**1 . Date: 05-01-2023ISR / ISTAR - Small - General - Platform7 Hour Endurance Hybrid VTOL UAV ReleasedURL: https://www.unmannedsystemstechnology.com/2023/01/7-hour-endurance-hybrid-vtol-uav-released/**

The newly released FDG50F, by FlyDragon Drone Tech, is a high-performance vertical take-off and landing (VTOL) fixed-wing unmanned aircraft system (UAS), with a payload capacity of 10kgs and a flight endurance of up to 7 hours.

Designed specifically for aerial surveying and surveillance applications, the waterproof platform is designed to meet complex weather and flight conditions, and for unobstructed aerodynamic flight, the main antenna is integrated with the landing gear to reduce drag.

Combining the VTOL advantages of a multirotor, with the extended range of fixed-wing UAV, the FDG50F is a flexible solution to endurance unmanned flight, capable of adapting to various complex take-off and landing conditions.

The aerodynamic modular design can be disassembled without tools, and reassembled in just 3 minutes.

FDG50F Specifications

• Standard take-off weight: 50kg

• Max. Payload Weight: 15kg

• Cruise Speed: 80km/h

• Max. Flight Speed: 130km/h

• Control radius: 50-100km

• Max. Altitude AMSL: 4000m

• Max. Wind Resistance: Level 7

FlyDragon Drone Tech is looking for global distributor, contact for further details >>

**2 . Date: 06-01-2023Armed ISR / ISTAR - MALE - General - PlatformGA-ASI Flies Upgraded MQ-9A Block 5 RPASURL: https://www.unmannedsystemstechnology.com/2023/01/ga-asi-flies-upgraded-mq-9a-block-5-rpas/**

General Atomics Aeronautical Systems, Inc. (GA-ASI) has flown the first production MQ-9A Multi-Domain Operations (M2DO)-ready variant of the U.S. Air Force MQ-9A Reaper.

This upgraded version of the MQ-9A Block 5 RPAS (remotely piloted aircraft), also known as a the “-25,” includes key features that will enable future integration and fielding of Open Mission Systems (OMS) as well as new sensors that will further expand the MQ-9A Reaper’s strategic reconnaissance capabilities.

Features of the new “-25” include improved power distribution and redundancy, GPS improvements, radar altimeters, nose wheel steering, and angle of attack (AoA) sensor system improvements.

The U.S. Air Force and U.S. Marine Corps will both receive these improved MQ-9A Block 5 “-25” M2DO-ready aircraft under current contracts; however, the total number of aircraft receiving these improvements has not been released.

“We’re excited to position the MQ-9A enterprise for new missions through these capabilities,” said GA-ASI Vice President of USAF Programs Claudia Mowery. “Future funding could potentially expand these capabilities to the entire MQ-9A fleet.”

**3 . Date: 10-01-2023Component - General - Engine / PowersourceNew Hybrid Wankel Engine Introduced for UAVsURL: https://www.unmannedsystemstechnology.com/2023/01/new-hybrid-wankel-engine-introduced-for-uavs/**

Barcelona-based internal combustion and hybrid engine manufacturer UAVHE has released the RW1-300C, a unique wankel hybrid model for UAVs (unmanned aerial vehicles). Designed from the ground up using aeronautical technologies and approaches, the RW1-300C hybrid engine is a wankel rotary engine with integrated transmission and variable pitch propeller hub. Manufacturer’s suggested retail price starts at €11,900.

Highly effective for sustained operation at constant speeds the RW1-300C has been built for fixed-wing UAVs with high electrical loads, and VTOLs. Equipped with a two-stage electronic fuel injection system, part of the mixture is formed by injection into the intake manifold directly into the combustion chamber. To compensate for altitude, the engine is equipped with an electric supercharger whose performance can be smoothly and arbitrarily changed depending on the operating conditions. The fuel pump and pressure regulators are duplicated for reliability. Reliable starting and operation of the engine are guaranteed on a wide range of fuel grades including aviation and automotive gasoline, and heavy fuels (aviation kerosene and jet fuel).

The hybrid power plant is integrated with an 11kW generator and a reversible electric booster/starter which enables a brief increase in power for example, on takeoff or when performing active maneuvering. Using a powerful integrated starter ensures the reliable starting of heavy fuel at significant negative temperatures and low atmospheric pressure. Up to 10 kW of electric power is available at cruising speed or up to 2kW at idle speed when the propeller is not rotating.

The liquid, double-circuit cooling system has two independent cooling loops, two radiators, and two pumps. The failure of one of the circuits delays the loss of the engine or enables continued flight with decreased power. Variable capacity cooling pumps enable optimum temperature during operation and smooth cooling after missions.

The transmission is equipped with a centrifugal idle clutch (the propeller does not rotate until the engine reaches 3000 rpm) and an integrated gearbox with ratio 1:3.2. The gearbox housing is an oil cooler. A brush block is built into the body to control the variable pitch propeller. The gearbox is equipped with oil temperature sensors and sensors for the presence of metal chips in the oil. The data from the sensors is transmitted to the control unit via the CAN bus.

Materials & Design:

• The engine casing is milled from dural alloy forging.

• The rotor is hollow, cooled by the fuel mixture, and made from an aluminum forging.

• Apex channels are electroplated.

• Seal apexes are tungsten carbide, and sidewalls slots are polished and anti-seize coated.

• The crankshaft and internal gears are made of forged steel.

• Bearings operate on polished and hardened surfaces.

• The outer surfaces of the engine are hard anodized.

• All fasteners are stainless steel or titanium.

• All connectors are sealed, mil-spec.

• The combustion chamber (stator) is formed from a thin cast-iron sleeve and cast-iron side walls to the reverse side of which labyrinth cooling channels are connected.

Commenting on the RW1-300C, UAVHE’s Andrei Bogdanov said; “What is unique about this model is that it is one of the first Wankel hybrids to be designed using aeronautical technologies and principles. The fuel pump, pressure regulators and cooling loops are duplicated for reliability, speed or torque can be adjusted, and an electric booster increases power by 20% in takeoff modes. Features like these empower UAV manufacturers to make devices on a fundamentally new level. This is the first engine with such a degree of systems integration designed to be convenient specifically for aircraft developers.”

**4 . Date: 08-02-2023Loitering Munition - Mini - GeneralALTIUS-600 UAS Achieves Milestone in UK Air Launched Effects TestURL: https://www.unmannedsystemstechnology.com/2023/02/altius-600-uas-achieves-milestone-in-uk-air-launched-effects-test/**

In partnership with engineers from Leonardo UK, Anduril Industries has completed a series of live trials of new technologies which will underpin the development of Air Launched Effects (ALE) capabilities, which include releasing and controlling drones in mid-air from host aircraft.

The joint trials were conducted at Predannack Airfield in Cornwall in December 2022, using Crewed-UnCrewed Teaming (CUC-T) control software and Anduril’s ALTIUS-600 UAS.

According to Anduril, the joint team was able to evaluate and gather real-world performance data on a range of hardware and software components critical to future multi-asset collaboration drone capabilities.

The team developed and practiced drone to aircraft coordination, flight maneuvers, waypoints, loiter positions, and overall command and control necessary for multiple aircraft to function together autonomously.

Anduril’s ALTIUS is designed for missions including standoff ISR&T, kinetic engagement, RF decoy, SIGINT, comms relay, and RF/cyber warfare. Like all Anduril systems, the ALTIUS platform is autonomous, giving one operator the ability to control multiple assets. ALTIUS-600 is designed to be launched from any platform, including common launch tubes on fixed-wing aircraft or rotor-wing aircraft in both high and low altitude.

Anduril believes ALTIUS is a leap ahead in autonomous technology, with the ability to operate alone or in teams, and is designed to increase the survivability of military aircraft. By launching teams of sensor-equipped drones or other payloads that can then fly miles ahead of the aircraft, crews can stay out of harm’s way and deliver effects with extreme precision.

The December trials included the first ALTIUS flight in the UK and were an important step in gathering real-world performance data on hardware and software components that will be essential in developing future ALE capabilities.

**5 . Date: 10-02-2023ISR / ISTAR - Tactical - ContractCAMCOPTER S-100 Supports Royal Navy Ships on Operational TasksURL: https://www.unmannedsystemstechnology.com/2023/02/camcopter-s-100-supports-royal-navy-ships-on-operational-tasks/**

Schiebel and Thales have been awarded the Peregrine UAS contract by the UK Ministry of Defence for provision of a CAMCOPTER S-100 UAS to support the UK Royal Navy.

Fitted with a naval surveillance sensor suite, the S-100 will provide a comprehensive maritime capability for protecting Royal Navy ships on operational tasks.

Schiebel, together with system integrator Thales, will provide the operationally proven S-100 with a range of high precision Intelligence, Surveillance and Reconnaissance (ISR) sensors and systems.

The Thales I-Master radar, an EO/IR camera, and an Automatic Identification System (AIS), all fused with the CarteNav’s AIMS Mission System, enables an all-weather detection and identification capability of unknown targets.

According to Schiebel, the S-100’s rapid launch ability, superior mission endurance and high quality sensors combine to find, track and identify targets, providing additional protection for the ship and its crew. High-definition imagery and radar data downloaded to the system operator and transmitted in real-time into the ship’s Combat Management System (CMS) can provide the crew with invaluable time to prepare and enact operational decisions.

“We are immensely proud that the CAMCOPTER S-100 is the UK Ministry of Defence’s choice for its prestigious Peregrine program,” said Hans Georg Schiebel, Chairman of the Schiebel Group. “The S-100 is the optimal UAS for a growing number of Navies worldwide and has proven its superiority and outstanding capabilities throughout its numerous operational deployments.”

**6 . Date: 24-02-2023PartnershipNew Partnership to Produce Solutions for Autonomous Systems IndustryURL: https://www.unmannedsystemstechnology.com/2023/02/new-partnership-to-produce-solutions-for-autonomous-systems-industry/**

Advanced unmanned systems developer UAVOS has signed an agreement with EDGE Group’s GradeOne Group in order to provide a tactical framework for current and future cooperation to produce innovative solutions for the autonomous systems industry as part of the joint R&D Laboratory.

Vadim Tarasov, Board Chair of UAVOS, and Khalifa AI Ali, Managing Director at GradeOne Group, agreed to create a unique, strategic relationship between the two companies, signing a Memorandum of Understanding at IDEX 2023.

The agreement ensures work in three key areas related to development and adoption of security technology for uncrewed land and air platforms:

• Developing, testing and manufacturing an anti-drone laser system

• Refinement of a family of uncrewed jet powered Arrow aerial targets

• Program of piloted aircraft into drones conversion

The cooperation will be geared towards developing the products for the UAE market as well as other countries.

“UAVOS is thrilled to be formalizing our long-term partnership with the GradeOne Group. Our combined strength will provide capacity for innovation needed to respond to complex global issues and autonomous systems industry challenges,” said Vadim Tarasov. “Our strategic relationship will leverage the best talent and ideas from both companies to produce innovative solutions for our future.”

**7 . Date: 23-02-2023Component - General - Engine / PowersourceNew Two Stroke Hybrid Engine for UAVsURL: https://www.unmannedsystemstechnology.com/2023/02/new-two-stroke-hybrid-engine-for-uavs/**

Spanish drone engine manufacturer UAVHE SL has unveiled the UAVHE P1-124, its latest two stroke hybrid engine for Unmanned Aerial Vehicles (UAVs).

The new engine boasts an integrated 11kW alternator and cutting-edge technologies including EFI, liquid cooling, twin spark plug ignition, an internal gearbox, and an idle clutch.

