal Ever

Saudi Arabian Military Industries (SAMI), a wholly owned subsidiary of the Public Investment Fund (PIF), has acquired Advanced Electronics Company (AEC) as part of the largest military industries deal ever concluded in the Kingdom of Saudi Arabia. The purchase is expected to complete in the first quarter of 2021 following regulatory approvals. As a result, AEC will become a 100% Saudi-owned company.

The acquisition was announced during a ceremony organized by SAMI in the presence of the members of SAMI's and AEC's Board of Directors, and senior officials from the Ministry of Defense, General Authority for Military Industries (GAMI), PIF, Saudi Arabian Airlines (SAUDIA), BAE Systems Saudi Arabia, and other stakeholders.

Commenting on the deal,

H.E. Ahmed Al-Khateeb, Chairman of SAMI, said: "This deal strengthens SAMI's presence in the strategically important defence industries market and supports its plans to transfer and localize the military industries. The acquisition will also enhance AEC's opportunities to expand and compete in its field."

He affirmed the support of H.R.H. the Minister of Defence for the transfer and localization of military industries as a key part of the Kingdom's Vision 2030. "This achievement also supports PIF's efforts through SAMI in localizing cutting-edge technology and knowledge, as well as building strategic economic partnerships."

"Considered the 'crown jewel' of Saudi Arabia's military industries and a proud accomplishment for its citizens, AEC will bring

about transformative change in the Kingdom's defense sector by enhancing the industry's competencies and advancing innovation. With state-of-the-art products, innovative technologies, several decades of experience, and the collective efforts of both SAMI and AEC, the acquisition will shape the future of the domestic defense ecosystem and make long-lasting contributions to the national economy for the upcoming years, through skills development, employment generation, and exports"; said the chairman.

Eng. Walid Abukhaled, CEO of SAMI, thanked the Public Investment Fund (PIF) for its unlimited support and efforts that contributed to the success of the acquisition. He asserted that the deal would serve to enhance the local defense sector, and support and



realize the localization rates required by the local content of the military industries.

AEC is considered a major





facilitator of Saudi Arabia's Vision 2030 thanks to its 32-year experience in the military industries market and the leading role it plays in Defense and Aerospace and the development of security local systems. In addition to facilitating the

transfer of technology and enhancing local production, the acquisition will enable SAMI to consolidate its defense electronics sector. SAMI's acquisition of AEC will support its strategic plan, which aims to expand its business and enter the progressive Defense Electronics sector. The acquisition will also contribute to the implementation of SAMI's plans to transfer technologies and localize domestic military industries, as well as to strengthen the Saudi defense ecosystem, in line with the Kingdom's Vision 2030 programs.

Abdulaziz Al-Duailej, CEO of AEC, said: "SAMI's acquisition of AEC stock will help us reach our goals and strategic plans for the next five years. It also places us under the umbrella of the Public Investment Fund (PIF), the KSA's sovereign wealth fund, which constitutes a milestone for the company and fills us with pride as directors and employees."



Al-Duailej added: "This achievement was realized thanks to the commitment, experience and concerted efforts of all the employees in both companies. The deal will provide AEC with the opportunity to further strengthen its position in the military industries market and explore new horizons in advanced technologies in the Kingdom and beyond, as well as support the continuous



development of the capacities of national cadres."

Since 1988, AEC has played a pioneering role in the fields of modern electronics, manufacturing, system integration, and repair and maintenance services, thereby becoming a major regional player renowned for innovation. Around 85% of the company's employees are Saudi nationals, including more than 300 of its male



and female engineers. AEC also has over 100 strategic partners and has successfully completed more than 1,000 projects. Furthermore, the company has witnessed steady growth in sales in recent years. In 2019, net sales reached SAR 2.32 billion – up from SAR 2.07 billion in 2018 and SAR 1.92 billion in 2017.

Since its inception in mid-2017 by the Public Investment Fund (PIF), SAMI has been leading Saudi Arabia's efforts in developing self-sufficient defence capabilities through its fast-growing portfolio of military products and services, spanning across its business divisions, namely Aeronautics, Land Systems, Weapons and Missiles, Defense Electronics, and Emerging Technologies.

About Saudi Arabian Military Industries (SAMI):

Launched in May 2017, Saudi Arabian Military Industries (SAMI) is a state-owned

military industries company working under the directives outlined in the Saudi Vision 2030. Aiming to be among the top 25 military industries companies in the world by 2030, SAMI is expected to play a key role in localizing 50% of the Kingdom's total government military spending.

SAMI is combining the latest technologies and the best national talents to develop military products and services at par with international standards across its business divisions, namely Aeronautics, Land Systems, Weapons and Missiles, Defense Electronics, and Emerging Technologies. The company is also focused on increasing exports and bringing foreign investment to the Kingdom's military industries sector.

For more information, visit www.sami.com.sa or e-mail us at info@sami.com.sa

About Advanced Electronics Company (AEC):

Established in 1998, the Advanced Electronics Company (AEC) is a leading Saudi company in the field of the electronics, technology, and manufacturing industry. It is a key player in realizing the Kingdom's Vision 2030.

AEC is distinguished by its high-quality projects and efficient and timely execution, and it is committed to the highest quality standards. The company adopts a customer-centric approach and has occupied a leading role for around three decades through four main sectors: defence and aerospace, Information and Communication Technology, energy, and security.

AEC designs, develops, manufactures, maintains, and repairs advanced systems, equipment and devices in the industrial, military, and electronic fields, such as smart water and electricity meters, security systems for critical infrastructure, industrial

control systems, Typhoon weapons systems, jamming and targeting systems for F-15 airplanes, electronic modules for F-16 airplanes, ground equipment, Hawk 165 training and simulating systems, weapons systems for Tornado airplanes, and many others.

The company employs more than 2,100 employees, 80 percent of whom are Saudis, while the AEC team includes more than 300 highly skilled and certified Saudi engineers working in various departments. It is an essential enabler to realizing the Kingdom's Vision 2030 by localizing 50 percent of military industries, implementing a digital transformation, localizing and developing the energy sector, and developing human resources.



Faradair® Aerospace Signs New Consortium; a Boost for UK Aerospace

**Pledges 300 British-designed, sustainable aircraft by 2030
Honeywell, magniX, Cambridge Consultants, Nova Systems back the BEHA**



In an exciting news for the aviation industry with Jeff Bezos and Bill Gates showing their support for sustainable aviation, Faradair® Aerospace announced a powerful consortium of partners to bring back large scale aircraft production to the UK.

The British start-up, headed by aviation entrepreneur Neil Cloughley and based at the historic airfield at IWM Duxford, Cambridgeshire, announced on 17th December that it has attracted a strong consortium of partners to help it deliver 300 of its new Bio Electric Hybrid Aircraft (BEHA) by 2030, in a global demonstration of regional air mobility and special missions.

Faradair® is delighted to welcome Honeywell, magniX, Cambridge Consultants and Nova Systems, all leaders in the emerging sustainable aviation sector, to its existing partnership team.

Faradair® will work with Honeywell on the BEHA turbogenerator, comprised of Honeywell's gas turbine and generator technologies, with the ability to run on sustainable aviation fuel, to support the hybrid-electric aircraft design in addition to other technologies, including avionics and flight control systems.

magniX is regarded as the leading provider of electric motors to the aviation industry and the BEHA will use two magni500 e-motors and associated magniDrive control system technology for flight propulsion.

Cambridge Consultants, widely recognised as a global leader in R&D engineering, brings its vital expertise in hybrid propulsion architecture to the development of the BEHA's hybrid

propulsion system, integrating the turbine and flight e-motors.

Nova Systems, a global leader in aircraft design, test, evaluation and certification, will assist Faradair® through the early prototype development stages, reassuring certification authorities that the aircraft is being developed and built to the standards of existing and future regulations for sustainable aviation technologies.

In line with UK Government ambitions for sustainable air transport, the British designed and built BEHA will emerge in hybrid electric/turbine configuration, but engineered for evolution into a fully electric 'net zero' commercial aircraft when power generation technology delivers the power density levels required for an 18-seat utility aircraft. The BEHA is specifically designed for low cost, quiet, environmentally friendly flight, qualities that enable it to deliver Air Mobility as a Service (AMaaS) to all.

The ambition is to deliver an initial portfolio of 300 Faradair®-owned BEHAs between 2026-2030, in the largest proof of concept air mobility programme ever created. Of these, 150 aircraft will be built in firefighting configuration, 75 as quick change (QC, passenger to cargo) aircraft, deployed at general aviation airfields globally, and 50 as pure freighters. The final 25 aircraft will be demonstrated in non-civilian government roles, including logistics, border and fisheries patrol, and drug interdiction.

Commenting on these significant partnerships, Faradair Founder and Managing Director Neil Cloughley stated: "The year 2020 has been an extremely tough year for aerospace and I am

delighted to be able to share this positive news today, not only for the UK aerospace sector, but the sustainable aerospace sector globally.

"We are honoured to announce our collaboration with these leading organisations. Their input will enable us to deliver the BEHA prototype by 2024 and subsequent Part 23 certification for operational trials from 2026. Gaining such support validates our business model and capability of the BEHA."

Stéphane Fymat, vice president and general manager for UAS/UAM atHoneywell said: "We are proud to be part of this development program that works toward new methods of transportation that are quieter, cleaner and more efficient. Our work with Faradair demonstrates our ongoing commitment to supporting the future of flight."

magniX CEO Roei Ganzarski, commented: "The BEHA is an exciting development programme in the electric aviation revolution and one that magniX is delighted to be a part of. It embodies the next step in sustainable regional air transport."

Gary Kemp, Programme Director atCambridge Consultants said: "Cambridge Consultants is proud to be working with Faradair® on development of the BEHA, an aircraft that will minimise the environmental impact of aviation emissions and noise while achieving exceptional range, endurance and payload capacity."

Tim Butler, Fixed Wing Programme Manager and test pilot at Nova Systems, stated: "We are delighted to team with Faradair® on this exciting, innovative British project. Nova looks forward to providing its significant experience in flight testing to help solve the complex problems of making a cutting-edge concept into an everyday reality. Working on game-changing programmes and developing green aviation technology, is exactly what excites us at Nova and we can't wait to get the BEHA flying."

Estonia Led Consortium to Start the Development of European Standard UGS



Estonia and Milrem Robotics, as the leaders of a consortium composed of several major European defence, communication and cybersecurity companies and high technology SMEs and the European Commission signed the agreement for iMUGS, a project aimed at developing the European standard unmanned ground system (UGS).

The grant agreement for the 32,6 MEUR iMUGS (Integrated Modular Unmanned Ground System) project was signed last week and will allow the consortium to begin work on the project.

The requirements for the standardized UGS have been set by seven EU member states: Estonia, the leader of the project, and Belgium, Finland, France, Germany, Latvia and Spain. The named countries are collectively financing 2 MEUR of the 32,6 MEUR budget.

"Estonia has the honour and a great responsibility taking the

lead in this project as nothing on a similar scale has been conducted before. Our goal is not only making iMUGS a one-time effort, but to build it into a base project for future developments. Our long-term goal is that each of the modular systems built, will pave a way for further innovation in its field," said Martin Jõesaar, Chief of Project Office in the Estonian Centre for Defence Investment.

"iMUGS is an excellent example of cooperation in Europe: seven countries have created common requirements for a future robotic system and have a common understanding of how the system is to be deployed. The result of iMUGS will be a modular and scalable solution that will not only fill all the needs of Europe but be also deployable worldwide," said Kuldar Väärsi, CEO of Milrem Robotics.

Europe is expected to need thousands of UGS during the next 10-15 years growing the value of the market into billions of euros. With seven

participating nations and key industrial players, the UGS developed during iMUGS is expected to become the preferred European solution for integrating into armed units.

During iMUGS a modular and scalable architecture for hybrid manned-unmanned systems will be developed to standardize a European wide ecosystem for aerial and ground platforms, command, control and communication equipment, sensors, payloads, and algorithms. Addressed operational challenges include enhanced interoperability, increased situational awareness and faster decision-making. The system will utilize an existing unmanned ground vehicle – Milrem Robotics' THeMIS – and a specific list of payloads.

The outcome of the project will be demonstrated in operational environments and relevant climatic conditions as part of participating member states military exercises or at separate testing events. The first demonstration is planned

already for the second quarter of 2021 and will be held in Estonia.

During the project operational know-how will be gathered and concepts for the combined engagement of manned and unmanned assets developed, while considering the ethical aspects applicable to robotics, artificial intelligence, and autonomous systems. State-of-the-art virtual and constructive simulation environments for specific mission will also be set up. The system to be developed will be under meaningful human control.

iMUGS is a cooperation between 13 parties: Milrem Robotics (project coordinator), GT Cyber Technologies, Safran Electronics & Defense, NEXTER Systems, Krauss-Maffei Wegmann, Diehl Defence, Bittium, Insta DefSec, (Un)Manned, dotOcean, Latvijas Mobilais Telefons, GMV Aerospace and Defence, and Royal Military Academy of Belgium.