The UAVHE P1-124 features a compact design and uses heavy fuels, with a maximum power output of 29hp at 8000 rpm making it a reliable and efficient power source for UAVs.

It complies with industry standards such as F3299-19, ensuring safety, reliability, and compliance, and has an expected lifespan of over 1000 hours.

The UAVHE P1-124 is available for immediate shipping, and UAVHE SL provides technical support and assistance with custom UAV designs.

Compatible with different types and sizes of UAV airframes, the UAVHE P1-124 provides extended flight times, improved performance, reduced maintenance costs and low noise output.

**8 . Date: 09-02-2023ISR / ISTAR - Mini - PartnershipPartnership to Develop sUAS for NATO Special Forces ProjectURL: https://www.unmannedsystemstechnology.com/2023/02/partnership-to-develop-suas-for-nato-special-forces-project/**

Rheinmetall subsidiary Rheinmetall Technical Publications GmbH and AeroVironment have partnered to participate in a NATO procurement program for a small UAS intended for special operations and infantry applications.

The system is required to have all-weather functionality, quick deployment, hand launchability, a maximum weight of 10kg, and a 30km operating range.

Rheinmetall and AeroVironment believe they are ideally suited for developing and putting forward a compelling solution that meets the requirements of NATO special forces.

AeroVironment’s expertise in the design, development and production of unmanned aerial systems is evidenced in its Puma 3 AE UAS, which is in operation with armed forces around the world. AeroVironment believes Puma 3 AE’s modular concept offers the optimum platform for a small UAS for special forces.

A certified aviation technology company, Rheinmetall Technical Publications is a systems house for tactical drones. Benefiting from decades of experience, Rheinmetall believes it has the necessary expertise to introduce, support, and adapt drone systems to meet customer specifications.

**9 . Date: 23-02-2023ISR / ISTAR - Tactical - ContractUS Army Continues Shadow Tactical UAS ModernizationURL: https://www.unmannedsystemstechnology.com/2023/02/us-army-continues-shadow-tactical-uas-modernization/**

The US Army has exercised an option valued at up to $76.1 million for continued contractor logistics support; field service; maintenance including hardware, spares and repairs; and engineering support for existing Textron Systems Shadow Tactical UAS.

The Shadow systems are also scheduled to be upgraded to the improved Block III configuration, with work at Textron Systems’ Hunt Valley facility scheduled to begin immediately and cover continued support through 2023.

The award is for option year two in a five-year contract awarded December 31, 2020, to modernize the current Shadow RQ-7B Block I and II and lead product support and sustainment activities for the fleet.

The Shadow Block III system gives soldiers and commanders increased situational awareness, improved wide-area target acquisition and high-value target tracking, and enhances manned-unmanned teaming capabilities.

It builds on the proven success of previous configurations incorporating design improvements to allow for increased operations in adverse weather conditions, the latest high-definition day-and-night video payload, increased engine power and reliability, reduced acoustic signature and advanced communications relay capabilities. Together, these improvements were significant enough to require their own Follow-on Operational Test & Evaluation determination.

“The Block III Shadow system is built on soldier feedback. Improvements like quieter engines, improved weatherization and increased standoff range allow operators to employ the system in new and innovative ways,” said Wayne Prender, Senior Vice President of Air Systems. “Because Combat Aviation Brigades and special forces units will use Shadow systems through 2036, modernization of the fleet supports readiness of already-fielded systems for up to 15 more years.”

**10 . Date: 17-02-2023Cargo - RegulationVolatus Receives Drone Cargo Services License in CanadaURL: https://www.unmannedsystemstechnology.com/2023/02/volatus-receives-drone-cargo-services-license-in-canada/**

Volatus Aerospace has been issued a Canadian Transportation Agency (CTA) License for domestic service, all-cargo aircraft.

The addition of this license allows the company to build its drone cargo capability under the Volatus brand in preparation for the anticipated Transport Canada/FAA regulatory changes.

This license builds on the existing capabilities authorized by CTA licenses held by Volatus subsidiaries Partner Jet Inc. (Volatus Aviation) and Synergy Aviation.

“Positioning Volatus with this license is an important step toward our long-term vision of drone cargo operations, when we are scheduled to take delivery of the first 3.8 ton Natilus Kona uncrewed regional feeder aircraft (announced in January 2022),” said Glen Lynch, CEO of Volatus Aerospace Corp. “It is still early days for large, commercial drone cargo and our primary revenues for the next few years will continue to come from data, analytics, intelligence and equipment sales.”

“Today, our cargo business is limited to smaller drones, which are practical for inter-island, remote areas, industrial sites, medical and offshore applications. These current use cases continue to build our experience and reputation as an operator of cargo drones,” added Michael Hill, Regional Director for Volatus.

**11 . Date: 01-03-2023Armed ISR / ISTAR - MALE - General - PlatformMQ-9B SkyGuardian RPAS Completes Cold Weather Validation FlightURL: https://www.unmannedsystemstechnology.com/2023/03/mq-9b-skyguardian-rpas-completes-cold-weather-validation-flight/**

General Atomics Aeronautical Systems, Inc. (GA-ASI) has performed Cold Weather Validation (CWV) using a company-owned MQ-9B SkyGuardian Remotely Piloted Aircraft System (RPAS), adding to the cold weather experience of the MQ-9 family of systems.

SkyGuardian is being proposed to multiple Nordic countries for their defense and security needs. The CWV flight test widens and accelerates the global operational implementation for SkyGuardian, especially for countries that need to operate in cold conditions.

To prepare for the CWV, SkyGuardian was put in a ‘cold soak’ that kept the aircraft at a temperature below -21°C/-5°F for 12 hours, then prepared for ground maneuvers and flight through a de-icing process using de-icing and anti-icing fluids.

In a second scenario, SkyGuardian transitioned from a climate-controlled hangar to engine start and system checks under basic cold conditions (temperature below -21°C/ -5°F ambient air). For the first flight, the outside temperature was below -21°C/-5°F.

All scenarios were successfully and consistently conducted in good time, relying on standard de-icing and anti-icing procedures, fluids, and support equipment. The company believes this is a testament to the systems’ high readiness and responsiveness.

The system’s ground servicing actions, maneuvers, and flights were based out of GA-ASI’s Flight Test and Training Center in Grand Forks, N.D.

“Among the many transformative features of our MQ-9B line of RPAS is the aircraft’s ability to perform in extreme temperatures,” said GA-ASI President David R. Alexander. “We welcome the cold weather operational capability requirements from Nordic countries, as the MQ-9B is built for all-weather global missions, and we’re thrilled to have MQ-9B perform so impressively under these demanding cold conditions. The CWV, coupled with our recent Low Earth Orbit SATCOM flight tests, demonstrate how our aircraft can successfully perform missions in the Arctic region, which is becoming a clear security priority for NORAD and NATO.”

GA-ASI’s MQ-9B SkyGuardian and SeaGuardian provide all-weather capability and certification, with full compliance with STANAG-4671 (NATO UAS airworthiness standard). This feature, along with GA-ASI’s operationally proven, collision-avoidance radar, enables flexible operations in civil airspace.

In addition to the Nordic countries, SkyGuardian and SeaGuardian have garnered interest from customers throughout the world. The UK Ministry of Defence selected MQ-9B SkyGuardian for its Protector program, and the Belgian Ministry of Defense signed a contract for SkyGuardian. MQ-9B have also been leased by the Japan Coast Guard.

**12 . Date: 08-03-2023ISR / ISTAR - Tactical - ContractUK Home Office Contracts TEKEVER for Drone-Based Maritime SurveillanceURL: https://www.unmannedsystemstechnology.com/2023/03/uk-home-office-contracts-tekever-for-drone-based-maritime-surveillance/**

The UK Home Office has awarded TEKEVER a three-year contract renewal to provide Surveillance-as-a-Service across the English Channel using its AR5 and AR3 drones.

Under the terms of the contract, TEKEVER will be responsible for the provision of its AR5 system, a twin-engine fixed-wing UAV designed for maritime surveillance missions. It can fly for more than 20 hours and can carry multiple sensors, including maritime radars, synthetic aperture radars, day and night cameras and AIS and EPIRB receivers.

As part of this Home Office contract, the AR5 will be used to detect and recognize potentially illegal vessels, track and identify them, and provide the authorities with real-time and highly accurate intelligence.

In addition to the AR5, TEKEVER will provide its AR3 drone. The AR3 provides flexible sensor options and 16h endurance with a very reduced logistics footprint, making it ideal for the most demanding tactical scenarios. Used either in its VTOL-mode, or launched with a highly mobile catapult system and recovered using a parachute or a net, AR3 is designed to create a complementary response to AR5 missions.

“We are very pleased to be renewing our work with the UK Home Office and proud of the partnership we have created to date, where we get to be part of a greater and more meaningful cause that is impacting lives every day,” said Paul Webb, TEKEVER Chief Operating Officer. “This award vindicates our continued commitment to protecting and preserving human life through AI-driven drone surveillance built to detect the dangerous act of human trafficking and illegal fishing activities.”

Dr Neil Honeyman, Chief Technology Officer for the Home Office’s Small Boats Operational Command, added: “TEKEVER is a trusted partner and we are delighted to continue our excellent working relationship with them over the next three years, using their cutting-edge systems as part of our continued efforts to tackle this illegal and extremely dangerous activity in the English Channel.”

**13 . Date: 12-04-2023ISR / ISTAR - Small - ContractAlpha 900 Unmanned Helicopters for US GovernmentURL: https://www.unmannedsystemstechnology.com/2023/04/alpha-900-unmanned-helicopters-for-us-government/**

US-based system integrator Rapid Expeditionary Concepts (REC) has received a prime contract award from the US Department of Defense for the purchase of Alpha 900 unmanned helicopter systems manufactured by Alpha Unmanned Systems, SL for integration, test, evaluation, and deployment.

REC is responsible for the integration of a specialized electro-optical sensor used in counter-UAS operations. In addition to providing the fully integrated solution, REC and Alpha will provide deployment and training support utilizing the Alpha 900 in a joint operational evaluation to be conducted by the US Department of Defense over the next two years.

REC delivers end-to-end Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance & Reconnaissance (C5ISR) solutions with a particular focus on integrating advanced payloads and sensors on-board various manned and unmanned platforms intended for land, sea, and airborne use.

REC has a long track record of adapting commercial-off-the-shelf (COTS) technology for use by various end-customers in the defense, energy, and special operations communities. The company utilizes its strengths in translating end-user provided operational requirements into technical solutions that meet or exceed those provided by US DoD in defeating evolving threats from both sophisticated and improvised unmanned systems in air, sea, and land environments utilizing the Alpha 900.

Weighing only 55lbs, the Alpha 900 UAV is renowned for its comparative long autonomous flight time of up to 4 hours with up to 8.5lbs of payload capacity. The Alpha 900 small fuel powered helicopters can take-off and land automatically on moving platforms for a variety of purposes, from maritime security to power line inspection, mapping, and precision agriculture.

The Program Director, Dr. Paul Kuttner, PhD, said: “We have a long track record of maximizing efficiencies and delivering best-value for end-users by reducing total cost, size, weight, and power (C-SWaP) of subsystems intended for utilization on unmanned aircraft, which is perfectly suited for this requirement. Our team has been involved in the design, integration and/or deployment of Group 1-5 unmanned aerial systems and subsystems of relevance for many years and we are confident in our ability to execute this program flawlessly. In addition, we have the unique ability to leverage an operational mindset to develop training curriculum and documentation that resonates with real-world end-users to ensure operational success. We are excited to partner with the US DoD and Alpha in this endeavor and look forward to many future successes, where our team can utilize the versatile and efficient Alpha 900 for use in delivering sensor suites of relevance to the ever-changing demands of conflict in various areas of operation.”