The objectives of the EDIDP programme are to contribute to the strategic autonomy of the European Union and to strengthen the cooperation between Member States. The priorities include enabling high-end operations of military forces with special focus on intelligence and secured communications and cyber. Actions include development of next generation ground combat capabilities and solutions in Artificial Intelligence, Virtual Reality and Cyber technologies.

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Bangalore 560075. Karnataka. www.aeromag.in

First firing of MBDA's MMP from a Sabre Special Forces Vehicle



MBDA has carried out the first firing of an MMP missile from an ARQUUS Sabre special forces vehicle, as part of a firing campaign implemented with the support of the French Army and of the Direction Générale de l'Armement (DGA – French Procurement Agency).

MMP firing operations on Sherpa and Sabre vehicle. Canjuers military camp, France.

The firing was carried out at the Canjuers military camp in the south of France, using 'lock-on-before-launch' mode against a tank 3,500 metres away, with a rapid switchover

to 'fire-and-forget' mode, making the vehicle fully mobile after firing.

Once again, the MMP system demonstrated the accuracy of its target acquisition and the quality of its guidance system by achieving a direct hit, without operator intervention.

In addition to this firing, multiple engagements were simulated on the post, against fixed or mobile targets, with the vehicle moving around the test range, thus crossing a further milestone in the validation of the ergonomic, tactical and safety studies.

During the debriefing, the French Army's gunner was very enthusiastic: "The firing installation is safe, its

ergonomics make for easy aiming, and the missile was launched without any discomfort to the gunner, and as stealthily as ever."

The MMP – the first fifth-generation missile to be deployed in combat – has been in service with the French Army for two years. Flexible and versatile, it has been battle-tested and deployed in various theatres around the world (desert, tropical, mountainous and Arctic areas). A valuable asset for Special Forces operating over long distances, the MMP allows for the resupply of munitions by airdrop. ■

Eight ASECNA African Nations to Advance Aeronautical Communication with FREQUENTIS Comsoft



ASECNA, the Agency for the Safety of Air Navigation in Africa and Madagascar, has selected the advanced aviation message handling system (AMHS) from Frequentis Comsoft to enhance message handling for eight African countries.

Cote d'Ivoire, Central African Republic, Gambia, Guinea-Bissau, Cameroon, Gabon, Equatorial Guinea and Comoros will all benefit from the most advanced upgrade of their outdated legacy AFTN (aeronautical fixed telecom network) messaging service with an innovative, fully integrated SITA/AFTN/ AMHS messaging technology, which allows the harmonised operation

of all messaging services in one application. This marks a major step in the modernisation of each country's international communication centre, as well as of the domestic messaging infrastructure, in line with the latest ICAO AMHS standards.

In addition, the delivered systems provide new major functionalities incorporating the AMHS/SOAP gateway and ICAO FPL/FIXM and TAC/ iWXXM converters. This will enable ASECNA to smoothly migrate to new technologies for reporting weather information and a future SWIM-based environment.

ASECNA is undergoing a program to modernise airspace

facilities in all 17 of its member countries. Frequentis Comsoft was selected to complete the modernisation of the aforementioned eight countries based on its experience and technical ability, having the most integrated and mature AFTN/ AMHS solution available on the market. This will not only guarantee a stable and reliable messaging service for several member states, but also open the migration path to the future SWIM-based environment.

"We are pleased to be adding ASECNA to our list of AMHS customer, bringing modern airspace communications to the region. Frequentis Comsoft's is proud to be continuously adding to the 65 already satisfied AMHS customers worldwide, proving that the quality and reliability of our AMHS system is well

recognised in the industry. We look forward to enhancing message handling for ASECNA.", says Thomas Hoffmann, Frequentis Comsoft Managing Director.

Frequentis Comsoft's AIDA-NG, is a unified message handling switch enabling SITA, AFTN, Common ICAO Data Interchange Network (CIDIN), and AMHS messages to be exchanged, based on the European ATM Communication Gateway (ECG) software. High message loads do not affect the exceptional response time of the management interface. Overload situations are prevented by extensive flow control mechanisms. Excellent performance and operational service availability are guaranteed. ■

Netline completed the testing of C-Guard RJ vehicular counter-IED system

Following the successful testing process, the Spanish Army has accepted delivery of over 50 systems as the first serial batch of a total order for over 320 kits.



Netline Communications Technologies Ltd. - a leading developer and manufacturer of high-end electronic warfare and spectrum dominance systems for defense forces and homeland security agencies – has completed the acceptance procedure of 51 improvised explosive device (IED) jammers by the Spanish Ministry of Defense. The project is part of a €65 million framework contract awarded to the company in August 2019, under which Netline is scheduled to deliver C-Guard RJ vehicular jamming systems for the different branches of the Spanish armed forces.

Designed to be mounted on vehicles, Netline's C-Guard RJ is a highly flexible and resilient radio controlled (RC) counter-IED reactive jamming system.

Providing reactive coverage to counter an extensive range of threats, the system constantly scans the spectrum and responds to any detected transmissions by focusing the jamming signal and power to defeat the threat.

The system has been designed to provide military forces engaged in operational activity with easy and efficient system operation and simple replacement of new modules, which can be carried out by the operating teams (O-level) with nearly zero downtime.

"Despite its complexity, we have carried out the process of testing and evaluating the 12 prototype installations and achieved acceptance of the first serial production batch, in accordance with the agreed schedule," says Yallon Bahat, CEO of Netline. "This is thanks to the close and

successful cooperation with the Spanish MOD and our local partner, Aicox Soluciones, which has continued in spite of the challenging period we are currently in, with its various limitations on travel and meetings.

"Our selection by the Spanish MOD followed a process that included both technical laboratory testing and field trials, in which our C-Guard RJ C-IED competed against systems offered by significant players in the field. Our success in this stringent selection process is definitely a vote of confidence in Netline and our advanced jamming capabilities, and we anticipate that NATO and other countries that are fighting in different areas of conflict around the world will follow in Spain's footsteps and also test our systems with

a view to procurement."

Netline Communications Technologies Ltd. develops, manufactures and supplies high-end electronic warfare and spectrum dominance solutions for the world's leading defense forces and homeland security agencies. The company specializes in EW counter-IED systems, counter drone solutions (vehicular, portable, tactical and for fixed installations), military/ insurgency communication jamming, prison communication control, and intelligence solutions.

Netline's equipment is battle-proven, with hundreds of units operating 24/7 under harsh environmental conditions, protecting ground troops and forces, and supporting law enforcement and homeland security agencies worldwide.

Boeing Awarded U.S. Navy Contract for New Zealand P-8 Training



Simulator and classroom training will prepare Royal New Zealand Air Force aircrew to safely and effectively operate and maintain P-8A Poseidon aircraft.

The U.S. Navy recently awarded Boeing a Foreign Military Sales (FMS) contract, valued at \$109 million, to provide P-8A Poseidon training for the Royal New Zealand Air Force (RNZAF). A suite of training systems and courseware will prepare RNZAF aircrew and maintainers to

safely and effectively operate and maintain the world's premier maritime patrol and reconnaissance aircraft for decades to come.

Boeing's holistic P-8 training system will enable the RNZAF to conduct up to 70 percent of all Poseidon-related training in a simulated environment. As part of the contract, Boeing will provide:

Operational Flight Trainer (OFT) – Full-motion simulator incorporates all P-8 unique displays and switches.

Weapons Tactics Trainer – Simulates mission systems and tactical operations, and when coupled with the OFT, forms

a **Weapons Systems Trainer** that enables multi-crew, high-fidelity mission rehearsal training in the same simulated environment.

Virtual Maintenance Trainer – Enables training of maintenance professionals to properly perform maintenance tasks and procedures on the P-8A aircraft.

Scenario Generation Station – Creates custom scenarios for mission training.

Brief/Debrief Station – Provides post-mission analysis and playback.

In addition, Boeing's **Electronic Classroom** will give RNZAF instructors and

students access to courseware and testing capabilities. Boeing also will provide initial Instructor Cadre Training to a group of RNZAF instructors, enabling them to continue training additional RNZAF P-8A instructors and aircrews following delivery of the training system in early 2024.

"This holistic training system will enable aircrew to safely train for all aspects of flying and maintaining the P-8A Poseidon," said Tonya Noble, director of International Defense Training for Boeing. "We look forward to bringing these training capabilities in-country and working alongside the RNZAF to ensure readiness of aircrew and maintenance personnel."

All training will be conducted in Ohakea, New Zealand. In March 2020, the RNZAF acquired four P-8A Poseidon aircraft through the U.S. Navy FMS process, with expected delivery beginning in 2023. New Zealand is one of seven nations operating the P-8.

Amit Dubey to lead Airbnb's Capability Center



Airbnb announced Amit Dubey will lead the company's India-based Airbnb Capability Center. Formerly known as Airseva, Airbnb Capability Center provides specialised operational services which

enables Airbnb's business and functions across the world.

Amit Dubey will lead Airbnb Capability Center as General Manager and Director, based out of Gurugram. A former leader of the Indian Armed Forces, Amit moved to the world of business with stints in companies like American Express and Uber,

where he was also leading capability centers for those companies, which enabled operations across regions. With rich experience in this field and a passion for people, businesses and technology, Amit brings with him a knack for leading from the front and unlocking innovation and growth.

Amit Dubey, General

Manager and Director, Airbnb Capability Center, said, "We are laser-focused on empowering the Airbnb community – from guests to hosts to our teams around the world. I am excited to embark on this next chapter to help establish Airbnb Capability Center as a best-in-class capability center."

Rostec Starts Assembling the First Mi-171A3 Offshore Helicopter



Russian Helicopters holding company (part of Rostec State Corporation) has started assembling the first prototype of Mi-171A3 offshore helicopter. Equipment for assembling the fuselage was put into operation at the Ulan-Ude Aviation Plant.

Mi-171A3 comes with several significant upgrades when compared to Mi-171A2: a new airframe that integrates a crash-resistant fuel system into the cargo bay floor and modernized avionics, upgraded for offshore operations and flights in the Arctic. The model also features widespread use of composite materials, which significantly reduce its weight.

"The development of Mi-171A3 involves extensive cooperation between Rostec's enterprises. The nose part of the helicopter and side panels from polymer composite materials are manufactured at Progress Arsenyev Aviation Company, the cargo bay floor is manufactured by Kazan Helicopters. The new modification was designed for offshore operations in oil and gas enterprises, so it meets the strictest requirements in the field of flight safety and air navigation. We plan to obtain a type certificate and start serial production in 2022," said the Industrial Director of the Aviation cluster of the Rostec State Corporation, Anatoly

Serdyukov.

Mi-171A3 offshore helicopter will meet the latest international safety requirements, including the international IOGP standard developed by oil companies for offshore operation of helicopters.

"We have modernized our production process, allowing us to launch the assembly line for the new Mi-171A3 offshore helicopter. The equipment for the new helicopter was manufactured and installed using coordinate-measuring machines and laser trackers, which will significantly increase the quality and accuracy of the assembly. We are planning to present the first prototype at

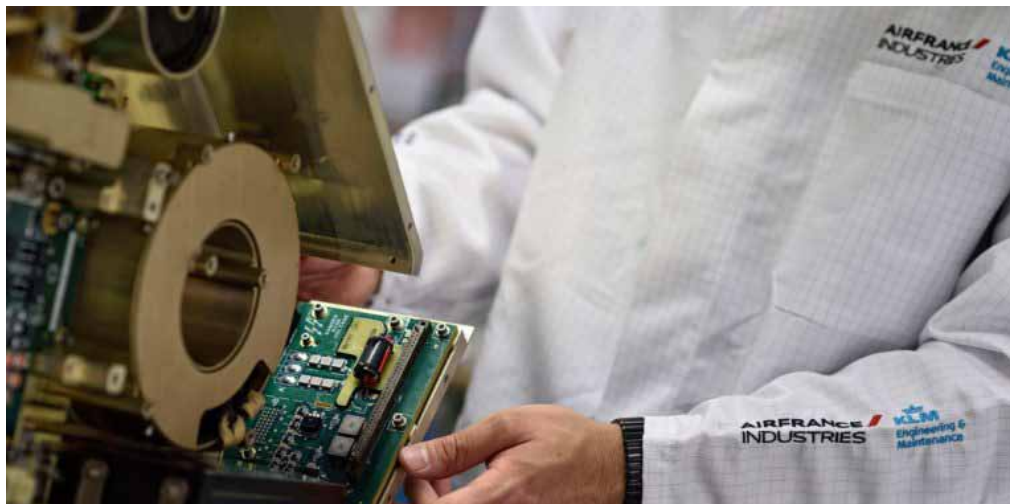
the MAKS-2021 air show," said the Director General of Russian Helicopters holding company Andrey Boginsky.