“Alpha is delighted to support the US Government and is pleased that its reliable products fulfill the demanding requirements for this project,” said Alpha’s CEO, Eric Freeman. “We hope to build a long-lasting relationship with the US Government and to help other Spanish companies with cutting-edge technologies enter the world’s largest and most important technology marketplace.”

**14 . Date: 21-04-2023Cargo - Tactical - ContractAutonomous Resupply Drone In Development for USMCURL: https://www.unmannedsystemstechnology.com/2023/04/autonomous-resupply-drone-in-development-for-usmc/**

Leidos will develop a single prototype Unmanned Aerial System (UAS) that can autonomously resupply forward-deployed ground forces as part of a firm-fixed-price, multiple-award contract from the Marine Corps.

Under the 18 month contract, Leidos will develop, deliver and demonstrate an autonomous Medium Unmanned Logistics System – Air (MULS-A) prototype, known as SeaOnyx, which will then be used to perform a logistics distribution mission at the tactical edge of the battlefield.

The goal of the project is to demonstrate a prototype UAS that can carry a logistics payload between 300 and 600 pounds to a combat area with a radius of 25 to 100 nautical miles.

“Leidos leads the industry in taking cutting-edge innovations and making them mission-ready today,” said Tim Freeman, Leidos senior vice president and Airborne Solutions operations manager. “The ability to autonomously deliver hundreds of pounds of supplies over long ranges will be a game-changer for the warfighter. We look forward to demonstrating how the Leidos’ SeaOnyx solution will help deliver a logistics advantage to the Marines and other branches of the military.”

Leidos is teaming with Phenix Solutions to design the SeaOnyx prototype. Phenix is a non-traditional, veteran-owned small business defense contractor that develops UAS aircraft for a variety of missions.

The work will be performed at locations in Colorado, Ohio, Oregon, California, Nevada and Arizona.

**15 . Date: 20-04-2023PartnershipManufacturing & Support Services for Alpha UAS in Southeast AsiaURL: https://www.unmannedsystemstechnology.com/2023/04/manufacturing-support-services-for-alpha-uas-in-southeast-asia/**

Unmanned helicopter manufacturer Alpha Unmanned Systems has confirmed plans to increase its manufacturing and support capabilities in Southeast Asia through a partnership with Indonesian firm PT Indadi Venyro.

“We are pleased to offer Alpha products throughout Indonesia and to neighboring countries,” said Adi Haryono, CEO of PT Indadi Venyro. “Alpha’s helicopter platforms have enormous growth potential in the region and we are pleased to support and build Alpha products locally.”

Eric Freeman, CEO of Alpha Unmanned Systems, added that licensed manufacturing of Alpha products and local maintenance and support will help clients in Indonesia and throughout Southeast Asia: “We are delighted to work with an important regional partner. In April 2023, PT Indadi Venyro from Indonesia invested in AUS as a minority equity partner and will manufacture, distribute and support Alpha under license throughout Indonesia and SE Asia.”

Alpha’s A800 and A900 platforms are highly evolved and professional unmanned flight systems designed for both civilian and military/security use, with a high level of aeronautical engineering and sophistication.

The Alpha 900 unmanned helicopter is the company’s newest product, designed and manufactured primarily for missions in the marine environment. With a powerful combustion engine that gives it great autonomy and payload capacity (up to 4 hours with payloads of up to 4 kg), the A900 can take off and land autonomously on and from moving vessels with limited space. It is built STANAG Compliant, so that all critical systems are redundant.

**16 . Date: 09-05-2023ISR / ISTAR - Small - GeneralAR3 UAS Monitors Oil & Gas Infrastructure in North AmericaURL: https://www.unmannedsystemstechnology.com/2023/05/ar3-uas-monitors-oil-gas-infrastructure-in-north-america/**

TEKEVER has signed a contract with Phoenix Heli-Flight, a Canadian helicopter charter company, to assist in the monitoring and assessment of critical oil and gas infrastructure.

According to TEKEVER, this new contract represents a very important landmark in the company’s expansion into the North American market.

Phoenix will deploy the TEKEVER AR3 UAS to conduct pipeline inspections for oil and gas companies in combination with its own manned helicopters across a range of challenging terrains and in harsh environmental conditions.

The AR3, which carries a specifically customized sensor package, has a reduced logistics footprint and offers an operational endurance of 16 hours, making it the perfect solution to support this type of highly demanding missions.

Paul Spring, President of Phoenix Heli-Flight, said: “We are delighted to be working with TEKEVER to enhance our pipeline inspection capabilities. Their sophisticated but easy to operate UAVs will enable us to accomplish complex missions across our uniquely demanding area of operations.”

Ricardo Mendes, CEO of TEKEVER, added: “It is an exciting time for TEKEVER, as we’re rapidly expanding our global customer base. North America is a strategic market for us, as we believe customers from multiple public and private sectors demand cutting edge technology that enables the delivery of highly efficient and effective turnkey services, even in the most demanding weather and terrain conditions.”

TEKEVER is currently at Xponential 2023, in Denver, USA, exhibiting its AR3. Visit the company at booth 4620.

**17 . Date: 26-05-2023Armed ISR / ISTAR - MALE - General - PlatformEnhanced Capabilities Demonstrated for Gray Eagle Extended Range UASURL: https://www.unmannedsystemstechnology.com/2023/05/enhanced-capabilities-demonstrated-for-gray-eagle-extended-range-uas/**

General Atomics Aeronautical Systems, Inc. (GA-ASI) has confirmed that the company is supporting an ongoing demonstration featuring two U.S. Army-owned Gray Eagle Extended Range (GE-ER) unmanned aircraft systems (UAS). GA-ASI, the developer of the GE-ER platform, was contracted by the Army to integrate and operate an array of new capabilities on the versatile UAS as part of an ongoing effort to modernize it for Multi-Domain Operations (MDO).

This demonstration employs improved capabilities, including long-range sensors – like those traditionally flown on manned platforms – and navigation capabilities, as well as rapid integration of advanced sensors and payloads tailorable to specific missions.

As part of this MDO configuration, the next-generation Synthetic Aperture Radar (SAR) used for the demonstration is the new Eagle-Eye Multi-Mode Radar (MMR) supplied by GA-ASI. The Eagle-Eye radar is an MMR that provides increased performance and couples well with other payloads.

Many of the MDO capabilities showcased in this demo are featured in the latest Gray Eagle model, the Gray Eagle 25M, which is designed to meet the range and accuracy to detect, identify, locate and report (DILR) stationary and moving targets. The Gray Eagle 25M’s Open Architecture allows easy implementation of Future Airborne Capability Environment (FACE) standards across control interfaces, avionics, datalinks, and provides the ability to integrate a customizable suite of multi-INT sensors providing the Stand-Off Survivability with Stand-In Capability required for Multi-Domain Operations.

David R. Alexander, president of GA-ASI, commented: “Eagle-Eye easily detects threats and provides precise location data, which eliminates unknowns for the ground tactical commander on today’s dynamic battlefields. Eagle-Eye and the rest of our MDO upgrades can provide reliable performance, ease of operation and true overmatch capability for the U.S. Army.”

**18 . Date: 08-05-2023General - NavigationOptical Navigation System for GNSS-Free Navigation Demonstrated in the USURL: https://www.unmannedsystemstechnology.com/2023/05/optical-navigation-system-for-gnss-free-navigation-demonstrated-in-the-us/**

Asio Technologies has successfully completed several demonstrations of its NavGuard optical navigation system to strategic customers in the United States in response to defense and civil customer requests.

These demonstrations involved drones performing aerial navigation activities as well as automatic door-to-door delivery of packages over urban and rural areas without relying on GNSS signals.

Using the state-of-the-art NavGuard system, the drone was able to accomplish its missions without interruption, even in areas and times where the GNSS line was unavailable or jammed.

NavGuard is a real-time optical navigation system that enables precise, autonomous GNSS-free navigation for tactical UAS platforms, making it an ideal solution for tactical drone missions where payload capacity and flight time are limited, and continuous operation under all conditions is critical.

Designed with advanced machine vision technology, AI, and sensor fusion, NavGuard ensures safe and sustainable 24/7 drone missions in complete GNSS blackout. It is a versatile solution for various applications, including defense, commercial, homeland security, and infrastructure security.

“We are thrilled to have successfully demonstrated our cutting-edge NavGuard system in the US,” said David Harel, the CEO of Asio Technologies. “NavGuard is a game-changer in the industry, enabling safe and reliable drone missions in various environments. This solution is ideal for both civil and defense missions, ensuring mission safety and supporting the drone industry’s growth. We are currently demonstrating the NavGuard solution to numerous customers from different fields and with diverse needs and are excited to see the positive response and interest in this groundbreaking technology.”

**19 . Date: 17-05-2023Armed ISR / ISTAR - MALE - General - PlatformVSR700 Maritime Drone Tested in Full Operational Configuration at SeaURL: https://www.unmannedsystemstechnology.com/2023/05/vsr700-maritime-drone-tested-in-full-operational-configuration-at-sea/**

Airbus Helicopters and the French Armament General Directorate (DGA) tested the VSR700 UAS for the first time in an operational configuration from a ship at sea.

At the start of May 2023, the VSR700 performed 80 fully autonomous take-offs and landings from a civil vessel equipped with a helicopter deck, cruising off the coast of Brittany in the west of France.

“This flight test campaign was an important step for the VSR700 program as it allowed us to validate the excellent performance of the drone in operational conditions, which were representative of its future missions,” said Nicolas Delmas, Head of VSR700 program at Airbus Helicopters. “The VSR700 prototype opened its flight envelope in winds above 40 knots, accumulated eight hours of testing in 14 flights, and made successful landings in several different sea states.”

In 2022, the autonomous take-off and landing capabilities of the VSR700 were tested from the same vessel using an Optionally Piloted Vehicle (OPV) based on a modified Guimbal Cabri G2 equipped with the Autonomous Take-Off and Landing (ATOL) system developed for the VSR700.

This time the test campaign took place with the SDAM demonstrator and fully validated the capabilities of the system as part of the SDAM (Système de Drone Aérien pour la Marine) study that was awarded to Airbus Helicopters and Naval Group in 2017.

Autonomous take-off and landing capabilities are a key asset of the VSR700 and are made possible with the use of the Airbus DeckFinder system. This enables autonomous launch and recovery of UAVs with an accuracy of 10-20cm during challenging operations in harsh environmental conditions, independently of GNSS/GPS and regardless of degraded visual conditions.

This new test campaign follows two series of trials that were conducted with the DGA in late 2022 and early 2023 from the Levant Island test center located in the south of France. During these trials, the SDAM prototype demonstrated its ability to operate in a maritime environment. The handling qualities of the aircraft were tested as well as the capabilities of the sensors (a maritime surveillance radar, an electro optical sensor, and an AIS receiver) alongside the mission system developed by Naval Group.

The next development steps will see the second VSR700 prototype perform its maiden flight ahead of flight testing onboard a French Navy FREMM during the second half of 2023.

**20 . Date: 30-06-2023ISR / ISTAR - Tactical - ContractCAMCOPTER S-100 Supports Emission Monitoring & Maritime Surveillance for EMSA in FranceURL: https://www.unmannedsystemstechnology.com/2023/06/camcopter-s-100-supports-emission-monitoring-maritime-surveillance-for-emsa-in-france/**

On behalf of the General Directorate of Maritime Affairs, Fishery and Aquaculture (DGAMPA), the European Maritime Safety Agency (EMSA) has contracted Schiebel to support emission monitoring and maritime surveillance operations in northern France with its CAMCOPTER S-100.

Stationed at CROSS Gris-Nez, the CAMCOPTER S-100 currently supports emission monitoring and maritime safety, including environmental protection and response, fisheries inspection, Search and Rescue (SAR) as well as control of all relevant vessels passing through the Channel.

CROSS Gris-Nez is the Regional Center for Surveillance and Rescue at Sea and is responsible for the duties of the Maritime Rescue Coordination Center (MRCC) on the French side of the English Channel.

The S-100 executes these tasks equipped with a Trakka TC-300 EO/IR sensor, an Explicit Mini Sniffer for emission monitoring, a Becker Avionics BD406 Emergency Beacon Locator, an Automatic Identification System (AIS) receiver and a Mode-S Transponder ADSB out.

“This area of sea is one of the busiest shipping lanes in the world, where 24/7 monitoring of all maritime activities is essential,” said Hans Georg Schiebel, Chairman of the Schiebel Group. “Schiebel’s S-100 has supported numerous maritime authorities to date, with EMSA being one of our most prestigious customers.”

**21 . Date: 22-06-2023ISR / ISTAR - Tactical - General - PayloadCollaboration for UAS-Based Airborne LiDAR ScanningURL: https://www.unmannedsystemstechnology.com/2023/06/collaboration-for-uas-based-airborne-lidar-scanning/**

RIEGL has successfully integrated its RIEGL VQ-840-G topo-bathymetric LiDAR sensor on to the Schiebel CAMCOPTER S-100 Unmanned Aerial System (UAS).

According to the companies, operating a high-end laser scanning system remotely on a UAS requires a tailored solution going beyond what is currently available off-the-shelf. In order to maintain the broad operating range of the UAS, the weight of the sensor payload must be kept low. In addition, the effective execution of the survey mission requires full remote control of the payload instruments and real-time feedback to the operator via a data link.

RIEGL’s compact topo-bathymetric laser scanner was designed for use in a variety of maritime and hydrographic environments. The LiDAR sensor payload system is controlled remotely via a data link, which is crucial for the integration into the S100 system.

The scanner is controlled by using the onboard ‘RiACQUIRE-Embedded’ software via the available data link; data acquisition and laser safety are also monitored. Once the survey is completed, the raw data seamlessly integrates into the RIEGL data processing workflow.

The RIEGL VQ-840-G, combined with the outstanding technical specifications and performance of the CAMCOPTER S-100 UAS enables an efficient and secure way for surveying shallow waters, where monitoring from boats becomes a challenge. The applications of Airborne LiDAR Bathymetry (ALB) include the mapping of coastlines and river banks as well as the monitoring of natural habitats, water reservoirs and hydraulic engineering applications (such as canals, dams, bridges). In a single data acquisition mission, data below and above the water surface are covered.

Additionally, the topographic laser scanners RIEGL VUX-1UAV/-LR and VUX-12023 can be integrated in the front payload bay of the CAMCOPTER S-100.

**22 . Date: 21-06-2023Cargo - Tactical - General - PlatformDufour Reveals Final Aero2 Design for Tilt-Wing DroneURL: https://www.unmannedsystemstechnology.com/2023/06/dufour-reveals-final-aero2-design-for-tilt-wing-drone/**

Dufour Aerospace, Swiss eVTOL company, has released the final design and design specifications for its Aero2 drone.

The Aero2 is the precursor to the Aero3, a larger tilt-wing aircraft which could support options for uncrewed or crewed operations.

Simon Bendrey, Head of Design at Dufour Aerospace, said: “Aero2 is an uncrewed aerial vehicle without equal. Aero2 is able to transport 40kg (88 lbs) over a distance of 400km (215 NM). The structure and systems have to be safe and aerodynamically efficient and delivering this is not an easy task. I’m especially proud of the hard work of our teams to lock in a design that will meet or exceed our customers’ stringent requirements.”

‍From the original prototype, the design evolved from a conventional tail to an H-tail with a larger fuselage and wingspan and a wing profile optimized for its likely missions, such as critical goods transport, aerial surveying beyond visual line of sight (BVLOS) and public safety applications.

Concurrently, advancements were made in both the hardware and software control systems architecture. All flight critical systems of Aero2 are fully redundant, which will enable operations in uncontrolled airspace over sparsely populated areas, as per EASA’s Specific Assurance and Integrity Level IV (SAIL IV).

Once EASA has defined requirements and means of compliance for SAIL VI certification, Dufour plans to apply to this standard which will enable operations over populated areas. According to Dufour, its well-advanced with testing, both in simulation and in real-world conditions at its facilities in Dübendorf/Zurich and Visp, Switzerland.

‍Dufour is partnering with Suter Industries to create its hybrid-electric propulsion system. That system is currently being tested, and will be integrated into X2.3, the final pre-production prototype. All crucial systems will be integrated into this version, including automated flight functionalities.

Joseph Resnik, President and CEO of Spright, said: “Dufour Aerospace is working hard to develop the Aero2, and we have full confidence in their ability to deliver their innovative product. We’ve worked closely with the team at Dufour for more than one year now and are pleased with the progress being made. In close contact with our existing and prospect customers, we see a huge potential for this aircraft, for numerous applications. We can’t wait for serial production to start.”

‍Dufour Aerospace is now ordering materials required to build X2.3, the last Aero2 prototype before the entry-into-service aircraft. X2.3 will be able to demonstrate the full flight envelope and the performance of the hybrid system. Flight testing of X2.3 is expected to start early in 2024. The start of series production of Aero2 is planned for 2025.

**23 . Date: 21-06-2023Armed ISR / ISTAR - MALE - General - Engine / PowersourceGA-ASI Flies New Heavy Fuel Engine on GE-ER UASURL: https://www.unmannedsystemstechnology.com/2023/06/ga-asi-flies-new-heavy-fuel-engine-on-ge-er-uas/**

General Atomics Aeronautical Systems, Inc. (GA-ASI) has conducted the first flight of its new 200-horsepower heavy fuel engine on a Gray Eagle aircraft at its El Mirage flight facility.

The Heavy Fuel Engine (HFE) 2.0 is being considered by the US Army to become the fleet replacement for the current 180-horsepower engine used by the Gray Eagle Extended Range (GE-ER) Unmanned Aircraft System (UAS).

HFE 2.0 is also said to be cornerstone of the modernized Gray Eagle 25M (GE-25M) aircraft currently being developed under a US Army-funded program to support future Multi-Domain Operations (MDO) missions.

GA-ASI initiated the Internal Research and Development program that led to HFE 2.0 in 2016 with the goal of designing and developing a more reliable and durable engine that would also address diminishing manufacturing sources for aviation heavy fuel engines and components.

GA-ASI and its affiliate General Atomics Europe partnered with global leaders in high-performance engines, supported by propulsion technology innovator Cosworth, to develop an engine with increased horsepower, durability, and reliability. GA-ASI also brought in General Atomics Electromagnetic Systems (GA-EMS) to design and build the engine’s dual brushless generators, which are expected to dramatically reduce field maintenance and deliver over 50 per cent more electrical power for new payloads and mission capabilities.

“We’re very excited to see GE-ER powered by this new state-of-the-art propulsion system,” said GA-ASI President Dave Alexander. “In order to ensure the highest reliability and durability, we brought together a world-class team from across industry and leveraged our extensive HFE experience to deliver this solution. We’re proud to make this engine available to our US Army customer.”

The design effort was focused on reducing field maintenance and extending the time between engine replacement by 40 percent over the current engine. HFE 2.0 is set to continue to undergo planned IRAD flight tests and begin qualification testing this year.

**24 . Date: 29-06-2023Cargo - Tactical - General - PlatformGrant Funds First Autonomous, Fixed-Wing eVTOL Delivery Flight DemoURL: https://www.unmannedsystemstechnology.com/2023/06/grant-funds-first-autonomous-fixed-wing-evtol-delivery-flight-demo/**

MightyFly has been awarded a $150,000 grant from the Michigan Mobility Funding Platform (MMFP) to perform autonomous cargo delivery flight demonstrations in the state of Michigan.

This is expected to be the first public demonstration of an autonomous, fixed-wing electric Vertical Take-Off and Landing (eVTOL) aircraft showcasing 100 pounds of cargo deliveries.

During these demonstration flights, conducted with the support of the Michigan Office of Future Mobility and Electrification (OFME), MightyFly will showcase the capabilities of its third-generation autonomous cargo aircraft with 100 pounds of cargo capacity and a 6 ft by 19 inch by 18 inch cargo bay, capable of carrying up to 212 small USPS packages.

MightyFly believes its express delivery solutions will bring new logistics opportunities to businesses and set a precedent in the world’s aviation and logistics industries.

The logistics needs of Michigan’s manufacturing, automotive, logistics, retail, chemical and pharmaceutical industries offer the ideal scenario for MightyFly to demonstrate a new way to ship products, parts, supplies and various goods. According to MightyFly, these businesses need express logistics, with fast, efficient and affordable same-day shipping services. MightyFly’s one-shot business-to-business (B2B) delivery services aim to provide cost savings for just-in-time manufacturing lines, timely deliveries of crucial shipments for medical treatments, and quick replacements of fast-moving consumer goods to retailers, among many other benefits.

The MMFP grant program is managed by the OFME and is part of a statewide strategy to ensure Michigan remains the global leader in the future of mobility. The program was launched by the Michigan Economic Development Corporation (MEDC) and the Michigan Department of Transportation (MDOT) to catalyze and scale new mobility solutions that improve environmental sustainability by encouraging electric vehicle adoption and charging infrastructure buildout, increasing access to affordable and reliable transportation options and modernizing existing transportation systems for Michiganders.

The OFME has previously partnered with the Michigan Unmanned Aerial Systems Consortium (MUASC) to facilitate testing of autonomous aircraft in Michigan. The OFME works across state government, regulators, academia and private industry to build a robust ecosystem of partners capable of leading the adoption and use of transformative mobility solutions like that of MightyFly.

“We know the future of mobility is more than just vehicles – it is on air, land and sea,” said Charlie Tyson, Technology Activation Manager, OFME. “Michigan is uniquely positioned to support testing, development, and deployment of new technologies that will lead to more affordable, accessible transportation solutions and we are excited to support MightyFly through the MMFP program and their continued efforts to grow in Michigan.”

“We are excited to be the first large, autonomous, fixed-wing eVTOL cargo delivery company to demonstrate how autonomous aerial expedited logistics solutions will better serve Michiganders,” said Manal Habib, CEO of MightyFly. “This demonstration will be the first stepping stone for the efficient flow of goods across the world, making it possible for everyone to access reliable and affordable same-day deliveries. We will be making history.”

**25 . Date: 12-06-2023Armed ISR / ISTAR - HALE - General - Engine / PowersourceHermeus Receives First Pratt & Whitney F100 Engine for Hypersonic UASURL: https://www.unmannedsystemstechnology.com/2023/06/hermeus-receives-first-pratt-whitney-f100-engine-for-hypersonic-uas/**

Hermeus has accepted its first F100 engine from Pratt & Whitney for integration into the enhanced Chimera ll turbine-based combined cycle (TBCC) propulsion system.

The powerful engine component marks a critical milestone in Hermeus’ development of Darkhorse hypersonic Unmanned Aerial System (UAS) which is set to unlock new possibilities in both military and commercial hypersonic applications.

Recognizing propulsion as the critical challenge in achieving hypersonic flight, Hermeus has been dedicated to the development of its proprietary turbine-based combined cycle (TBCC) engine architecture without diluting their efforts in reconstructing already proven and reliable components.