Rostec State Corporation is one of the largest industrial companies in Russia. It unites more than 800 scientific and industrial organizations in 60 regions of the country. Its key areas of activity are aircraft engineering, radioelectronics, medical technologies, innovative materials, etc. The corporation's portfolio includes such well-known brands as AvtoVAZ, KAMAZ, UAC, Russian Helicopters, UEC, Uralvagonzavod, Shvabe, Kalashnikov, etc. Rostec is active in the implementation of all 12 national projects. The company is a key provider of Smart City technology, it is engaged in the digitalization of public administration, industry and social sectors, and it is developing plans for the development of 5G wireless technologies, an Industrial Internet of Things, big data and blockchain systems. Rostec partners with leading world manufacturers such as Boeing, Airbus, Daimler, Pirelli and Renault. The corporation's products are delivered to more than 100 countries worldwide. Almost a third of the company's revenue comes from the export of high-tech products.

JSC "Russian Helicopters" is the sole Russian designer and manufacturer of helicopters and one of the few companies in the world that has the capabilities to design, manufacture, test and maintain modern civil and military helicopters. ■

Bamboo Airways selects AFI KLM E&M for Components Support, Joins as 21st Customer

Bamboo Airways, fast growing new airline in Vietnam, has contracted Air France Industries KLM Engineering & Maintenance (AFI KLM E&M) to provide component support for its Boeing 787 fleet.



AFI KLM E&M welcomes Bamboo Airways into its community of customers for 787 component support. The fast growing Vietnamese airline has opted for a long-term partnership, and will enjoy access to high-performance services in component repair, logistics and spare parts access through an on-site stock based in Hanoi and several AFI KLM E&M pools located across the

world.

Strong expertise and footprint This long-term component contract, between Bamboo Airways and AFI KLM E&M covers component repair, spares pool access and logistics for a fleet of 14 aircraft. Moreover, Bamboo Airways becomes the 21st member to join the AFI KLM E&M 787 Operators Community and will benefit from AFI KLM E&M global network and reliable

predictive maintenance tool, Prognosâ. This agreement constitutes the first genuine cooperation between the two airlines and strengthens AFI KLM E&M's already strong position in the Asia-Pacific region.

"I am very pleased with this significant cooperation and feel confident that AFI KLM E&M would support our 787 operations with superb services of outstanding quality

as recognized by many leading aviation industry players" says Eric Dang, CEO of Bamboo Airways."

"With the signing of this important contract, we are honored to support Bamboo Airways and become part of their success story. Bamboo Airways is joining our vast community of 787 customers who've entrusted AFI KLM E&M for our services. Our group designs adaptive solutions for new generation aircraft." says Mr. Dominik Wiener Silva, VP Sales Asia-Pacific AFI KLM E&M.

"The large number of 787s we support and the related scale effects enable us to offer very competitive 787 services," adds Ton Dortmans, EVP KLM Engineering & Maintenance. "For this contract, Bamboo Airways was also convinced by the multiple benefits of our unique dual profile as 787 MRO and 787 operator."

Saab Receives Order for Ground Based Air Defence Solution for Sweden

Saab signed a contract with the Swedish Defence Materiel Administration and received an order for an integrated sensor and command and control system for use with ground based air defence. The order value is approximately 2.1 billion SEK and the contract period is 2020-2025.



The order includes a number of Saab's multifunctional radar

Giraffe 4A and upgrades of the Swedish Armed Forces' existing Giraffe AMB surface radars. Saab will also update existing and deliver additional command and control systems, as well as provide extensive integration of the air defence battalions' fire units.

"Together with the

Swedish Defence Materiel Administration and the Swedish Armed Forces, we have created a comprehensive world-class solution that integrates the sensors, command and control systems and fire units in the ground based air defence system. This is an important order for Saab

and we are proud to deliver a central part of Sweden's defence capability", says Anders Carp, deputy CEO of Saab and head of business area Surveillance.

Saab will carry out the work in Gothenburg, Järfälla, Arboga and Halmstad in Sweden.

"Beresheet 2" Project – The Launch of a Second Israeli Spacecraft to the Moon



Israel's president, Reuven (Ruvy) Rivlin, hosted the launch ceremony for the "Beresheet 2" project – the launch of a second Israeli spacecraft to the moon. Israel's Minister of Science and Technology, Izhar Shay, the CEO of the NPO SpacEL, Shimon Sarid, the CEO of Israel Aerospace Industries, Boaz Levy, the Director General of the Ministry of Science and Technology, Shai-Lee Spigelman, and the founders of SpacEL, Kfir Damari and Yariv Bash also participated in the event.

Dozens of youths, school-grade students, and university students took part in the ceremony, alongside the NPO's volunteers who staff six space centers across Israel: Yarka, Giv'atayim, Ashdod, Be'er Sheva and Jerusalem.

With the end of the Beresheet 1 project, SpacEL's board of directors decided that the best course of action would be to continue on with the "Beresheet effect" and begin work on the Beresheet 2 project. After a thorough processes of investigation and drawing conclusions, the Beresheet 2 project was formed. As part of the project, a spacecraft consisting of 3 individual spacecraft – an orbiter and two landers, will be launched to the moon.

The landers are expected

to land on the moon at two different sites, in order to conduct different scientific experiments. The purpose of the orbiter is to orbit the moon for a number of years and to conduct scientific experiments and educational activities vis-à-vis youth in Israel and around the world.

Jointly leading the "Beresheet 2" project are the Israel Space Agency within the Ministry of Science and Technology and the Israel Aerospace Industries. The Israel Space Agency within the Ministry of Science and Technology views the project as an extraordinary opportunity to significantly advance the civilian space industry in Israel and the study of space in the country, to expand international collaborations and to further the sciences and space subjects amongst Israeli children and youth. The Israel Space Agency within the Ministry of Science and Technology will lead the international collaborations and will establish the necessary ties with the various space agencies. Discussions are already being held with government representatives from a number of countries that have expressed interest in being a part of and supporting the project.

Israel Aerospace Industries (IAI) will lead the development, planning and

system engineering efforts of the Beresheet 2 project. All of the system integrations within the spacecraft will be carried out at IAI. These activities will incorporate all of the lessons learned from the development of Beresheet 1 and will implement IAI's customary quality assurance processes for space projects.

Seeking to include and advance the next generation on a global basis, "Beresheet 2" is expected to be a multi-national mission led by Israel, with participation of additional countries. School and university students from the participating countries will gain access to deep space, will be able to study information arriving from the orbiter spacecraft, and will push their research and experiments forward.

Leadership of such an international mission will position Israel as a leader in the global civilian space industry, will help realize the potential of the field of space in the country and will serve as a significant economic growth engine.

Numerical Data:

- The entire spacecraft is expected to weigh approximately 630 kilograms.
- Included in the weight of the spacecraft – each of the landers will weigh roughly 120 kg before landing and roughly 60 kg after landing.
- The launch of the spacecraft is set to take place in the first half of 2024.
- Project budget – approximately \$100 million.

- Roughly half of the budget will be funded by the international collaborations, which will be formed by the Israel Space Agency.
- The remaining budget will be sourced from various philanthropic contributors and sponsorships.

Along with the scientific mission intrinsic in the development and launch of the "Beresheet 2" spacecraft to the moon, Beresheet 2 represents an equally significant educational project. Together with SpacEL, the Israel Space Agency within the Ministry of Science and Technology will steward all of the educational activities with a goal of exposing and piquing the curiosity of the younger generations to the various scientific disciplines and to promote the values of excellence, social leadership, and groundbreaking initiative.

SpacEL is a non-profit organization established one decade ago by three young entrepreneurs: Kfir Damari, Yariv Bash and Yonatan Winetraub, and which seeks to promote the sciences and scientific education.

In 2019, with the arrival of the "Beresheet" spacecraft to the moon, SpacEL became the first private organization in history to reach the moon, and in doing so, established the State of Israel as the fourth country to have touched the moon, thrilled millions of people in Israel and around the world, and provided inspiration to the younger generations of scientists, engineers, and dreamers.

Atlas LTA Develops the New Generation of Airships

ATLANT 300 will be able to carry 165 tones to 2,000 KM. This aircraft will change the whole transportation industry, especially logistics for rural areas and the way we transport oversized cargoes. Many industrial companies and Humanitarian aid organizations are waiting for this new development to be taken into the sky.



Atlas LTA, a newly established Israeli company, develops a family of innovative aircrafts named ATLANT. The biggest model, ATLANT 300, would be huge: 200 meters length, 100 meters width, and 50 meters height. It will be able to carry 165 tons of cargo to 2,000 KM at a speed of 120 KM/h at all weather conditions, including the harsh ones. The other two models are ATLANT 30 and ATLANT 100, they are smaller and can carry 18 tons

water ports, railroad systems, etc. Those facilities are concentrated at large industrial and heavily populated areas, leaving many other places isolated and suffering from lack of critical supplies. ATLANTS can equally reach developed and underdeveloped areas without any harm to the nature that always follow the large transport infrastructure construction projects.

That unique ability draws a lot of attention from humanitarian

turbines. Those giant structures are available for offshore installation only due to the serious logistic problems which has become a bottleneck for this fast-growing industry. ATLANT could be an effective solution for the transportation as well as installation while being used as a flying crane.

Beside carrying cargoes ATLANTS will create a new dimensions in the air travel such as short haul and high comfort passenger ferry

much lower greenhouse gas emissions: 30-40% less than the most effective airplanes and 5-7 times less than the best heavy helicopters. And that is only the beginning – our electric powertrain enables us to reach zero emission within the next 7-8 years, much faster than other flight vehicles of the comparable size. Capable to operate in the most difficult weather conditions ATLANT sometimes is a good alternative to land



flights to numerous hard to reach destinations, or even the more futuristic and luxury sky yachting that can bring exclusive travelers to the most hidden places on earth like arctic ice or small tropical islands...

The Greener Alternative to the Existing Transportation Systems:

Gennadiy Verba CEO and Founder: "The airships being developed by Atlas have a number of advantages in comparison to any aircraft and sometimes even before ground transportation. First, that is a low cost per ton-kilometer. But most important,

transportation by tracks, which requires ice roads open only at wintertime in countries like Russia or Canada".

Verba explains that ATLANTS can take off vertically, connecting any places point-to-point just like a helicopter or drone, but capable to carry much larger cargo to much longer distances at the way much lower cost.

Electric Sightseeing Airship:

While ATLANT is the company's flagship project, that is expected to turn into reality in 4 to 5 years, Atlas is expected to present its first electric airship, which will take tourists to the sky



and 60 tons accordingly. Those airships are the actual game-changers in the world of air cargo delivery because they do not need any ground facilities to take off or to land. All means of transport existing today require expensive ground infrastructure such as air or

organizations, such as UN World Food Program, because today's logistic difficulties are significant obstacles to their important mission. Another great example of the ATLANTS role is today's industrial world is point to point transportation of the large blades of wind

Collins Aerospace Celebrates the 400th Delivery of the Abrams Generator

Provides 60% more power in the same footprint

Kevin Raftery, vice president and general manager of ISR and Space Solutions for Collins

a rapidly evolving global market. With 2019 net sales of approximately \$26 billion, the business has 71,000 employees across more than 300 locations globally. It is one of the four businesses that form Raytheon Technologies.

Raytheon Technologies Corporation is an aerospace and defense company that provides advanced systems and services for commercial, military and government customers worldwide. It comprises four industry-leading businesses – Collins Aerospace, Pratt & Whitney, Raytheon Intelligence & Space and Raytheon Missiles & Defense. Its 195,000 employees enable the company to operate at the edge of known science as they imagine and deliver solutions that push the boundaries in quantum physics, electric propulsion, directed energy, hypersonics, avionics and cybersecurity. The company, formed in 2020 through the combination of Raytheon Company and the United Technologies Corporation aerospace businesses, is headquartered in Waltham, Massachusetts.



Collins Aerospace Systems, a unit of Raytheon Technologies Corp. announced that it has delivered the 400th Abrams generator. The Abrams generator is a 28-volt DC 1000-amp main power generator for the U.S. Army's Abrams Main Battle Tank. Part of a strategic modernization effort, the Abrams generator provides 60 percent more power in the same space and increases overall reliability – contributing to the main

battle tank's global premier status. Collins Aerospace has delivered orders ahead of schedule for the last three years.

The tank generator features an oil-cooled, fully-sealed system in a dense package that delivers combat effectiveness.

"The upgraded generator enables the vehicle to operate longer, with minimal maintenance, and increases its mobility and survivability – a force multiplier when it comes to ground combat," states

Aerospace. "Our extensive experience in electric power generation is a key differentiator for current and future platforms."

Collins Aerospace Systems is a leader in technologically advanced and intelligent solutions for the global aerospace and defense industry. Collins Aerospace has the capabilities, comprehensive portfolio and expertise to solve customers' toughest challenges and to meet the demands of

in about 2 years. This airship named Atlas-11 designed for 19 people (2 crew members and 17 passengers). The aerial tours on this aircraft are the most pleasant experience, since the flight is uniquely stable and quiet, the windows are large, and the seats provide the first-class accommodation. Although the Atlas-11 looks like a conventional blimp, it is an important step toward

ATLANT due to the innovative electric powertrain on board.

Yaron Bul, one of the owners and the man in charge of the business development in Atlas LTA: "Our sightseeing airships will make the sky tours more affordable and comfortable ever. Besides the obvious business aspects this gorgeous aircraft will promote the important idea of the green flight."

Atlas LTA Advanced Technology, Ltd. is specialized in design and production of the Lighter-Than-Air vehicles (airships and aerostats) for various purposes. The company had formed a united international team of the best experts in this unique area. The company's activities are based on strong engineering knowledge and real practical experience, gained from over

three decades, and combined with the latest innovations. Atlas offers a wide variety of customized LTA solutions, which can be used for surveillance, communications, entertainment, tourism, and cargo transportation. The company helps its customers to reach their goals by the most efficient, environment friendly and cost-effective way.

Etihad Engineering Wins “Pride of Aviation” Award



Etihad Engineering, the largest commercial aircraft maintenance, repair and overhaul (MRO) services provider in the Middle East, won the inaugural “Pride of Aviation” award at the Aviation Business Awards 2020, held in Dubai on Tuesday 15th December.

The award was presented to Etihad Engineering for demonstrating outstanding steadfastness in the face of an unprecedented industry crisis and meeting adversity with solidarity, innovation, determination and adaptability.

Frederic Dupont, Vice President Technical Sales and Customer Service at Etihad Engineering said: “The Etihad Engineering team is honoured to be recognised by the Aviation Business Awards, particularly given the challenges we have faced this year. We have not only been able to deliver on our commitments to our existing customers and Etihad Airways but hopefully also

contributed in supporting the aviation industry during these challenging times. This has been made possible by the support of our stakeholders, the continued confidence of our customers and most importantly, the overwhelming resilience and determination of our people.”

During the ongoing pandemic, Etihad Engineering has expanded its operations to meet the ever-changing requirements of their customers and employees. To support a safe return to the skies for airlines around the world, Etihad Engineering launched a range of service solutions. It leveraged its comprehensive Part21J and Part21G capabilities to design, manufacture, certify and install aircraft cabin parts.

Etihad Engineering also invested in thermal scanning systems to ensure the safety of its staff and customers at its Abu Dhabi facility. It developed its 3D printing capabilities to supply

protective face shields to frontline health workers within the UAE, and established a mask production facility onsite, producing more than 1 million masks to date. Business continuity was maintained with smart rostering, working from home arrangements, and constant interaction between staff, customers and partners through online meetings and video conferencing.

Etihad Engineering was also a finalist at the Aviation Business Awards for Technology Innovation of the Year.

Etihad Engineering’s state-of-the-art facility is located in Abu Dhabi, adjacent to Abu Dhabi International Airport, over an area of 500,000 sq metres. Aircraft hangars at the facility cover approximately 66,000 sq metres, including 10,000 sq metres of aircraft painting facilities and a custom-designed hangar that can accommodate up to three Airbus A380 aircraft simultaneously. The company has successfully completed

maintenance projects over the years for airlines across the world.

Etihad Engineering is the largest commercial aircraft maintenance, repair and overhaul (MRO) services provider in the Middle East. As a subsidiary of the Etihad Aviation Group, the company offers maintenance services around the clock, including design, advanced composite repair, cabin refurbishment and component services, from its state-of-the-art 500,000 sqm facility adjacent to Abu Dhabi International Airport. Aircraft hangars at the facility covering approximately 66,000 sqm, including 10,000 sqm of aircraft painting facilities and a custom-designed hangar that can accommodate up to three Airbus A380 aircraft simultaneously. The company has successfully completed maintenance projects over the years for airlines across the world.

Gulf Air Celebrates Bahrain's National Day Virtually



Gulf Air, the national carrier of the Kingdom of Bahrain, celebrated the 49th National

Day and the anniversary of His Majesty the King's Accession to the Throne through a virtual platform that was accessible to

the airline's entire workforce in the Kingdom of Bahrain and all outstations throughout the Gulf Air's global network.

The virtual platform was available for all staff to access through their smartphones and it included a number of activities and interactive segments including: the National Anthem of the Kingdom of Bahrain, a congratulatory message from the airline's Acting Chief Executive Officer Captain Waleed A. Hameed AlAlawi to the leadership and the Gulf Air's

workforce, Bahraini national songs, pictures of previous National Day events held at Gulf Air headquarters, a blog for the airline's staff to share their celebratory pictures or messages, a staff competition and an online game.

The board of directors, executive management and entire workforce of Gulf Air wish to extend their sincerest congratulations to the Kingdom of Bahrain's leadership and people and wish the Kingdom prosperity and success.

Jet Aviation celebrates 15 years of service in Dubai



Jet Aviation celebrates 15 years of successful operation in Dubai, United Arab Emirates. The company's MRO and FBO facility at Dubai International Airport was officially inaugurated at the 2005 Dubai Airshow. Three years ago, also at the Dubai Airshow, it launched a second FBO at Al Maktoum International Airport in Dubai South. As the first executive aviation maintenance facility at the Dubai International Airport, Jet Aviation launched its MRO and FBO facility with the intention of strengthening its global services network and

supporting its growing clientele in the Middle East.

Now a major hub in the Middle East, the company has received numerous awards for outstanding safety and service, most recently voted #1 in the Professional Pilot 2020 PRASE Survey's Best Middle East & African FBO category as well as Fixed Base Operator of the Year at the 2019 Aviation Business Awards. Following a recent audit, the company's high safety standards were also just acknowledged by the International Business Aviation Council (IBAC) through re-issuance of IS-BAH Stage Two

certificates to Jet Aviation Dubai at both of its FBO locations (DXB and DWC). Similarly, Jet Aviation's base and line maintenance facility in Dubai is thriving.

Since opening for business in 2005, the company continues to invest in its capabilities, services, employees, and local communities. Working closely with manufacturers and aviation authorities, the company supports numerous national approvals and multiple OEMs. It is an Authorized Service Center (ASC) for Gulfstream Aerospace and Boeing Business Jets (BBJ), an appointed member of the Airbus Corporate Jets (ACJ) Service Center Network (SCN) and complements a large service portfolio with additional approvals for Dassault, Bombardier and Embraer aircraft types. Coupled with a burgeoning 24/7 global AOG support team, the facility is the preferred service provider in the Middle East. Jet Aviation operates a network of

MRO facilities in Basel, Dubai, Geneva, Hong Kong, Shanghai, Singapore and Vienna that support one another, and coordinate scheduled and on-demand maintenance, including global 24/7 AOG support.

Just last month, the company's Dubai maintenance facility delivered the region's first 4C-Check on a Dassault Falcon 50, working with the company's historic MRO facility in Basel for technical input. "Our goal is to exceed customer expectations in all that do, ensuring the highest safety and quality standards and an providing an exceptional customer experience," says Hardy Buttschi, Vice President Regional Operations Middle East & GM Dubai. "I'd like to take this opportunity to thank all of our customers, partners and employees for their ongoing support. Without them, we wouldn't be here today."

New maintenance projects on Boeing, Bombardier, Gulfstream and Airbus aircraft

AMAC Aerospace is pleased to announce to have been awarded several new maintenance projects. A privately-owned Gulfstream IV will undergo multiple C-checks and a minor update of the interior cabin. On a privately-owned Bombardier Global 6000, a Ka-band system will be installed.



AMAC Aerospace recently welcomed a Gulfstream IV in Basel, Switzerland. The privately-owned aircraft will undergo multiple C-checks. Furthermore, AMAC's craftsmen will refurbish the interior cabin. Soft materials will be exchanged and partial wood work will be carried out. An Airbus ACJ319 arrived

early November. The privately-owned aircraft will undergo a Pre-Purchase Inspection ('PPI').

A Bombardier Global 6000 entered AMAC's hangar for a Ka-band installation, which will allow seamless connectivity on board. The customer demanded additionally some minor cabin work, which AMAC will carry

out simultaneously on the privately-owned aircraft. A privately-owned Bombardier Global 5000 arrived in Basel to undergo a 15- and 30-month inspection.

Two additional new awarded maintenance projects on Boeing aircraft

AMAC Aerospace have been awarded two new projects on

Boeing BBJ aircraft. On the first Boeing B737-NG, AMAC's avionics team will install an In-Flight-Entertainment system ('IFE') on the privately-owned aircraft. The second Boeing BBJ737 will undergo a base maintenance including a 1A-, 2A- and 6A-check. The privately-owned aircraft arrived mid-November in Basel.



Avigan® Approved for COVID-19 Treatment in Malaysia

Global Response Aid and Dr. Reddy's to make anti-viral available through government

Global Response Aid (GRA) and Dr. Reddy's Laboratories will make Avigan® available in Malaysia following a recent decision by the Malaysian Ministry of Health's Drug Control Authority to approve the anti-viral drug for treatment of patients infected with COVID-19.

The Malaysian Drug Control Authority's approval of

Avigan® is recognition of the urgent need to provide safe and effective treatment solutions to patients diagnosed with Coronavirus. It follows recent decisions by regulatory bodies in Indonesia and India to approve Avigan® for treatment of COVID-19 patients.

Avigan® was developed by FujiFilm Toyama Chemical as an influenza anti-viral.

In June, FujiFilm signed an agreement with GRA and Dr. Reddy's for the exclusive global production, distribution and commercialization of the drug. The joint venture has participated in an array of clinical trials of Avigan®, including large studies in the Middle East and five Phase 2 and Phase 3 studies in the United States, Japan, China and the UAE. The

drug has shown positive results, reducing fevers and shortening recovery time in patients in the early stages of COVID-19 infection.

Originally developed for influenza, Avigan® or its generic have been used to treat up to 400,000 patients. Avigan® is available in tablet and IV form. It is stable and easy to transport without need for refrigeration, and has

PacSim Delivers Flight Training Device in a Pandemic!



Against plenty of odds, New Zealand-based Pacific Simulators has delivered a new ProJet PS4.5 Flight Training Device to Tri-Star Aviation, in Houston,

Texas. Based on the Boeing 737-800, the new trainer is the ideal segway for General Aviation (GA) pilots looking to make the move to jet operations and preparation for

their first airline job.

To complete the installation, PacSim Director, Russell Hubber decided to make the journey from Covid free New Zealand to Houston, one of the hottest Covid spots in the USA. "I wasn't prepared to have any of my staff exposed to the risk, so I made the decision to do it myself using some Tri-Staff staff to help on-site. It meant that I would be spending 2 weeks in quarantine in a Medi-Hotel on my return to NZ, but we wanted to ensure the best result for our client. All part of the service!" smiled Russell.

Tri-Star Aviation is a full service FBO and flight school with a dedication to aviation excellence, providing fuel, maintenance, flight training, avionics, and aircraft support since 1989. The move to providing jet simulator training services is the brainchild of founder and Chief Pilot, Dan Marrouf, "With the current Covid pandemic it may not seem the ideal time to be

expanding our operations, but we are in this for the long haul. We know that the aviation sector will get back to what it was earlier this year, especially now that the vaccines are just around the corner, and we see the FTD as an important tool in our flight school. PacSim have been outstanding and we are extremely pleased with the high quality and attention to detail in all aspects of the sale", stated Dan

PacSim Sales Director, Iain Pero was pleased to welcome Tri-Star as a new client, "Our Next Gen Project FTD is perfect for Jet Orientation Training, pre-Type Rating and Multi-Crew Training. Pilots in the local area will now have the chance to hone their skills before being thrown in the deep end with a full flight simulator. The simulator is certified to FAA AATD and can be used for credits for CPL and ATP to produce airline-ready pilots."

a shelf life of ten years.

Mitch Wilson, CEO of GRA, said: "Avigan is increasingly being adopted as a first line defense because it can reduce the likelihood that patients in high-risk categories will ultimately require hospitalization. Approval by Malaysia expands availability and means that Avigan® is now available to treat more than 3 billion people in China, Indonesia, India and Malaysia. It has become a vital tool in global and national efforts to stave off a potentially disastrous next wave of COVID-19. We expect further

approvals in other countries in the near future and will be announcing multiple manufacturing locations to meet the growing global demand."

Wilson said GRA "is grateful to the Malaysian Ministry of Health's Drug Control Authority for their leadership and collaboration, as we work together to respond to this public health emergency. We are prepared to supply Avigan® as directed by government health authorities."

Junji Okada, President of FujiFilm Toyama, said: "As

our joint venture partners GRA and Dr. Reddy's continue to advance their critical regulatory milestones to make Avigan® available globally, the ever-growing need for effective treatment is becoming more crucial as we approach this next wave. This approval granted by the Drug Control Authority in Malaysia means Avigan® being available nationally is a welcomed development at a time where the infection rates in Malaysia are increasing daily."

Avigan® was first approved in Japan in 2014 as an

influenza anti-viral drug. It has generally been used when there is an outbreak of novel or re-emerging influenza virus infections in which other influenza anti-viral drugs are either not effective or insufficiently effective.