The F100 will propel the unmanned Darkhorse aircraft to speeds of approximately Mach 2.8. At this transition point, a ramjet will take over, propelling Darkhorse to its target velocity of Mach 5.

While developing Quarterhorse, a demonstrator vehicle designed for high-Mach flight testing, the Hermeus engine architecture has been proven through the first iteration of Chimera which utilizes the General Electric J85 as its core. Consistent with their fundamentals Hermeus has developed and manufactured in-house the other engine components including the inlet, precooler, ram burner, and bypass system. These elements will all be scaled up for integration into the advanced Chimera II.

Darkhorse will serve as a multifaceted hypersonic vehicle aimed at meeting the needs of the Department of Defense and will act as a precursor to Hermeus’ visionary civil hypersonic transport design, Halcyon.

This collaboration between Hermeus and Pratt & Whitney brings together Pratt’s rich history in high-speed propulsion, stretching back to the development of engines like the J58 for the Mach 3-plus Lockheed SR-71, and Hermeus’ ambitious vision for the future of hypersonic aviation.

Hermeus expects the Quarterhorse will break the speed record of the SR-71 and Darkhorse will push the boundary even further.

**26 . Date: 14-07-2023RegulationFAA Approves Noise Certification Standard For Optimus1EX DroneURL: https://www.unmannedsystemstechnology.com/2023/07/faa-approves-noise-certification-standard-for-optimus1ex-drone/**

The US Federal Aviation Administration (FAA) has approved the noise certification standards for Ondas Holdings’ Optimus-1EX drone system, in connection with the Type Certification process that Ondas’ wholly-owned business Airobotics began with the FAA in 2019.

Meeting the noise requirements criteria is the final major step towards completing the Type Certification process that will allow the Optimus System to operate more broadly in urban environments in the US.

According to Ondas, this milestone would help fulfill the company’s vision of deploying fleets of Optimus systems as a permanent drone infrastructure for the purpose of providing Smart City, Public Safety, Drone as a First Responder (DFR), and other commercial and industrial aerial data services.

“We are looking forward to receiving the Type Certification for the Optimus System, which will be a significant benefit for our customers, both in the US and internationally,” said Eric Brock, Chairman and CEO of Ondas. “The Optimus System is one of the most mature automated drone platforms in the market in terms of proven reliability, safety and value, and we believe that it will be a game-changing solution for local governments and commercial entities that are looking to streamline aerial data capture in American cities. The market for Urban Drone Infrastructure with Smart City and DFR use cases is immense and we are excited to drive adoption of our platform solutions in the US.”

The Airobotics drone-in-a-box solution, which is already deployed in the United Arab Emirates (UAE) and Israel, relies on fleets of automated drones that do not require on-the-ground human intervention to operate as a task force that can simultaneously collect and provide critical information for a variety of customer requirements.

Each Optimus system, networked as fleet infrastructure, includes a smart airbase enabling automated battery changes for 24/7 operations, along with the automated loading and installation of sensors appropriate for each specified mission.

Optimus drones can cover up to 30 square miles surrounding an airbase, and drone flights can be tasked to carry specific sensors, enabling each drone within the fleet to execute diverse tasks. The drones can be activated for complex longer-term operations, with flights overseen by remote operators in a command-and-control center.

“From the very beginning of our journey, Airobotics has been aiming to deploy drones as city-wide infrastructure to help governments provide city services more efficiently, to improve public safety and security and other use cases,” said Meir Kliner, Airobotics CEO. “With the completion of the noise certification standard, we are getting closer to completing this process, which will allow the Optimus system to operate in complex environments in the US. Flying drones Beyond Visual Line of Sight (BVLOS) is only one familiar problem, while crossing and flying above people, roads, and infrastructure are important operating challenges to solve. With Type Certification, we will be able to work with the FAA on much more complicated drone operations.”

The rigorous FAA Type Certification process has only been completed by one drone company since the FAA began offering Type Certification for UAS in 2019. Airobotics, which is focused on capturing valuable data and information in urban environments, is one of the most advanced companies in the process of pursuing a Type Certificate with the FAA and expects to secure the formal Type Certificate during 2023.

**27 . Date: 13-07-2023Cargo - MALE - General - PlatformHeavy-Lift Unmanned Helicopters for Cargo, Logistics, Forestry & FirefightingURL: https://www.unmannedsystemstechnology.com/2023/07/heavy-lift-unmanned-helicopters-for-cargo-logistics-forestry-firefighting/**

Phenix Solutions is a leading developer of mission-critical unmanned aerial systems (UAS), specializing in heavy-lift drone platforms, building and integrating certified systems, and flight training. UST is delighted to welcome Phenix Solutions on board as a supplier partner, and we will be highlighting their unique solutions and capabilities across our channels over the next 12 months.

We’ve just launched Phenix’s UST supplier profile, which has been written and built by our team in collaboration with the company. The Silver profile showcases multi-mission helicopter UAV platforms, which are designed, engineered and assembled in the USA and meet strict FAA certification conformity and quality standards.

Read on to find out more:

The Ultra 2XL is a state-of-the-art heavy-lift UAS, featuring a unique and highly stable coaxial rotor design, making it ideal for large cargo payloads. Driven by the certified and proven Rolls-Royce RR300 turbine engine, the powerful unmanned helicopter boasts a payload capacity of 1500 lbs and a range of up to 300 nautical miles.

The system has been designed with TRL (Technology Readiness Level) 9 avionics as well as an advanced communications system for BVLOS (beyond visual line of sight) operations.

The coaxial rotor system provides a significant increase in stability and power-to-weight ratio compared to traditional designs. It also removes the need for a tail rotor, reducing the overall footprint and allowing two aircraft to be easily stored and transported in a 20ft container.

The multi-mission aircraft incorporates a quick-attachment system that enables it to be equipped with a wide variety of custom and off-the-shelf payloads and equipment, allowing it to undertake a range of missions, such as logistics, firefighting and forestry management.

The Half-Pint is the smaller entry in Phenix’s family of heavy-lift unmanned helicopters, providing a 410-lb carrying capacity and a flight endurance of up to 90 minutes. The innovative aircraft uses a proprietary propulsion design driven by ejection of gases from the turbojet engine.

The rugged helicopter UAV is easy to operate and thanks to a low number of moving parts, requires minimal maintenance. Like the Ultra 2XL, it can be outfitted with a range of sensors, payloads and equipment for true multi-mission performance.

**28 . Date: 13-07-2023Cargo - MALE - GeneralMerlin Completes Autonomous Cargo Flight TrialsURL: https://www.unmannedsystemstechnology.com/2023/07/merlin-completes-autonomous-cargo-flight-trials/**

Aviation technology company Merlin has successfully completed 25 test flights in Alaska following a $1 million contract with the Federal Aviation Administration (FAA) to demonstrate a highly-automated flight control system in conjunction with a safety pilot.

In partnership with the FAA-designated University of Alaska Fairbanks unmanned aerial system (UAS) Test Site and Everts Air Cargo, the test flights reached rural areas using crewed aircraft augmented with its integrated hardware and software solution, the Merlin Pilot.

All routes originated from Fairbanks and flew to Fort Yukon, Galena, Huslia, Tanana and Prudhoe Bay.

Over sixty hours of systems-on, autonomous flight time were successfully completed with the Merlin Pilot allowing for extensive data collection in a real world environment with complex terrain and inclement weather. According to Merlin, this data is essential to maturing its in-flight capabilities as well as progressing autonomy for the aviation industry, making skies safer and more accessible for the future. These test flights also make Merlin the first autonomy system to be integrated into the National Airspace System (NAS).

“Operating in Alaska is a real challenge. I like to say we’re the final exam. If you can fly here you can fly anywhere as we deal with long distances, extreme climate variations, and limited communications coverage,” said Dr. Cathy Cahill, Director of the Alaska Center for Unmanned Aircraft Systems Integration (ACUASI) at the UAF Geophysical Institute. “As we’ve learned in collaboration with Merlin’s team, it’s very apparent that they are doing this right. Their integrated approach to our unique ecosystem is one of the main reasons they were the first company with which we approached the FAA. They use real data to train the onboard automation system to ensure safety.”

“The data we’ve been able to gather from these flight trials is critical to the maturation of our in-flight technology, but also to our continued progression in certifying the Merlin Pilot,” added Matthew George, Co-Founder and CEO of Merlin. “It’s exciting to know our technology can successfully reach remote locations in Alaska, proving an important application for autonomy; its ability to assist in dangerous missions. We’re incredibly thankful for the support and partnership of the FAA, Everts Air Cargo, and ACUASI. Our partners have been critical in our ability to progress the Merlin Pilot.”

**29 . Date: 05-07-2023Swarm - Partnership - SoftwareNew Research Effort on AI & Swarming in Tactical UASURL: https://www.unmannedsystemstechnology.com/2023/07/new-research-effort-on-ai-swarming-in-tactical-uas/**

Quantum-Systems GmbH, Airbus Defence and Space GmbH, and Spleenlab GmbH have been awarded a research contract by the German Armed Forces Planning Office to demonstrate and analyze the AI building blocks required for swarms of tactical UAS in a real-world scenario.

Known as KITU 2 (Künstliche Intelligenz für taktische UAS; Artificial Intelligence for tactical UAS), the project is funded by the German Ministry of Defence and the focus of the study is on the effectiveness of tactical UAS.

Through this new partnership, each company will leverage and bring in their key strengths:

• Quantum-Systems will provide its Vector 2-in-1 tactical aerial reconnaissance platform with built in AI edge-computing capabilities. The 2-in-1 platform enables heterogenous swarms, as it can be deployed as fixed-wing eVTOL Vector or as the multicopter Scorpion UAS and allows showcasing challenging and real-life missions with its flight endurance of 3 hours. Currently, Quantum-Systems is working on a family of systems strategy that will see its smaller and bigger platforms enter the market in 2024 and 2025 and provide customers with a seamless layered approach regarding range, flight time and payload capabilities.

• Airbus Defence and Space will contribute with trusted swarming algorithms, simulation environments and experimental hardware, and additionally required AI building blocks.

• Spleenlab brings its expertise in AI edge software for swarming, which involves object recognition and robust navigation methods in communication denied environments.

The companies believe that additional programs will also benefit from the research results and small UAS.

In the joint Main Ground Combat Systems (MGCS) program of France and Germany, ongoing since 2018, both countries are working on a new weapon system to expand the defensive and offensive capabilities of main battle tanks on the battlefield by integrating next generation technology and multiple platforms.

In the Future Combat Air System (FCAS) program, France, Germany, and Spain are developing a system consisting of manned new generation fighters, unmanned aircrafts, and new weapons and communications systems.

Both programs aim to bring multi-platform and multi-vehicle swarming to the battlefield and will benefit from the outcome of the KITU 2 program.

Swarming enables force multiplication by controlling multiple UAS with a reduced ground or air crew. According to Quantum-Systems, studies from the ongoing war in Ukraine have shown that multiple smaller and lower cost UAS might be more effective at delivering aerial reconnaissance results from the battlefield, as larger areas can be covered simultaneously, and losses can be mitigated more easily.

**30 . Date: 04-07-2023Component - General - Engine / PowersourceSustainable Aviation Fuel Modification Successful for Hybrid EngineURL: https://www.unmannedsystemstechnology.com/2023/07/sustainable-aviation-fuel-modification-successful-for-hybrid-engine/**

Drone engine manufacturer UAVHE SL has achieved a significant milestone with the successful testing of its RW1-300 Hybrid Engine, now modified to operate on Sustainable Aviation Fuel (SAF).