Working with government agencies, local regulatory authorities and prescribers, Avigan® can be provided to patients diagnosed with COVID-19 on a compassionate-use basis for emergency treatment outside of ongoing clinical studies in advance of regulatory approval in a given country.

Indra to equip electronic defence systems in Spanish NH90 helicopters



Indra, one of the main global technology and consulting companies, has signed a contract with the Spanish Ministry of Defence to equip 23 NH90 helicopters with the most advanced electronic defence systems, essential to reinforce security of the aircraft and its crew in the area of operations. The amount of the contract amounts to 111 million euros, will have a duration of 7 years and provides for scope extensions up to a total of 135 million euros approved by the Council of Ministers.

The company will equip the GSPA and MSPT versions of this helicopter that will be used by the Spanish Army, Air Force and Navy, with a complete self-protection suite. The most innovative elements will include the Enhanced Suite Controller (EW Manager), a Next Generation Full Digital Radar Warning Receiver (RWR ALR-400FD) and a DIRCM InShield Directed Infrared Countermeasure system.

It will also integrate and supply all the other elements of the electronic defence suite, including missile alert sensors

(MWS), laser alert (LWS) and the chaff and flare dispenser system (CMDS) that serve as decoys to circumvent attacks, as well as associated ground support and test equipment.

The helicopters' ability to fly at low speeds and height and to land virtually anywhere gives them their main operational advantage, but also makes them especially vulnerable to attack. At the same time, threats have grown in sophistication and are now much more effective and difficult to detect.

Radar-guided missiles, for example, use frequency-hopping techniques to conceal themselves while some manpad missile launchers, a cheap and easily available weapon on the black market, employ projectiles with highly sophisticated guidance systems.

To face this challenge, Indra will develop an advanced full band warning receiver, with the ability to instantly monitor the entire electromagnetic

spectrum, instead of covering different bands through partial band scanning strategies as was customary until now.

To carry out this task, the company will provide the system with a capacity for direct and instantaneous digitization of the electromagnetic spectrum that will allow it to analyze all signals at an enormous speed and coordinate the rest of the detection and countermeasure elements. In this way, Indra's alert system will detect threats with an unprecedented level of reliability and immunity against disturbances in order to neutralize them.

Indra's In Shield Directed Infrared Countermeasure (DIRCM) system will blind the thermal guidance system of missiles launched from the ground with a beam of laser energy directed automatically, effectively, and safely. ■

Turkish Aerospace has Won Green World Environment Award

Turkish Aerospace has won a Green World Environment Award in the global campaign to find the world's greenest countries, companies and communities with its project "Zero Waste Management & Green Flag League".

Turkish Aerospace competed against more than 500 other nominations in the Green World Awards for Environmental Best Practice, won the gold award on Science / Waste Management.

As a result of this Green World Award success, we have been invited to become Green World Ambassadors and won the paper published in The Green Book (the leading international work of reference on environmental best practice) so that others around the world can follow their example and learn from their achievement.

The awards are organised by The Green Organisation, an international, independent, non-political, non-profit environment group that

began in 1994, dedicated to recognising, rewarding and promoting environmental best practice around the world.

They are supported by the Environment Agency, the Chartered Institute of Environmental Health, the Chartered Institution for Wastes Management and other independent bodies.

Turkish Aerospace is the center of technology in design, development, manufacturing, integration of aerospace systems, modernization and

after sales support in Turkey. Located in Ankara, Turkish Aerospace production plant covers an area of 5 million square meters with an industrial facility of 150,000 square meters under its roof. The company has a modern aircraft facility furnished with high technology machinery and equipment that provide extensive manufacturing capabilities ranging from parts manufacturing to aircraft assembly, flight tests and delivery. ■

Israel and U.S. Successfully Completed Development of New David's Sling Weapon System

Israeli Defense Minister, Benny Gantz: "The development of a multilayered air defense system secures us from threats near and far"



The Israel Missile Defense Organization (IMDO), of the Directorate for Defense R&D in the Ministry of Defense, together with the U.S. Missile Defense Agency (MDA), have successfully completed a series of live-fire intercept tests of the David's Sling weapon system, against threat-representative cruise and ballistic missiles. The tests conducted were led by Rafael Advanced Defense Systems Ltd., from a testing site in central Israel, with the participation of the Israel Air Force and Navy. This successful series is a critical milestone in the augmentation of Israel's operational capabilities in defending itself against current and future threats.

The series tested the capabilities of a new and advanced version of the David's Sling weapon system, and included a number of scenarios simulating future threats. The results of this test will enable IMDO and industry engineers to evaluate and upgrade the system's capabilities.

In the framework of the series, the IMDO and Rafael also successfully demonstrated

the capabilities of the Iron Dome in intercepting a variety of threats including UAVs and cruise missiles. The test also demonstrated the interoperability of the multi-layer air defense mechanism (Arrow, David's Sling, and Iron Dome). This indicates that the systems will be capable of intercepting threats simultaneously during conflict.

Representatives of the MDA and Israeli defense industries, as well as IAF soldiers participated in the test. Rafael is the prime contractor for the development of the David's Sling weapon system, in cooperation with U.S. Raytheon. IAI's Elta division developed the MMR radar, and Elbit Systems developed the Golden Almond BMC.

David's Sling is a significant component of Israel's multi-layer air defense mechanism. The development of this mechanism is led by the IMDO and consists of four layers: Iron Dome, David's Sling, Arrow-2 and Arrow-3. These are all operational in the Israel Air Force.

Israeli Defense Minister, Benny Gantz: "I commend

the successful test, which for the first time, assessed the combined interception capabilities of the multi-layer air defense system of the State of Israel. This is one of the most advanced air defense mechanisms in the world and it protects the state from threats near and far. These systems have been developed in a fantastic manner by the Directorate of Defense Research and Development in the Ministry of Defense and by Rafael. The systems in this multi-layer mechanism provide Israel with a top-tier strategic capability, enabling us to operate effectively in every scenario. I would also like to thank our partners in the U.S. Department of Defense, U.S. Missile Defense Agency, U.S. government, and U.S. Congress, who support the State of Israel in the development of these systems and aid us in ensuring Israel's security and operational superiority."

Head of the Israel Missile Defense Organization in the Ministry of Defense, Moshe Patel: In the last few weeks, the defense establishment, together with the defense

industries, conducted a series of tests - unprecedented in their complexity. Through these tests, we demonstrated that the State of Israel has a robust, multilayered capability to face a variety of threats - cruise missiles, UAVs and ballistic threats. For the first time, we have demonstrated a multi-layered approach to dealing with threats - an approach that employs the Iron Dome, David's Sling and Arrow weapon systems. Using this approach, a variety of threats may be identified and intercepted via full coordination and interoperability between the systems."

Executive VP and Head of Rafael's Air and Missile Defense Division, Brig. Gen. (Res.) Pini Yungman: "The capability that was demonstrated in this series of tests ensures the security of the State of Israel and its ability to contend with current and future threats. When the different systems in the multi-layered mechanism are combined, they can handle a variety of simultaneous threats and defend the citizens of the State of Israel."

STRATA Strengthens UAE Manufacturing with Delivery of Boeing 787 Dreamliner Vertical Fin



Strata Manufacturing (Strata), the advanced composite aero-structures manufacturing facility wholly-owned by Mubadala Investment Company PJSC, has successfully delivered its first Boeing 787 Dreamliner vertical fin shipset to Boeing during an official ceremony held following the UAE's 49th National Day.

The delivery, which underpins the Al Ain-based manufacturer's evolving industrial and engineering capability, marks the first 787 vertical fin completely assembled outside of Boeing's facilities in the U.S. The vertical fin will be installed on 787 fuselages at Boeing's North Charleston facility in South Carolina beginning early 2021.

"As a pioneer in the UAE's manufacturing sphere, Strata's growth strategy is anchored in the continued expansion of our manufacturing capabilities,

so it is timely that we are celebrating the delivery of this significant UAE-assembled part on the occasion of our nation's anniversary," said Ismail Ali Abdulla, CEO of Strata.

"This significant milestone highlights Strata's success in replicating Boeing's capabilities, reinforcing the strong partnership between our respective entities, and enhances Strata's position as a trusted partner across the global aerospace supply chain," added Abdulla. "The strength and depth of our partnership has also enabled us to work closely to expand our engineering and manufacturing capabilities, and navigate through the challenges imposed by the COVID-19 pandemic."

Bernie Dunn, president of Boeing Middle East, North Africa and Turkey added, "In 10 years, Strata went from a concept on paper to a Tier One composites supplier to Boeing,

and the first in the Middle East. Strata is an important part of the UAE's aerospace vision, in particular the country's focus on establishing a sustainable manufacturing base. With each success, Strata expands the country's aerospace capabilities and global positioning. Congratulations to them on this great milestone, and we are looking forward to our continued partnership."

Earlier this year, Strata announced the creation of Strata Plus, an expansion of its facility at Nibras Al Ain Aerospace Park dedicated to Boeing's 787 vertical fin assembly operations. So far, assembly has also commenced on an additional five 787 vertical fin shipsets.

The Strata 787 vertical fin production line is run by 47 technicians, inspectors and engineers, of which 40 per cent are UAE nationals. Additional people are due to be on boarded to support

future growth plans, with an aim to have 75 full-time staff by the end of 2022.

Boeing and Strata's relationship began in 2011, when the US aviation giant first contracted the UAE manufacturer as a Tier 1 supplier to produce the parts for Boeing's 777 and 787 airplanes. Strata remains Boeing's first direct composites supplier in the Middle East region. Today, Strata is responsible for manufacturing Boeing 777 empennage ribs and Boeing 787 vertical fin ribs, in addition to manufacturing composite empennage ribs for Boeing's new 777X airplane.

Based at Nibras Al Ain Aerospace Park, Strata supports the development of a leading aerospace hub in Abu Dhabi as part of the emirate's economic diversification initiatives, and works with leading OEMs including Airbus, Boeing, Leonardo and Pilatus.

Boeing's Autonomous MQ-25 Completes First Test Flight with Aerial Refueling Store

Ongoing flights allow for development of software components and testing of the aerial refueling hardware MQ-25 will use operationally



Boeing and the U.S. Navy have for the first time flown the MQ-25 T1 test asset with an aerial refueling store (ARS), a significant milestone informing development of the unmanned aerial refueler.

The successful 2.5-hour flight with the Cobham ARS – the same ARS currently used by F/A-18s for air-to-air refueling – was designed to test the aircraft's aerodynamics with the ARS mounted under the wing. The flight was conducted

by Boeing test pilots operating from a ground control station at MidAmerica St. Louis Airport in Mascoutah, Ill.

"Having a test asset flying with an ARS gets us one big step closer in our evaluation of how MQ-25 will fulfill its primary mission in the fleet – aerial refueling," said Capt. Chad Reed, the U.S. Navy's Unmanned Carrier Aviation program manager. "T1 will continue to yield valuable early insights as we begin flying with F/A-18s and conduct

deck handling testing aboard a carrier."

Future flights will continue to test the aerodynamics of the aircraft and the ARS at various points of the flight envelope, eventually progressing to extension and retraction of the hose and drogue used for refueling.

"To see T1 fly with the hardware and software that makes MQ-25 an aerial refueler this early in the program is a visible reminder of the capability we're bringing to the carrier deck," said Dave Bujold, Boeing's MQ-25 program director. "We're ensuring the ARS and the software operating it will be ready to help MQ-25 extend the range of the carrier air wing."

The Boeing-owned T1 test asset is a predecessor to the

engineering development model aircraft being produced under a 2018 contract award. T1 is being used for early learning and discovery, laying the foundation for moving rapidly into development and test of the MQ-25. Following its first flight last year, T1 accumulated approximately 30 hours in the air before the planned modification to install the ARS.

Earlier this year the Navy exercised an option for three additional MQ-25 air vehicles, bringing the total aircraft Boeing is initially producing to seven. The Navy intends to procure more than 70 aircraft, which will assume the tanking role currently performed by F/A-18s, allowing for better use of the combat strike fighters. ■

Space Launch System Exploration Upper Stage Passes Critical Design Review



Successful independent review advances more powerful Block 1B rocket to next phase in development and transition to hardware build

HUNTSVILLE, Ala., Dec. 21,

2020 – Boeing [NYSE: BA] and NASA have successfully completed a critical design review for NASA's Space Launch System (SLS) Exploration Upper Stage (EUS), confirming the EUS design for

continued development and transition to hardware build. Boeing has already started fabrication activities that will support building the first EUS at NASA's Michoud Assembly Facility in New Orleans.

The SLS rocket uses staged propulsion to send NASA's Orion spacecraft and astronauts, plus supplies, to the moon and beyond. The Boeing-built core stage powers the SLS in early flight, eventually separating when the upper stage takes over and provides the power to send crewed vehicles, space habitats

and other payloads on to the moon or other deep space destinations.

To accomplish NASA's Artemis I lunar mission, the Block 1 variant of SLS will use a Boeing/United Launch Alliance Interim Cryogenic Propulsion Stage with one RL-10 engine to take an uncrewed Orion spacecraft on a test flight to the moon. SLS Block 1 rockets will be used for two subsequent crewed flights, including the first human mission to lunar orbit since the Apollo program. ■

Clarion Defence & Security Appoints Rear Admiral (ret) Jon Pentreath



Former Commander of the UK Armed Forces Joint Helicopter Command to lead international naval and land engagement for DSEI and Undersea Defence Technology events.

Clarion Events Defence and Security announced the appointment of Rear Adm Jon Pentreath CB OBE FRAeS as Military Advisor. In this role, Pentreath will primarily provide dedicated support for Clarion's principal event, DSEI, as well as the specialist Undersea Defence Technology conference and exhibition.

With his significant experience in the naval sector, Pentreath's appointment will strengthen Clarion's engagement with the global maritime community, while

also providing broader insight into defence and security priorities of UK and international forces.

Fully endorsed by the UK Ministry of Defence, DSEI has a strategically strong standing in the naval and land communities. The expertise Pentreath brings to the role will reinforce DSEI's growth in these markets, further develop the Royal Navy and British Army's engagement with industry, and lead the growth of international delegations, high-level military and VIP participants for the event.

In its 2021 iteration, DSEI will support the UK Armed Forces' multi-domain integration goals, providing a forum for engagement with industry in pursuit of the innovation, technology and data solutions that can deliver a fully co-operative and networked digital force capable of achieving true multi-domain effects.

Pentreath comes to Clarion following a long and decorated career as a helicopter pilot in the Royal Navy that culminated in heading up the UK's Joint

Helicopter Command. With responsibility for the safe operation of some 250 helicopters deployed around the world, as well as British Army drones, this role saw him lead an organisation of over 8,000 servicemen and women from the Royal Navy, the British Army and the Royal Air Force. Earlier roles included a mix of leadership positions, from front line air stations to heading the future helicopter procurement department, punctuated by operational service deployments that included Bosnia and Northern Ireland in the 1990s to Iraq and Afghanistan in the 2000s.

Pentreath is a graduate of The City University, the Joint Services Command and Staff College, and the Royal College of Defence Studies, and is a Fellow of the Royal Aeronautical Society.

Sally de Swart, Managing Director of Clarion Defence and Security, said: "Jon joins us at a time when our offering to the global defence and security sector is going from strength to strength. Our primary purpose is to provide a platform

for industry to highlight capabilities across the air, land and sea sectors and do business on a meaningful level across all those domains, under one roof. Despite the challenging environment, we have a busy 2021 calendar featuring both digital and live events for this market. I am delighted to welcome Jon to the team and help us develop our maritime and land offering."

Rear Adm Pentreath added: "It is with great pleasure and huge enthusiasm that I join the Clarion team to support the organisation's continued close engagement with the defence sector. This is a period of great change for the British Armed Forces, as they focus on developing integrated capabilities in a rapidly changing and very uncertain world. I hope my background of integrating assets from all 3 Services into a potent Joint Force will stand me in good stead, and I look forward to helping to shape this conversation with the UK MOD, while engaging with our partners in the military community around the world."

General Dynamics Delivering Mobile Protected Firepower Vehicles to U.S. Army On Time



General Dynamics Land Systems has delivered two Mobile Protected Firepower (MPF) preproduction vehicles to the U.S. Army, and two more will be delivered by the end of December.

These four vehicles complete

the requirement of 12 MPF preproduction vehicles that General Dynamics Land Systems was contracted to produce as part of the Army's ongoing competition. The previous eight vehicles are undergoing Army and internal testing.

This month's deliveries come on time to support the Army's Soldier Vehicle Assessment, despite the challenges posed by the coronavirus pandemic.

"General Dynamics

has listened to the Army, fully understanding its requirements, and worked closely with program management office throughout this fast-paced effort to deliver systems on time to meet programmed test schedules," said Don Kotchman, Vice President and General Manager of General Dynamics Land Systems U.S. "We are pleased to be able to deliver this capability to the U.S. Army, despite the global

pandemic. Our MPF offering is a highly lethal, mobile and survivable direct-fire combat vehicle that can dominate ground threats on the multi-domain battlefield."

General Dynamics Land Systems' MPF approach leverages both recently developed and battle-tested designs. The highly advanced and powerful combat vehicle is designed to strengthen the Army's Infantry Brigade Combat Teams.



Goldhofer offers a big range of military transport vehicles. The company's special vehicle range includes tank transporters for on road, off road and combined terrain. Armed forces around the world also choose Goldhofer aircraft tractors, which are naturally in compliance with all the relevant standards.

Goldhofer Military Technology

Goldhofer is the world market leader for transport equipment in the field of general and heavy-duty road haulage and oversized cargo transportation. With a full and technologically mature range of products, Goldhofer meets an extremely wide variety of needs in almost every transport situation.

Goldhofer has also extended its aircraft tractor range.

Quality engineering and outstanding reliability are the hallmark of Goldhofer's products for military applications. With their "made in Germany" high-end quality label, these vehicles take the harshest climate in their stride and guarantee trouble-free

transport operations in the most difficult conditions. Goldhofer has decades of experience in the manufacture of military transport vehicles. The design focus is on flexibility, economy and ease of operation. For example, the company's special vehicle range includes tank transporters in the categories: on road, off road and combined

terrain.

Armed forces around the world also choose Goldhofer aircraft technology, which are naturally in compliance with all the relevant standards. The product range of conventional aircraft tractors, cargo tractors and aircraft tractors for aircraft carriers covers a wide type of military aircraft.



Lufthansa Cargo to transport COVID-19 vaccines worldwide

New product specifically for COVID-19 vaccine transports / Decades of expertise in the transport of temperature-sensitive pharmaceuticals / Global airline pharmaceutical network



In view of the approvals of various COVID-19 vaccines in many countries, Lufthansa Cargo is well prepared for their global distribution in the coming months. Air freight is indispensable for the fast and reliable intercontinental distribution of highly sensitive pharmaceuticals. Therefore, a dedicated task force has prepared a variety of possible transport scenarios since spring.

"The distribution of temperature- and time-sensitive pharmaceuticals is extremely demanding. We were one of the first airlines to specialize in the transport of medical goods and pharmaceuticals and can therefore draw on many years of experience. Thanks to the recent expansion of our ground infrastructure, we can also handle larger volumes and transport them worldwide while supporting our customers to maintain the cold chain," explained Peter Gerber, CEO of Lufthansa Cargo. "In 2019, we transported around 100,000 tons of pharmaceuticals. We are ready to make another important contribution to overcoming the pandemic by distributing the vaccines worldwide."

While the transport of COVID-19 vaccines is already available with Lufthansa Cargo the company now announced a premium product to its customers that was specifically developed for the transport of COVID-19 vaccines. The product called COVID-19 Temp Premium will be

bookable as of 11 January 2021 and will provide a high level of comprehensive and personalized customer service along the travel chain, including seamless monitoring of vaccine shipments throughout the entire process and a 24/7 after sales customer support. Additionally, COVID-19 Temp Premium includes high priority capacity access, the fastest speed option in combination with temperature focus and comprehensive security standards as well as bookability throughout the entire Lufthansa Cargo network.

For the transport of pharmaceuticals, three temperature ranges (based on the ambient temperature) are available in airfreight: Controlled Room Temperature for shipments with transport temperature range of +15°C to +25°C, cool storage for shipments with transport temperature range of +2°C to +8°C and deep frozen storage for shipments with transport temperature range of -10°C or below. By using special refrigerated containers and means, such as dry ice, the most diverse requirements of pharmaceutical manufacturers can be met. Accordingly, Lufthansa Cargo also has experience with transports in the ultra-frozen range (-70°C).

The specific packaging, transport, handling and storage requirements of the various COVID-19 vaccines, and the quantities to be transported, by which routes and over which periods of time,

are partly still open. The actual transport routes of the vaccines depend largely on the future production sites for approved vaccines and the respective recipient markets. With its current freighter fleet of 18 aircraft, Lufthansa Cargo is able to respond flexibly to shifts in demand. If necessary, the provision of additional belly capacity can also be examined.

As a carrier, Lufthansa Cargo provides its customers with capacity for transporting goods from airport to airport. The carrier uses the global network of its own freighter aircraft as well as the flights of Lufthansa, Austrian Airlines, Brussels Airlines and Eurowings that are open for cargo. Clients consist of air freight forwarding companies.

For the handling of goods at the airports, the air freight subsidiary organizes the necessary ground infrastructure. Even before the pandemic, Lufthansa Cargo already invested heavily in its temperature control facilities, including the brand new Lufthansa Cargo Pharma Hub Munich as well as the recently extended and upgraded Lufthansa Cargo Pharma Center Chicago at O'Hare International Airport. Furthermore, with its pharmaceutical hubs and up to 200 other stations with Active Temp Control or Passive Temp Support services worldwide, Lufthansa Cargo has one of the world's largest airline pharmaceutical networks. 30 of these stations are already CEIV Pharma-certified. As a global standard, the certification demonstrates that the facility meets strict criteria for the proper handling and storage of pharmaceutical shipments. The world aviation association developed the IATA CEIV Pharma standard, together with pharmaceutical forwarding companies and airlines, in order to harmonize quality requirements across industries. With its own high quality standards, Lufthansa Cargo was one of the first airlines worldwide to be CEIV-Pharma certified and is continuing to expand its network of certified stations worldwide.



Embraer E190 commences revenue flights with Myanmar Airways

Myanmar Airways International's (MAI) first E190 commenced operations from Yangon yesterday, operating four flights throughout the day. In addition, MAI's second E190 is due to arrive in the country on 23 December 2020 and the airline will expand its E190 routes to include nine destinations across the country, upgauging from the turboprops used by its sister airline Air KBZ.

MAI has also signed on for Embraer's Pool Program – a program enrolled by all E-Jet operators in Asia Pacific. There are now four new E-Jet operators in Asia Pacific (ex. China) since the start of 2020.

"Our pilots, cabin crew, maintenance crew and our staff are proud to take MAI's E190 to the skies and to

serve our passengers with an enhanced flying experience," said Saravanan Ramasamy, Chief Executive Officer of MAI. "We look forward to a productive partnership with Embraer. The operation of the E190 marks yet another important milestone in MAI's fleet expansion strategy and domestic jet network growth. As the demand grows, we plan to scale up the frequency of our E190 operations to eight flights a day."

"The commencement of Myanmar Airways International's E190 flights will enhance connectivity in Myanmar," said Raul Villaron, Asia Pacific Vice President for Embraer Commercial Aviation. "The airline will benefit from the performance and efficiency of the aircraft and generous cargo capacity. Passengers

will appreciate the comfort in the cabin. Myanmar Airways International can operate with full confidence that our excellent service and support team are here to support them."

In preparation for the E190 operations, eight MAI pilots underwent the month-long Initial Pilot Training in September 2020 in Zhuhai, China. Separately, Embraer conducted the license-engineer type course for MAI's engineers. Embraer's Pool Program, which MAI has enrolled in offers full repair coverage for components and parts, airframe maintenance, and unlimited access to a large stock of components at the company's distribution centers. Operators benefit from significant savings on repair and inventory costs, reduction

in required warehousing space and resources required for repair management, while ultimately providing guaranteed performance levels. Singapore is the base for Embraer's warehouse in the Asia Pacific region.

Embraer is the world's leading manufacturer of commercial aircraft up to 150 seats with more than 100 customers from all over the world. For the E-Jets program alone, Embraer has logged more than 1,800 orders and 1,600 aircraft have been delivered. Today, E-Jets are flying in the fleet of more than 80 customers in some 50 countries. The versatile 70 to 150-seat family is flying with low-cost airlines as well as with regional and mainline carriers.

Tawazun becomes Principal Partner of IDEX and NAVDEX



Abu Dhabi, UAE 2021
In-Person & Virtual (Hybrid)

The International Defence Exhibition and Conference (IDEX 2021) and the Naval Defence Exhibition (NAVDEX 2021), held under the patronage of His Highness Sheikh Khalifa bin Zayed Al Nahyan, President of the UAE, from 21 – 25 February 2021 at the Abu Dhabi National Exhibition Centre, have signed a strategic agreement with the Tawazun Economic Council (Tawazun). A key enabler of the UAE's defence industry, with a focus on economic development, Tawazun will be principal partner of the exhibitions, in line with IDEX's strategy of fostering cooperation with national companies specialised in vital sectors.

Both IDEX and NAVDEX

2021 are organised by the Abu Dhabi National Exhibitions Company (ADNEC), in cooperation with the Ministry of Defence and the General Command of the UAE Armed Forces. The events showcase the latest developments in the defence sector. Both will highlight the latest in military technology, helping develop the national defence sector. Additionally, the exhibitions forge new relationships between entities attending the event, and major international companies specialised in these sectors.

The exhibitions anticipate to draw a wide range of decision makers, sector experts, and industry specialists working in defence. Representatives will discuss how technological adoption can meet shifting global challenges, as well as discussing strategic development that contributes toward world peace.