UAVHE believes this demonstrates the company’s commitment to environmentally friendly aviation solutions and also revolutionizes the industry by offering enhanced performance, fuel economy, and reduced emissions.

The RW1-300 Hybrid Engine, a Wankel-type rotary engine with an integrated 11 or 22 kW generator/booster, is designed for unmanned aircraft, combining the power of internal combustion technology with hybrid capabilities to enable optimal efficiency and performance. With the integration of this hybrid system, the RW1-300 Hybrid Engine delivers a total output of 65 horsepower.

An additional advantage of the RW1-300 engine is its ability to achieve better fuel economy comparable to four-stroke engines by utilizing extra lean mixtures. Unlike traditional systems driven by belts or exhaust gases, the engine’s supercharger is electrically driven, enabling precise control of rotation speed in all operating conditions, regardless of altitude or atmospheric pressure.

The RW1 series engines is available with an aircraft-type gearbox and variable pitch propeller, as well as a helicopter version with a 12:1 gearbox and a hybrid electric pre-rotation system.

UAVHE SL’s CEO, Andrew Bogdanov, said: “It is too early to write off internal combustion engines in aviation. Utilizing cleaner fuels and optimizing processes will help reduce emissions and provide better fuel economy than popular all-electric solutions. The specific energy capacity of SAF is much higher than that of any batteries currently available. For long-endurance missions, the UAVHE RW series engines are well-suited due to their long service intervals and economy.”

By utilizing SAF and optimizing engine design, UAVHE SL’s modified RW1-300 Hybrid Engine not only offers enhanced performance but also allows customers to embrace a more sustainable and environmentally conscious approach to aviation. The key benefits for customers include reduced greenhouse gas emissions, lower particulate emissions, increased fuel efficiency, and a decreased overall environmental impact.

Looking ahead, UAVHE SL has outlined future plans to conduct further tests to optimize engine performance, pursuing certification processes to meet industry standards, and offering retrofit kits for engines already in use. By expanding testing and certification efforts and providing retrofit solutions, UAVHE SL aims to make sustainable air travel accessible and practical for a broader range of customers.

**31 . Date: 14-07-2023ISR / ISTAR - Mini - General - PlatformZiyan Introduces Upgraded RANGER P2X Unmanned HelicopterURL: https://www.unmannedsystemstechnology.com/2023/07/ziyan-introduces-upgraded-ranger-p2x-unmanned-helicopter/**

Ziyan UAS, a leading manufacturer of electric UAVs for civilian and industrial applications, has introduced an upgraded version of its RANGER P2X unmanned helicopter.

The company provides both commercial off the shelf and custom solutions based on its proprietary electric unmanned helicopter and hybrid VTOL platforms, with options including tethered systems, ground control stations, data and video links, dual- and quad-sensor gimbals, and autonomy and swarming capabilities.

Features of the upgraded RANGER P2X include:

• Autonomous obstacle avoidance for flight safety

• Modular design to allow fast deployment in three minutes

• Extended flight time of 120 minutes

• BVLOS flight with 30 km radius and real-time video feed

• Ability to withstand extreme environment conditions

• Versatile payload options for different application scenarios

The Ranger P2X is designed to fly and reach inaccessible locations to collect data. With an advanced AI system, it generates real-time feedback and handles flight anomalies. The system has conducted 1,486 flights, with daily patroling for air-sea coordinated missions over the last 12 months. This included the discovery of 152 suspicious vessels during these large-scale missions.

Designed for industrial missions, the Ranger P2X unmanned system consists of all the necessary multi-functional equipment required for these missions. The command center or Ground Control Station (GCS) is equipped with up-to-date GCS software, independently developed by Ziyan UAS. Its user-friendly interface allows the operator to manage flight plans and parameters of the aircraft in one go.

The modular design of the Ranger P2X makes it easy to swap payloads, with the ability to add payloads for mapping, surveillance, crowd control or search and rescue.

**32 . Date: 11-08-2023Solar ISR / ISTAR - HALE - General - PlatformCompleted Flight Test of Next-Gen HAPS UAS Sub-Scale ModelURL: https://www.unmannedsystemstechnology.com/2023/08/completed-flight-test-of-next-gen-haps-uas-sub-scale-model/**

Softbank Corp has collected the necessary data for flight verification and aircraft design as part of its development of a next-generation UAS designed for High Altitude Platform Station (HAPS) by testing a sub-scale model.

A low altitude flight test for the sub-scale model, a small-scale version of an actual aircraft, was conducted on March 14th, 2023 in Willcox Playa, Arizona.

The sub-scale model used in the flight test was based on “Sunglider,” a UAS designed for HAPS-based stratospheric telecommunications.

The current version of Sunglider, developed by SoftBank’s subsidiary HAPSMobile and AeroVironment successfully reached the stratosphere during a test flight conducted in September 2020.

Based on the achievement and lessons learned from Sunglider’s stratospheric flight test, SoftBank and AeroVironment are developing a next-generation UAS.

In this flight test, carefully crafted multiple sub-scale models were used to create conditions equal to those of the full-scale aircraft’s shape and characteristics. In addition to verifying whether the aircraft could fly with stability as designed, following the actual flight test, SoftBank collected and analyzed various data, including data on the aircraft’s structural characteristics, that could not be otherwise obtained from computer-based simulations.

SoftBank and AeroVironment will apply the data and know-how obtained in this flight test to the development of the next-generation UAS. Both companies are also continuing to focus on acquiring Federal Aviation Administration (FAA) type certification and making design improvements to enable mass production.

“By creating multiple sub-scale models that replicate the shape and characteristics of the full-scale next-generation candidate aircraft and conducting repeated flight tests, we were able to obtain crucial data on next-generation design and control policies that could not be otherwise obtained from computer-based simulations,” said Junichi Nakajima, Director of SoftBank’s Advanced HAPS Research Office and Senior Vice President of HAPSMobile’s Technology Administration Division. “We will continue our efforts to develop aircraft and foundational technologies to realize commercial HAPS-based stratospheric telecommunication services.”

**33 . Date: 30-08-2023ISR / ISTAR - Small - General - PayloadSentient’s ViDAR Integrated onto Edge Autonomy’s VXE30 UASURL: https://www.unmannedsystemstechnology.com/2023/08/sentients-vidar-integrated-onto-edge-autonomys-vxe30-uas/**

Sentient Vision Systems has completed live demonstrations of its AI-enabled ViDAR (Visual Detection and Ranging) payload deployed on Edge Autonomy’s VXE30 UAS.

The VXE30 vertical take-off and landing (VTOL) solution is the latest and most advanced version of the “Stalker” series of small uncrewed aerial systems (sUAS) from Edge Autonomy. When coupled with Sentient’s ViDAR, the VXE30 provides a passive, wide area search capability, enabling it to serve a host of maritime operations.

The joint capability will be on display at DSEI 2023, 12-15 September in London.

ViDAR, developed by Sentient, utilizes AI; Computer Vision, and Machine Learning integrated with Electro-Optic and Infrared (EO/IR) sensors to passively detect objects that are difficult to spot by the human eye or recognize on a conventional radar. With these enhanced capabilities, Stalker will be more capable of accurately detecting and locating people, objects, and vessels (day and night) far from the operator.

ViDAR has been deployed on intelligence, surveillance, and reconnaissance missions (ISR), maritime patrol and border protection, as well as search and rescue missions since 2015. ViDAR is proven to be effective in challenging maritime conditions up to Sea State 6 (very rough with waves 13 to 20 feet high/ 4 to 6 meters).

Sentient has successfully evolved ViDAR into a compact, lightweight, low power form factor—low SWaP (size, weight, and power), suitable for deployment on small Group 2/NATO Class 1 UAS such as the VXE30. Its successful integration onto the VXE30 demonstrates its broad operating envelope and ability to provide unprecedented long-endurance imaging capability in contested environments all around the world.

Joshua Stinson, Edge Autonomy’s Chief Growth Officer said: “The integration of ViDAR onto the VXE30 is an essential part of our UAS deployment program. ViDAR’s passive detection system will further the VXE30’s capabilities to remain undetected in a contested environment while carrying a powerful maritime detection sensor that provides a real-time picture of the maritime domain. This capability could make all the difference in a mission’s success.”

Paul Harris, Sentient’s VP of Business Development added: “We are delighted to be working with Edge Autonomy to demonstrate how effective ViDAR is at increasing the utility of the small and agile VXE30 for the challenges of the modern battlespace. We look forward to displaying our joint capabilities at DSEI.”

**34 . Date: 11-08-2023ISR / ISTAR - Small - Partnership - PayloadShield AI & Sentient Vision Collaboration AnnouncedURL: https://www.unmannedsystemstechnology.com/2023/08/shield-ai-sentient-vision-collaboration-announced/**

Shield AI and Sentient Vision Systems (Sentient), have announced a strategic collaboration aimed at delivering a wide area motion imagery (WAMI) solution for Department of Defense (DoD), Australian Defense Forces (ADF) and other international customers.

The companies will jointly develop and integrate a ViDAR-enabled, wide-area-search capability onto Shield AI’s V-BAT unmanned aircraft, which will enable Shield AI’s V-BAT to intelligently classify, track, and read-and-react to targets in dynamic missions. Shield AI plans to fly the capability on V-BAT next year.

“This work with our Australian partner, Sentient, is a unique opportunity to fuse the innovation prowess of two companies from allied countries on opposite sides of the world. Together, we are shaping the future of defense technology,” said Brandon Tseng, Shield AI’s President, Co-founder, and former U.S. Navy SEAL.

ViDAR is Sentient’s AI system, which uses an Electro-Optic or Infrared (EO/IR) sensor to detect and classify targets in the imagery stream that would be invisible to a human operator or to a conventional radar. With these enhanced capabilities, V-BAT will be even more proficient in executing the most challenging missions, offering a level of capability that significantly bolsters threat deterrence, thereby reinforcing international peace and security.

“Sentient is excited and proud to be working with Shield AI on this truly breakthrough solution,” said Mark Palmer, Sentient’s Chief Technology Officer. “We look forward to combining the AI expertise and operational understanding of our two great teams to deliver superior ISR capabilities for today’s rapidly changing defense and security environment.”

**35 . Date: 14-09-2023GeneralTEKEVER Opens Second UK Site in WalesURL: https://www.unmannedsystemstechnology.com/2023/09/tekever-opens-second-uk-site-in-wales/**

TEKEVER has announced the opening of a new site at West Wales Airport, Aberporth. The site will be used to conduct R&D and test flights for customers including the UK Home Office, Royal Airforce and Royal Navy.

TEKEVER’s UK team is set to grow by 50% in 2023 and it will create an additional 200 highly skilled jobs over the next 3 years across its two UK sites in Aberporth and Southampton, taking advantage of local engineering and technology talent.

The new site will strengthen and scale TEKEVER’s capabilities in R&D and allow it to conduct product development entirely in the UK.

West Wales Airport was selected due to its unique ability to provide safe and segregated airspace where the company can test and evaluate drone software and hardware, and rapidly develop technology bespoke to customer needs. While the new site will serve customers globally, they will focus on projects that have to be delivered entirely in the UK due to their sensitive nature. The facilities and airspace will also be used for flight training by TEKEVER’s UK-led operations team, who conduct missions on behalf of customers.

Expanding the company’s UK footprint supports TEKEVER’s long-term strategy to streamline product development and take advantage of UK engineering talent. The company’s team of aeronautical, mechanical and software engineers in the UK has been at the forefront of the company’s work in AI and behind the development of critical technologies including sensor integration and the Ground Control Station (GCS) – a core component of every UAS used by customers globally. TEKEVER will continue to work closely with UK universities and research institutes to guide critical research and nurture future talent.