The partnership between both exhibitions and Tawazun is cited as a model for strategic co-operation in supporting the national defence sector. In so doing, the partnership continues to develop and modernise both national military and civilian projects, in line with the UAE's sustainable development goals and strategies.

Commenting on the

partnership, Humaid Matar Al Dhaheri, Managing Director and Group CEO of ADNEC, said: "We are proud of the renewal of our strategic partnership with the Tawazun Economic Council (Tawazun), which has contributed, through its many previous editions, to enhancing the competitiveness of the IDEX and NAVDEX exhibitions regionally and internationally. This agreement also shows the depth of cooperation between the UAE's various national institutions in promoting these vital events and holding them in a manner that befits the reputation and position of the Emirate of Abu Dhabi as the regional capital of specialised exhibitions and conferences."

Al Dhaheri added: "The Abu Dhabi National Exhibitions Company (ADNEC) has been working to further the participation of all national institutions in the various events that it organises. These efforts have strengthened ADNEC's presence across various economic sectors through the development of strategic partnerships with prominent international companies. In addition, through these partnerships ADNEC has supported the opening of new markets for national products, enhancing the direct and indirect economic contribution of these companies to the local economy and transferring and localising knowledge in the country."

Matar Ali Al Romaithi, Chief Economic Development Officer, Economic Development Unit, at Tawazun, commented: "In signing this agreement, we are following the strategic efforts of the Tawazun Economic Council.

We look to support and enable the defence industries in the UAE, looking to maintain pace with rapid technological development across the sector.

"IDEX and NAVDEX 2021 offer an ideal opportunity to showcase the most cutting-edge advancements in defence. This year, the exhibitions continue to demonstrate how they continue to be globally important platforms, enabling stronger relations between corporate and government entities, both locally and internationally.

Al Romaithi said: "Tawazun Economic Council looks to strengthen our partnership with both IDEX and NAVDEX as the exhibitions' principal partner. The exhibitions' success is among our forefront priorities, and we are assured of their success and distinction, in line with the UAE's distinguished position in this vital and strategic sector."

Tawazun Economic Council (Tawazun) was established in 1992 as a major tributary of the national economy. Since its foundation, it has established and empowered over 100 companies and investment entities across eleven vital sectors in the UAE. The Council contributes to the sustainable development of the defence and security industries through boosting economic value, enabling technological innovation, fostering a supporting business environment, and developing fresh capabilities. Tawazun aims to strengthen the UAE's industrial position and contribute to the enhancement of the nation's knowledge based economy.

Elbit Awarded \$50 Million Contract for Digital Soldier Systems to Netherlands Army



Elbit Systems Ltd. was awarded an approximately \$50 million follow-on contract from the Dutch Ministry of Defence (“Dutch MOD”) to supply the Royal Netherlands Army (“RNLA”) with additional digital soldier and vehicular systems, expanding the soldier

modernization program of the RNLA. The contract will be performed over a three-year period.

Under the contract, Elbit Systems will supply digital soldier systems and vehicular integration of improved combat network capabilities including TORCH-XTM Dismounted Command and Control systems and E-LynXTM Software Defines Radio systems. The solutions to be provided were designed to address unique requirements that were presented by the Netherlands’ Defence Material

Organization and field-tested by RNLA troops.

Haim Delmar, General Manager of Elbit Systems C4I & Cyber, said: “We are pleased to have been given the opportunity to continue to provide the RNLA with advanced combat network capabilities, supporting them throughout their soldier modernization program. We are looking forward to continuing our partnership with the Dutch MOD on programs that contribute to the survivability and effectiveness of the Dutch soldiers”. ■

Indian Army Organises Webinar on Modernisation of Repair Echelons

Indian Army in partnership with the Society of Indian Defence Manufacturers (SIDM) held a one day Webinar on 14 December 2020 on “Agile EME : Facilitating Boots on Ground through Aggressive Industrial Outreach”.

The initiative will help the Indian Army to plan modernisation of its Repair Echelons in line with latest technology trends worldwide and also promote indigenisation to reduce dependency on imports and cut cost on repairs. But more important, the initiative will help reduce the time for which critical equipment of the field army remains unserviceable awaiting some critical spares/components to come from abroad (new or repaired)

The three distinct sessions and panel discussions of webinar were dedicated to

indigenisation, modernisation of Electronics and Mechanical Engineers (EME) Workshops and use of Condition Based Monitoring for repair of equipment.

In the inaugural session, Lt Gen SK Upadhyya, Master General of Sustenance, Indian Army conveyed that such digital interactions have become the new normal to do business. He further highlighted that Indian Industry is progressing fast towards becoming a major defence industrial base and the defence industry always offers new solutions to any arising problems of Armed forces. He said “Given the situation we are facing at the Northern borders, we have very well been able to look after our equipment due to the constant support from defence industry”. He mentioned

that the webinar is a step towards meeting indigenisation requirements of the EME and further stated that the Industry should assist Indian Army to meet these requirements in a timely and qualitative manner.

Lt Gen Anil Kapoor, Director General Electronics and Mechanical Engineers (EME), in his theme address, said “the new mantra of agility is a compulsion and no longer a choice and in the EME, we definitely have to be agile”. He highlighted the importance of co-partnering through industrial outreach and derive common denominators and best practices to make sure that EME becomes contemporary and futuristic to handle the challenges ahead. He further said “India and Indians are synonymous with innovation and challenges to address any obstacle; Indigenisation can be

achieved with a similar spirit and fervour”.

Jayant Patil, President, SIDM, while giving out Industry perspective mentioned that India is facing security challenges from all domains. The country has to maintain its position as a leading regional power capable of not only defending its sovereignty but also acting as a net security provider in challenging regions of the world. To maintain and achieve this objective, our military has to be equipped with the best-in-class equipment, which preferably, should be ‘Made-in-India’. He stated that the Indian Industry is capable of meeting the requirements of the defence sector which will allow India to increasingly become ‘Self-reliant’. ■

GRSE built Stealth Frigate Ship "HIMGIRI" launched



Garden Reach Shipbuilders and Engineers Limited (GRSE), Kolkata, accomplished a key milestone in the prestigious Project 17A, with the launch of the first of three Stealth Frigates, "Himgiri".

Upholding the maritime traditions, the ship was launched by Madhulika Rawat, wife of General Bipin Rawat, PVSM, UYSM, AVSM, YSM, SM, VSM, ADC, Chief of Defence Staff who graced

the occasion as the Chief Guest. Rear Admiral VK Saxena, IN (Retd.), Chairman and Managing Director, GRSE, Vice Admiral AK Jain, Commander-in-Chief, Eastern Naval Command, Lt Gen Anil Chouhan, Army Commander, Eastern Command and other Senior Officials of GRSE, and Indian Navy and a host of other dignitaries were present at the occasion.

The Launch symbolises the birth of the ship as she makes her first contact with water and is floated out. The contract for construction of three Stealth Frigates under Project 17A is the largest ever order awarded to the shipyard by the Ministry of Defence with a value of over Rs.19293 crores.

P17A ships will be the most advanced state-of-the-art

Guided Missile Frigates, 149 m long, with a displacement of approximately 6670 ton and having an advanced CODOG Propulsion system enabling speed of over 28 knots. These complex weapon platforms are equipped with a powerful weapon & sensor package capable of neutralising threats in all three dimensions, Air, Surface & Sub-surface. P17A Stealth Frigates are being built using Integrated Construction Methodology with enhanced pre-outfitting to enhance quality and reduce build periods. M/s Fincantieri, Italy is the Knowhow Provider for Technology Upgrade and Capability Enhancement in this project. Project 17A also is unique wherein, based on the basic design prepared by the Directorate of Naval Design; the construction is being

done in 02 locations, MDL and GRSE concurrently. An intelligent PDM PLM system is being developed to manage the project and aid in its life cycle management.

Speaking on the occasion, Rear Admiral V.K.Saxena, IN (Retd.) brought out the fact that launching of the ship is being done two months ahead of schedule. Achievement of this major milestone, despite the challenges posed by the ongoing pandemic situation stands testimony to the commitment and capability of the shipyard. He also stated that GRSE has delivered 105 warships so far to Maritime Forces, epitomizing the "AtmaNirbhar Bharat" efforts in letter and spirit.

General Bipin Rawat, Chief of Defence Staff during his speech appreciated GRSE's service to

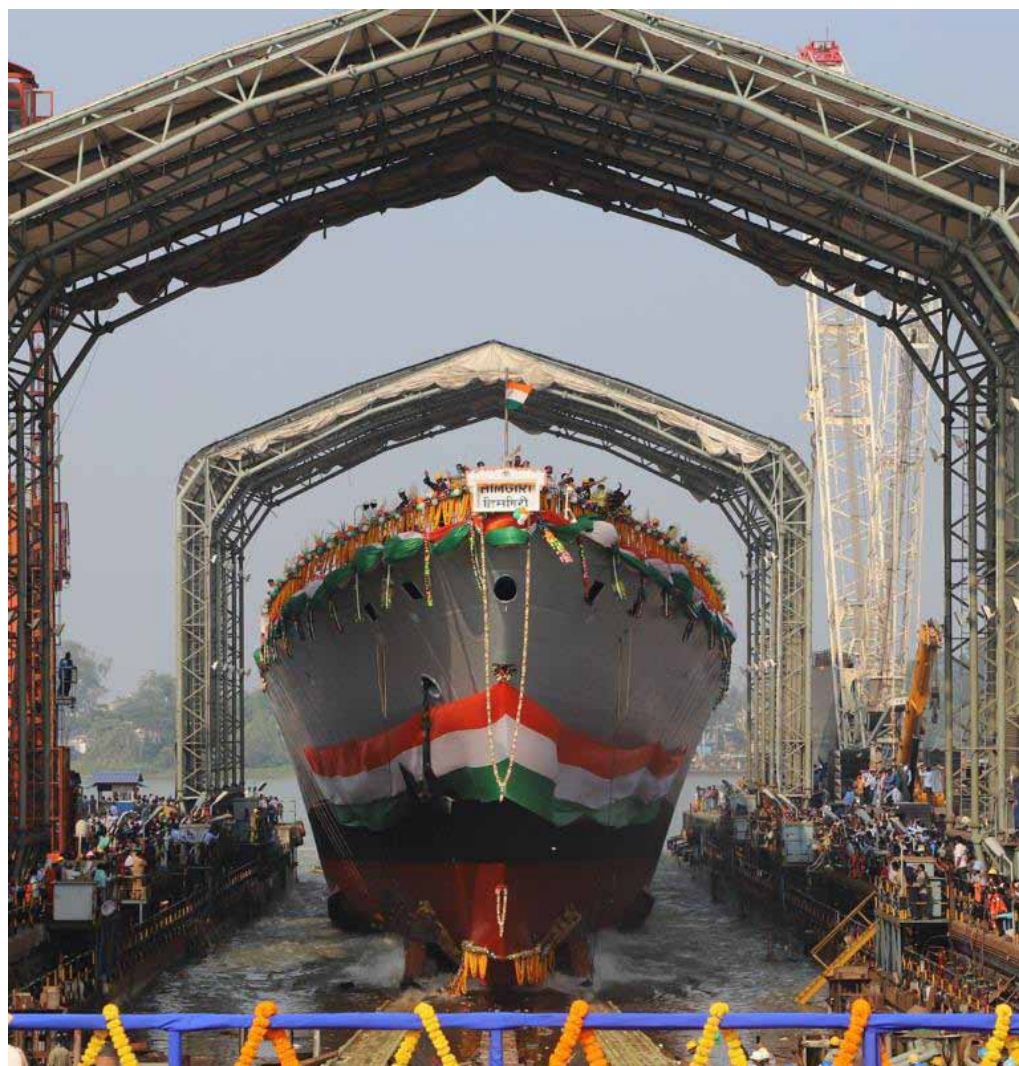


the nation having acquired vast knowledge and expertise in design and production of complex battle ready warships and for having delivered 105 warships. General Rawat expressed hope that the final delivery of this ship and the two subsequent ships of this project, shall remain etched as historic events, towards the country's relentless efforts in achieving self-reliance. The General also congratulated the shipyard and Indian Navy for achieving this major milestone despite the adverse effects of the Covid pandemic.

Since its takeover by the Government of India in 1960, GRSE has delivered a plethora of high-end warships ranging from Fast Patrol Vessels, Survey Vessels, LSTs, LCUs, Fleet Tanker, frigates and Missile & ASW Corvettes. The shipyard also has the distinction of achieving over 90% indigenous content, onboard ASW Corvettes and LCUs, a significant advancement towards self-reliance in state-

of-the-art warship design and construction. Having modernised its infrastructure facilities, GRSE is today able to construct large number of warships using Advanced Modular Integrated Shipbuilding Technology in line with the best in the world. This has helped enhance its capacity to the present level of constructing 20 warships concurrently.

GRSE is currently executing two more major projects of Indian Navy pertaining to construction of 04 Survey Vessel Large ships and 08 ASWSWC ships. Further, the shipyard has a healthy order book of Rs.26189 Crore for construction of 15 warships of the Navy to be completed progressively by year 2027. ■



Four Schiebel Camcopter S-100 for the French Navy



Naval Group, on behalf of the French Navy, has accepted for operational use of two CAMCOPTER® S-100 Unmanned Aerial Systems (UAS) with a total of four Unmanned Air Vehicles (UAVs). They will be deployed on the Mistral-class amphibious helicopter carriers (PorteHélicoptères Amphibie – PHA) Tonnerre and Mistral.

The acquisition comes after the successful integration of the CAMCOPTER® S-100 on the French Navy Mistral-class vessel Dixmude, which was finalised in 2019. This was the first time in Europe, that a rotary wing UAS had been connected to the combat system of an amphibious helicopter carrier.

The acceptance tests of the two systems took place

in the last week of October with representatives of Naval Group and the French Navy in attendance. Over the next few months the newly acquired CAMCOPTER® S-100 UAS will be integrated on the French Navy's vessels Tonnerre and Mistral, significantly enhancing the helicopter carrier's Intelligence, Surveillance and Reconnaissance (ISR) capabilities. The CAMCOPTER® S-100 VTOL UAS operates day and night and can carry multiple payloads up to a combined weight of 50 kg. Due to its minimal footprint, reliability and airworthiness pedigree, it is ideally suited for maritime operations around the globe.

Hans Georg Schiebel, Chairman of the Schiebel Group, said: "After the successful integration on the

Dixmude, we are very proud of the confidence the French Navy has in the proven and reliable CAMCOPTER® S-100 and we are looking forward to the integration on the Tonnerre and Mistral and their operational deployment." LCDR Serge D., UAS program officer, French Navy: "The S-100 on Mistral-class will be the first operational tactical UAS for the French Navy and this is a major step towards the Mercator plan." Porte Hélicoptère Amphibie Maintenance Architect at Naval Group, Philippe V., said: "We participated in the successful factory acceptance test, which was an important milestone for this acquisition, prior to the global integration onboard conducted by Naval Group." ■

CAE USA authorized to proceed on Army Helicopter Flight Training Services contract



CAE USA is authorized to proceed on the United States Army contract to provide advanced helicopter flight training support services. Under terms of the contract, CAE USA will provide classroom, simulator, and live flying instructor support services for Army aviators training to fly the CH-47 Chinook, UH-

60 Black Hawk, and AH-64 Apache helicopters. The flight training support services will be provided at the U.S. Army's Aviation Center of Excellence (USAACE) at Fort Rucker, Alabama.

The total value of the contract, including the one-year base contract and six one-year options through 2027, is expected to be approximately

US\$90 million. The initial base contract was included as part of CAE's first quarter fiscal year 2021 order intake. The contract was protested and the contract award to CAE USA was subsequently upheld by the US Court of Federal Claims.

"We are honored the U.S. Army selected CAE to provide flight training services for aviators transitioning to fly the Army's frontline combat helicopters," said Ray Duquette, President and General Manager, CAE USA.

Once Army aviators graduate from the Initial-Entry Rotary-

Wing training program, they are assigned to continue training on one of the Army's frontline combat helicopters or transition to fixed-wing training on the C-12 Huron. CAE USA will now provide the instructor pilots required to deliver the flight training to approximately 900 Army aviators annually transitioning to the CH-47 Chinook, UH-60 Black Hawk, or AH-64 Apache. CAE USA will also deliver additional flight training support services by providing maintenance examiners and non-rated crewmember flight engineers. ■

Collins Aerospace Successfully Completes Modernization of Legacy E-6B Block I Aircraft

Features new command and control communication, and capabilities for voice, data & video distribution



Collins Aerospace Systems, a unit of Raytheon Technologies Corp. (NYSE: RTX), has successfully completed modernizing the E-6B Block I aircraft fleet, part of the Navy's Airborne Command Post and Take Charge and Move Out (ABNCP/TACAMO) Weapon System missions. The upgraded aircraft features a new command and control

battlestaff, communications central control, multi-enclave voice/data/video distribution system, and an Internet Protocol Bandwidth Expansion (IPBE) digital backbone. Collins Aerospace acted as the Mission System Integrator (MSI), designing, developing, producing, installing, and qualifying the recapitalization of the mission system.

"The Block I contract is an example and testament to

Collins Aerospace's ability to deliver comprehensive, integrated and durable solutions to the Navy and E-6B community," said Heather Robertson, vice president and general manager, Integrated Solutions, Mission Systems, Collins Aerospace. "As a result of this upgrade, crews have a modern, multi-enclave mission system that provides a full picture of their operating environment."

As part of the ABNCP mission, the E-6B is an airborne command post and communications relay for U.S. nuclear forces. For the TACAMO mission, the E-6B provides the survivable communications link to our submarine forces using Collins Aerospace's Very Low Frequency (VLF) terminal.

The work was completed at Will Rogers Airport where the company's co-located modification facility completed the 8-year full-rate Production (FRP) effort. With over 50 years of working within the TACAMO community, Collins Aerospace continues to deliver integrated solutions that ensure the utmost performance for the Navy's critical, no-fail, missions. ■

ATR 42/72 with Liebherr Air Management System in Service



The new integrated air management system developed and manufactured by Liebherr-Aerospace entered into service with ASL Airlines Ireland – on behalf of FedEx – on December 15th, 2020, during the first commercial flight of ATR's 42/72 aircraft family. The newly enhanced system improves on-board comfort for passengers and crew while at the same time substantially reducing operational costs.

ATR and Liebherr-Aerospace have strengthened their long-term relationship for the ATR 42/72 program, and to cross the milestone of having the inaugural flight – in this case with a cargo aircraft version.

"In today's competitive aviation landscape, it is imperative to constantly evaluate best-in-class partners, and Liebherr was

able to deliver not only cost-effectiveness, but, most importantly, performance enhancements. Liebherr's footprint in our ATR family has now been expanded from pressurization and anti-ice components to bleed and air management systems as well as ground cooling system", said David Brigante, ATR Senior Vice President Programmes and Customer Services.

Liebherr-Aerospace will also be responsible for product support of ATR's fleet under the ATR Global Maintenance Agreement (GMA). The two companies signed a 10 year commitment and Liebherr-Aerospace will be the exclusive product support provider for the new air management system worldwide. The agreement will be carried out by Liebherr-Aerospace's service stations in

Toulouse (France), center of excellence for air management systems, Singapore and Saline, Michigan (USA). Developments are well under way to provide ATR with cutting edge technology that includes predictive maintenance services. The goal is to reduce aircraft downtime, optimize spare parts inventory and increase reliability - all while reducing costs." ■

Turkish Aerospace Continues to Deliver Critical Components

Features new command and control communication, and capabilities for voice, data & video distribution



Turkish Aerospace continues to develop indigenous platforms for the aviation industry of the future and the company is producing aerostructure components for the biggest

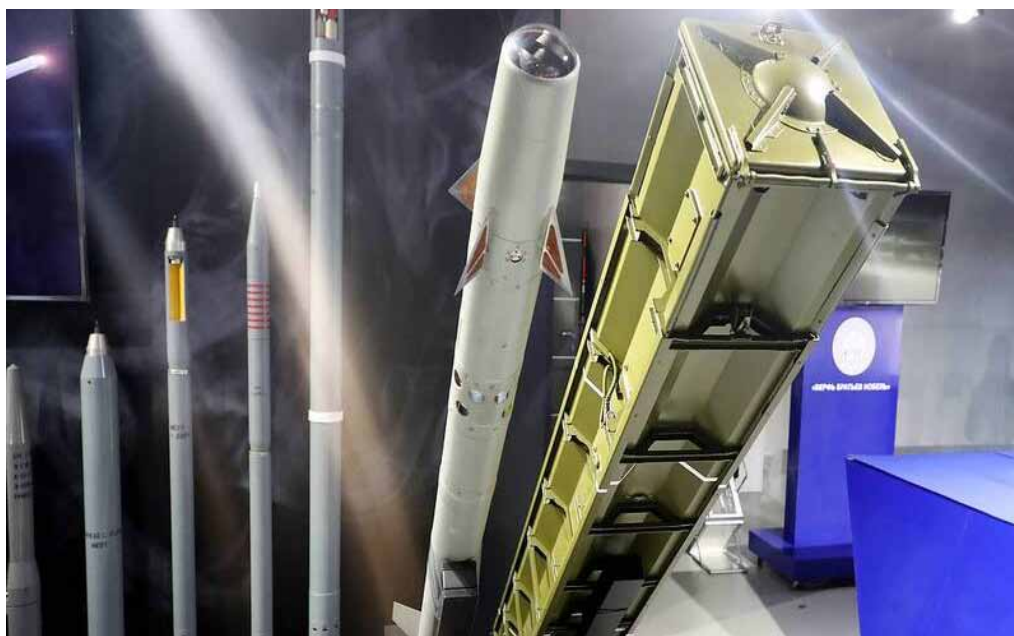
companies in the world. Turkish Aerospace have produced 500 aircraft composite panels on critical aircraft components for Gulfstream and 368 helicopter fuselage in total for Leonardo Helicopters.

Turkish Aerospace has produced a total of 368 AW139 helicopter fuselage for Leonardo Helicopters, Italy, a famous helicopter manufacturer company since 2004. Turkish Aerospace, was awarded the Gold Logistics Award by Gulfstream in 2016.

Company has completed the delivery of critical components for Gulfstream G650 aircraft, one of the world most preferred business jets, for 500 aircraft, including 47 metal panels in each aircraft. Turkish Aerospace is the center of technology in design, development, manufacturing, integration

of aerospace systems, modernization and after sales support in Turkey. Located in Ankara, Turkish Aerospace production plant covers an area of 5 million square meters with an industrial facility of 150,000 square meters under its roof. The company has a modern aircraft facility furnished with high technology machinery and equipment that provide extensive manufacturing capabilities ranging from parts manufacturing to aircraft assembly, flight tests and delivery. ■

Kalashnikov Launches a New Surface-to-Air Missile



Kalashnikov, the manufacturer of the AK 47 attack rifle has launched batch production of a new guided missile 9M333 for

the air defense systems of the Strela-10M family.

"Onsite testing of the missile at the Donguz test site in the Orenburg Region has been

completed successfully. The missile's batch production has begun under a contract with the Defense Ministry," – said the company's press release,

stressing that the missile is a fire-and-forget weapon.

"The missile's distinguishing feature is a self-homing warhead operating in three modes (optical contrast, infrared and anti-jamming), which is its key advantage over other weapons of the same class", – the press service said.

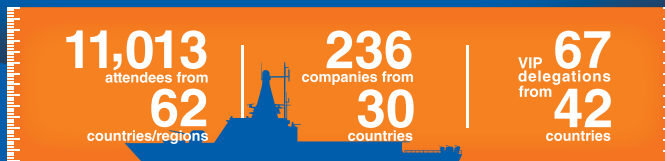
The 9M333 missile can hit low-flying planes and helicopters amid optical jamming as well as drones and cruise missiles.

Strela-10M highly mobile air defense system is designed for protection of army units in any forms of combat operations and on the march against air threats at low and ultra low altitude. ■

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Rafael awarded \$200 million contract from an Asian country



has been sold to 35 countries, including 19 NATO nations, with over 33,000 missiles already supplied and more than 6,000 fired in tests and in combat. Spike missiles have been integrated onto 45 different vehicular, helicopter and naval platforms.

The new contract includes Rafael's Bnet system, a family of advanced Broadband IP MANET (Mobile Ad-hoc Network) Software Defined Radios for tactical operations,

Rafael Advanced Defense Systems Ltd. announces that it has been awarded a \$200 million contract to provide an Asian country with SPICE 2000 air-to-surface systems, Spike ATGMs, tactical, electro-optically guided missiles, and advanced communication systems.

SPICE is a family of stand-off, autonomous, air-to-ground weapon systems that strike targets with pinpoint accuracy and at high attack

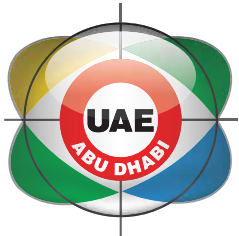


volumes, independently of GPS navigation, based on autonomous electro-optic Scene-Matching Artificial Intelligence (AI) Algorithms. The SPICE family, operational and combat proven in the Israeli air force and other global users, consists of SPICE-250, SPICE-1000, and SPICE-2000 variants, with ranges of up to 100 km.

The Spike family consists of five variants (SR, MR, LR2, ER2, NLOS) of electro-optical, multi-purpose, multi-platform missiles, with ranges of up to 32 km and fire-and-update capabilities. To-date, Spike

supporting the modern digital battlefield's needs with high-speed, low delay, reliable connectivity for data, voice and video on-the-move.

Rafael is a world-leading developer and manufacturer of advanced weapon systems. It provides forefront technological solutions that address the defensive and offensive requirements of the modern battlefield. Rafael is one of Israel's top three defense companies, with approximately 8,000 employees and numerous subcontractors and service suppliers domestically and internationally.



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