“After ten years of operating in the UK, we are pleased to be opening our second UK site in West Wales that will prove critical in supporting our ambitious growth plans.” commented Ricardo Mendes, CEO of TEKEVER.

“The UK has a lot to offer when it comes to growing a technology business. It is home to some of the brightest minds and innovations. Many of TEKEVER’s critical technologies that are used by organisations around the world were developed right here in the UK. TEKEVER is proof that tech companies can thrive in the UK, beyond London and Silicon Fen. We look forward to working with some of the best talent as we continue to grow our business here.”

**36 . Date: 19-09-2023ISR / ISTAR - Small - GeneralUAVs Integrated into Spanish Navy Combat SystemsURL: https://www.unmannedsystemstechnology.com/2023/09/uavs-integrated-into-spanish-navy-combat-systems/**

Alpha Unmanned Systems (AUS), a manufacturer of unmanned helicopters (UAV) based in Madrid, has successfully completed the integration of its UAVs in the Combat Systems of the Navy’s BAM “Furor (P-46)”.

According to AUS, this integration is part of an ongoing collaboration with the Spanish Armed Forces through different exercises with the Armada, such as the past REPMUS 2022, and its next exercise in the NATO Dynamic Messenger 2023 maneuvers.

The purpose of these maneuvers is to enhance the integration of unmanned vehicles in NATO naval operations.

AUS’s most innovative product is the Alpha 900, a helicopter designed and manufactured primarily for maritime missions.

With a powerful combustion engine that provides great autonomy and payload capacity (up to 4 hours and can carry payloads up to 4 kg), the A900 can autonomously take off and land on moving vessels with limited space (small deck).

Additionally, it is “STANAG Compliant”, aiming for all critical systems to be redundant. All these features make it perfect for navies, coast guards, intelligence, surveillance, target approach, and reconnaissance operations at sea.

AUS has proven to be at the forefront of technology, and is particularly of interest to navies. Its systems fly as squadrons or technological demonstrators for the Greek Navy, the Indonesian Coast Guard, the Spanish Ministry of Defense or the U.S. Ministry of Defense. In Spain and in a multipurpose environment, they are also used by INTA, UME or GRUEMA.

Within NATO, AUS reportedly excelled in the REPMUS exercises, and its drones were integrated into the ground command and control node through GMV’s IRIS system.

Ahead of DYMS 2023, AUS drones have been successfully integrated into the combat systems of the BAM Furor through Navantia’s NAIAD.

Both systems ensure ISR Interoperability between UAVs and their operating environments, Combat Systems or Command and Control Centers. They aim to offer a single interface so that various UAVs can share their products (position, status, video, etc.) through a secure channel with any user who may need them, not only from the mission area but from any other location through the CSD (Coalition Shared DataServer).

Additionally, both NAIAD and IRIS are bidirectional, so data users can send information to the UxVs, including points of interest, missions, etc., through them. The format of all these data conforms to STANAG standards, which enables their distribution and consumption by all the actors involved in the exercises.

Eric Freeman, CEO of Alpha Unmanned Systems, said, “At Alpha Unmanned Systems, we are very proud to have successfully integrated our drones into the Armada’s operational combat systems. This collaboration is a testament to our commitment to innovation and safety, and we are excited to continue to provide cutting-edge technology solutions that strengthen the operational capabilities of our armed forces.”

**37 . Date: 06-10-2023Cargo - MALE - ContractContracts Awarded for Heavy Lift VTOL UAS CapabilitiesURL: https://www.unmannedsystemstechnology.com/2023/10/contracts-awarded-for-heavy-lift-vtol-uas-capabilities/**

Near Earth Autonomy and Kaman Air Vehicles have been awarded a U.S. Army contract to demonstrate a resupply UAS capable of moving loads with a minimum of 800 pounds over 100 miles.

This heavy-lift vertical takeoff and landing (VTOL) UAS will take Soldiers out of harm’s way and supplement resupply trips through added uncrewed lift capacity.

The Army depends on smaller drones and heavier crewed aircraft for resupply missions. This practice significantly heightens the risk for Army aircrews, especially when operating in hostile regions.

The Army’s heavy-lift Vertical Takeoff and Landing (VTOL) UAS program requirements match Near Earth’s expertise in autonomous flight technology and Kaman’s proven rotorcraft and uncrewed solutions capabilities.

The joint effort aligns with Near Earth and Kaman’s shared commitment to advancing the capabilities of military UAS and the ongoing modernization of military logistics operations.

Near Earth is the prime contractor and is responsible for the autonomy system which will provide mission assurance through responsive autonomy, enabling Soldiers to focus on their primary mission rather than on controlling the UAS.

The autonomy features include navigation, obstacle detection, and manual override systems. Essential components are designed to fail safely and function even if other parts of the system malfunction.

The UAS will be based on Kaman’s KARGO UAV, a purpose-built autonomous Vertical Takeoff and Landing (VTOL) aircraft that will meet the needs of the Army in both lift capacity and endurance while ensuring mission success even in contested environments.

Built with the U.S. Armed Forces future operating concepts in mind, the KARGO UAV offers a rugged design for easy transport and is capable of carrying up to 800 pounds of payload.

The UAS is designed for different missions by utilizing a common attachment system that will streamline configuration. This modularity supports Resupply/Contested Logistics, Intelligence, Surveillance, and Reconnaissance (ISR), Electronic Warfare (EW), Communications Relay (CR), and Search and Rescue (SAR).

In 2022, the United States Marine Corps (USMC) selected the KARGO UAV for the Medium Unmanned Logistics Systems – Air (MULS-A) program managed by Naval Air Systems Command (NAVAIR) PMA-263.

The Army’s partnership enables further development for broader use, including scaling the original KARGO UAV design for larger payloads. The partners will demonstrate the KARGO UAV’s capabilities at Project Convergence 2024, displaying applications ranging from cargo resupply to reconnaissance.

“The HVTOL UAS program partnership with Kaman enables us to broaden our current scope from developing an aerial resupply aircraft for the Marine Corps to creating an autonomous multi-mission aircraft that can autonomously address a wide variety of critical needs,” said Sanjiv Singh, CEO at Near Earth Autonomy.

**38 . Date: 05-10-2023Cargo - MALE - GeneralNew Commercial Heavy-Lift Cargo Drone from FlyingBasketURL: https://www.unmannedsystemstechnology.com/2023/10/new-commercial-heavy-lift-cargo-drone-from-flyingbasket/?utm\_source=UST+eBrief&utm\_campaign=72f4772d35-ust-ebrief\_2023-10-10&utm\_medium=email&utm\_term=0\_6fc3c01e8d-72f4772d35-119746781&mc\_cid=72f4772d35&mc\_eid=d16a5d99bc**

FlyingBasket has released the FB3, a heavy cargo drone with an impressive 100-kilogram payload capacity now available for commercial use.

With a solid background in drone design, manufacturing, and operations, FlyingBasket has played a significant role in the evolution of the industry.

The FB3, developed with industrial stakeholders, is reportedly able to fly in urban environments lifting any kind of load to the top of buildings, and to transport the load for more than 10km.

This cargo drone stands as evidence of FlyingBasket’s dedication to the industry, in which they have poured their collective knowledge and expertise into an innovative platform, aiming to deliver the best to drone operators.

The journey with the FB3 drone has been marked by extensive testing and collaboration with customers across various industries, enabling them to tailor its capabilities to meet specific and relevant needs.

As such, the FB3’s heavy cargo transport and lifting capability has been rigorously demonstrated in a range of environments, including forests, wind parks, and urban settings.

FlyingBasket has always aimed to provide a Drone-as-a-Service solution, constantly evolving its equipment and gaining valuable insights into diverse applications.

Now, with the FB3 available for use, drone operators worldwide can expand their service offerings and meet the evolving demands of their customers.

The drone offers two versatile cargo transport options: a spacious box compartment for package delivery and a sling rope option for oversized cargo, allowing it to transport bulky loads.

The introduction of heavy-lift cargo drones, like the FB3, has the potential to revolutionize various sectors by streamlining the transportation of heavy equipment to remote and demanding locations.

This innovation not only enhances worker safety but also significantly improves operational efficiency. The use of cargo drones opens up exciting possibilities for businesses looking to overcome logistical challenges and explore new avenues for growth.

Moritz Moroder, the CEO of FlyingBasket, stated; “The FB3 commercial availability is another milestone in the roadmap of FlyingBasket, who continuously commit to innovation, safety, and excellence within the drone industry. It represents a significant leap forward in cargo transportation possibilities. We are excited about the potential it holds for various industries.”

**39 . Date: 20-10-2023ISR / ISTAR - Tactical - General - PayloadSub-Tactical UAS with Ultra-Sensitive RF Receiver PayloadURL: https://www.unmannedsystemstechnology.com/2023/10/sub-tactical-uas-with-ultra-sensitive-rf-receiver-payload/**

TEKEVER and CRFS have successfully completed phase one of their system integration partnership and launched the first sub-tactical unmanned aerial system (UAS) carrying highly sensitive RF sensors as a payload.

The TEKEVER AR5 has an endurance range of 20 hours, a payload capacity of 50 kg, and a cruise speed of 100 km/h. The RFeye Node is a lightweight and rugged RF receiver with a 100MHz IBW and a frequency range of up to 40GHz. Integrating an RFeye Node into an AR5 allows teams to geolocate ground-based targets situated beyond the horizon—vastly increasing ISR capabilities.

Capable of taking off from short, unpaved airstrips, the wide-area surveillance AR5 is easily deployed. When integrated with ruggedized RF sensors that have an IP67 form factor and are optimized for SWaP, the UAS offers unparalleled spectrum monitoring, detection, signal capture, and geolocation (TDoA) capabilities.

The partnership between TEKEVER and CRFS gives end-users an asset covering vast land or sea areas with many potential applications including:

• maritime surveillance

• search and rescue

• border monitoring

• military intelligence, surveillance and reconnaissance

• regulatory spectrum monitoring

Thanks to the altitude at which the AR5 operates, the increased signal collection radius results in unprecedented operational range gains, enabling new concepts of operation.

For advanced capabilities, combining the integrated UAS with existing ground-based units allows users to create an adaptable multi-domain network of receivers for superior passive ISR over huge areas. This is particularly important in active combat zones, as increasing altitude allows signals to be detected at greater distances further from the front line.

Dr Pio Szyjanowicz, COO of CRFS, said: “To make this happen, our engineering teams have combined their ingenuity and agility to overcome the technical challenges that are inevitable when integrating high-performance electronics systems on an airframe. One of the most significant was that UAS have a significant number of transmitters onboard, that have the potential to interfere with the highly sensitive RFeye receiver payload. Achieving the optimal solution in terms of antenna position and RF filtering is just one example of the excellent teamwork between TEKEVER and CRFS.”

Tiago Nunes, Product Director at TEKEVER, said: “The groundbreaking partnership between TEKEVER and CRFS is a testament to the power of collaboration. It’s a game-changer, offering end-users an incredibly versatile asset that can cover vast land and sea areas. The possibilities are limitless, from maritime surveillance, search and rescue, border monitoring, to military ISR, and even regulatory spectrum monitoring.”

This partnership showcases the remarkable synergy between the two companies, exemplifying their dedication to pushing the boundaries of innovation. It is a perfect union of expertise and technology, resulting in a solution that exceeds all expectations.”

**40 . Date: 16-11-2023Armed ISR / ISTAR - HALE - General - PlatformMALE UAS for Maritime Surveillance LaunchedURL: https://www.unmannedsystemstechnology.com/2023/11/male-uas-for-maritime-surveillance-launched/**

Aerodata AG and Milkor are set to introduce a MALE UAS tailored specifically for maritime surveillance, harnessing the capabilities of the Milkor 380 platform.

What sets this UAS apart is its impressive adaptability. In addition to its MALE capabilities with a service ceiling of 30,000ft, it operates seamlessly in the LALE segment, effectively covering altitudes below 10,000ft – an essential capability for typical maritime surveillance missions.

Furthermore, the UAS boasts an outstanding endurance of up to 35 hours, ensuring extended mission coverage and increased operational efficiency.

With a Maximum Take-Off Weight of 1,300 kg and the capability to carry mission-specific payloads, this UAS has the potential to enhance the surveillance aircraft fleets of customers around the world.

It’s important to highlight that Aerodata’s contribution encompasses state-of-the-art mission system technology, further augmented by maritime surveillance sensors from its subsidiary, Optimare Systems GmbH. This integrated approach from one source guarantees optimal performance and support.

Aerodata AG is a distinguished German specialist in mission systems and special mission conversion, and this UAS launch deepens its collaboration with South Africa’s Milkor since signing an Memorandum of Understanding (MoU) at the Paris Air Show this year.

**41 . Date: 22-11-2023Cargo - MALE - ContractPhenix Awarded Heavy Lift VTOL Aircraft ContractURL: https://www.unmannedsystemstechnology.com/2023/11/phenix-awarded-heavy-lift-vtol-aircraft-contract/**

Phenix Solutions has been awarded a U.S. Air Force Phase II contract for Agile Manufacturing for the Ultra 2XL VTOL Heavy Lift Aircraft.

Phenix is pleased to work with The Air Force Research Laboratory’s (AFRL) Materials and Manufacturing Directorate (RX) to accelerate the development and deployment of transformative vertical takeoff and landing (VTOL) aircraft under this effort.

The Phase II contract strategically focuses on implementing streamlined procurement, accounting, and production processes and procedures.

Moreover, it involves establishing a state-of-the-art production facility to validate their companies’ manufacturing strategies to ensure production can meet the forecasted demand for the Ultra 2XL at scale.

Phenix is also collaborating with the Oregon Manufacturing Extension Partnership (OMEP) team in parallel with this Phase II effort. Phenix and OMEP are focused on enhanced Factory of the Future technologies that can are being implemented on the shop floor, such as innovative ways to display and distribute work instructions, tools, and process control to maximum efficiency.

The company sees Agile Manufacturing as an enterprise-wide holistic action plan for the sustained production of the Ultra 2XL Aircraft for many years.

Brian Riese, President and CEO of Phenix Solutions, said; “I am pleased to announce the continuation of our partnership with the USAF on the Phase II contract for Agile Manufacturing. We’ve built the production capability from the ground up, and this collaboration will allow us to rapidly scale the manufacturing process, which will lead to reduced costs and faster lead times while ensuring high levels of quality are built into every Ultra 2XL that rolls off the production line.”

**42 . Date: 16-11-2023Armed ISR / ISTAR - MALE - Partnership - ArmamentSmart Weapons to be Integrated onto Remotely Piloted AircraftURL: https://www.unmannedsystemstechnology.com/2023/11/smart-weapons-to-be-integrated-onto-remotely-piloted-aircraft/**

EDGE and General Atomics Aeronautical Systems, Inc. (GA-ASI) have made a partnership to integrate GA-ASI’s MQ-9B SkyGuardian® RPA with EDGE smart weapons.

Under the agreement announced at the Dubai Airshow, the two companies will work together to integrate precision-guided munition (PGM) and guided-glide weapon (GGW) solutions from EDGE onto GA-ASI’s MQ-9B SkyGuardian.

GA-ASI is a leading designer and manufacturer of proven, reliable Remotely Piloted Aircraft (RPA) systems, radars, electro-optics, and related mission systems, while EDGE is an advanced technology group for defense and other applications.

The partnership marks the first time that UAE-made smart weapons will be integrated onto a U.S. unmanned platform, signaling a new chapter in U.S.-UAE defense cooperation, and opening the door to further collaboration.

The EDGE smart weapons designated for integration include the DESERT STING family of GGWs and THUNDER family of cost-effective PGMs from HALCON, and the AL TARIQ family of modular, mission-proven, all-weather day/night long-range PGMs.

GA-ASI hopes that its work with EDGE will lead to more partnerships within the UAE defense industry in order to integrate domestically developed sensors and weapons onto the MQ-9B for the UAE and other customers.

The UAE Armed Forces currently operate GA-ASI’s Predator XP and are working with GA-ASI and the U.S. Department of Defense to acquire the MQ-9B.

“We’re excited to work with EDGE on this initiative,” said GA-ASI President David R. Alexander. “Integrating home-grown capabilities onto our customer platforms is something we’ve done a lot, but we’ve never before integrated a non-NATO weapon system onto one of our RPA platforms.”

Hamad Al Marar, President of EDGE Group’s Missiles & Weapons cluster, said; “We are proud to be working with General Atomics Aeronautical. The opportunity to integrate our smart weapons on the MQ-9B SkyGuardian will offer the end user multiple dynamic, highly accurate, and cost-effective ground strike solutions. We look forward to working closely with General Atomics Aeronautical on this programme and to enhancing our collaboration in the future.”

**43 . Date: 03-11-2023Armed ISR / ISTAR - MALE - General - PlatformVSR700 VTOL UAS Tested at Sea with French NavyURL: https://www.unmannedsystemstechnology.com/2023/11/vsr700-vtol-uas-tested-at-sea-with-french-navy/**

Airbus Helicopters and Naval Group, the French Armament General Directorate, DGA (Direction génerale de l’armement), and the French Navy, have tested the SDAM demonstrator (Système de Drone Aérien Marine / Naval Aerial Drone System) from a multi-mission frigate (FREMM).

The trials took place onboard the French Navy frigate, Provence, in the Mediterranean Sea between the 2nd and the 9th of October. The vessel had previously been adapted by Naval Group to operate the SDAM. These sea trials were arranged to demonstrate the system’s high performance from an operational warship and the SDAM’s capabilities for surveillance and intelligence missions.

“We are proud to see that the SDAM and the VSR700 are maturing,” said Bruno Even, CEO of Airbus Helicopters. “The system that we will offer will be able to operate from a frigate and be adapted to the naval missions it was designed for,” he added. “Working alongside Naval Group and other local partners we are building a robust and sovereign solution. I look forward to further demonstrating the potential of our system and to collaborating with the French Navy in order to offer an initial operational capability by 2026.”

“We are very happy with the success of these trials which mark a major step in the reinforcement of the French Navy’s future capabilities. We have passed a significant milestone in terms of the complexity of the integration of an unmanned aerial system (UAS) on board a heavily armed vessel, both physically and operationally,” said Pierre-Eric Pommellet, CEO of Naval Group. “These trials have also shown the relevance of the Naval Group I4Drones® mission system, and the fact that the SDAM demonstrator can seamlessly be integrated on a vessel and will work harmoniously with other existing systems. In synergy with the ship’s combat system and the embarked helicopter, the drone will be another means to access complementary airspaces and will truly be a remote sensor that will expand the crew’s perception and treatment of threats in real time.”

The derisking study for the SDAM programme was awarded to Airbus Helicopters and Naval Group by the DGA. The objective is to design, produce and test a rotary wing unmanned aerial system demonstrator for the French Navy. The system works with the Airbus Helicopters VSR700 unmanned aerial system and the I4Drones® mission system developed by Naval Group.

Naval Group has also been tasked with the integration of the system onboard military vessels. The project also involves French SMEs like Hélicoptères Guimbal and Diades, contributing to the creation of a local naval UAS industry in France.

**44 . Date: 13-11-2023ISR / ISTAR - Small - PitchVTOL UAS Demonstrates Autonomous Take-off & Landing During U.S. Navy ExerciseURL: https://www.unmannedsystemstechnology.com/2023/11/vtol-uas-demonstrates-autonomous-take-off-landing-during-u-s-navy-exercise/**

AeroVironment demonstrated the JUMP 20 vertical take-off and landing (VTOL) Medium unmanned aerial system (UAS) during the recent U.S. Naval Forces Southern Command/4th Fleet Hybrid Fleet Campaign Event (HFCE).

The JUMP 20 provided ship-based intelligence, surveillance, reconnaissance, and targeting (ISR-T) support to USFOURTHFLT and USSOUTHCOM during the week-long, at-sea exercise aboard USNS Burlington.

According to AeroVironment, the JUMP 20 has previously flown over 130,000 land-based hours in support of U.S. Special Operations Command combat deployments, and the expansion of JUMP 20 operations into the shipboard environment allows the company to provide these services globally.

During HFCE, JUMP 20 showcased its ability to launch and recover at vessel speeds over 20 knots, with fully autonomous flight from takeoff to landing. The JUMP 20 requires neither launch or recovery equipment, nor personnel on the flight deck during launch and recovery, maximizing operational safety and flexibility for users. JUMP 20’s VTOL capability, endurance and payload capacity expand the operational capabilities of U.S. and allies to compete in the era of great power competition.

The JUMP 20 demonstrated how uncrewed systems will support distributed operations across multiple domains, supporting national security objectives and warfighters.

“The shipboard flight environment is dynamic and challenging. JUMP 20 is a proven combat-effective platform, and the system’s performance during HFCE illustrates the value to maritime operations. JUMP 20’s ability to launch and land at speed, and without personnel intervention, enhances the ship’s operational effectiveness and enables operators to focus on important mission tasking,” said Shane Hastings, AeroVironment’s Vice President and Product Line General Manager for Medium UAS. “As we continue to demonstrate and prove the effectiveness of the JUMP 20 platform, we look forward to getting this capability in the hands of our sailors, Marines, and allies operating in the maritime environment.”

**45 . Date: 20-12-2023Cargo - MALE - ContractContract Awarded to Develop Long-Range Attritable Cargo DroneURL: https://www.unmannedsystemstechnology.com/2023/12/contract-awarded-to-develop-long-range-attritable-cargo-drone/**

Silent Arrow® has been selected by AFWERX for a SBIR contract focused on the Silent Arrow CLS-300 (“Contested Logistics System, 300 Nautical Miles”).

The CLS-300 is based on the commercially successful Silent Arrow GD-2000, which according to the company, is the world’s first heavy payload, autonomous and attritable cargo delivery aircraft designed to carry 1,500 lbs. of cargo over 35 nautical miles when deployed from cargo aircraft such as the Lockheed Martin C-130, Boeing C-17, and Airbus A400M.

Whereas the GD-2000 is a glider, the new CLS-300 can travel nearly 10 times as far by utilizing an innovative propulsion unit and propeller system that are inexpensive enough to allow the entire cargo drone to be attritable. In addition to being air droppable, it will also be capable of taking off from the ground including from unimproved surfaces, naval vessels and other launch points.

“We’d like to thank the U.S. Air Force, AFWERX, AFRL and our Air Force Customer and End-User organizations for their confidence in awarding this disruptive program,” said Chip Yates, Silent Arrow’s Founder and CEO.

“We are looking forward to a compressed schedule with propulsion tests in the first half of 2024 followed by flight tests in the second half of 2024 so that we may rapidly deliver this critical capability to warfighters operating in harm’s way as well as to humanitarian and disaster relief organizations serving those in need.”

**46 . Date: 07-12-2023Cargo - PartnershipHENSOLDT & Wings for Aid Partner on Cargo Drone OperationsURL: https://www.unmannedsystemstechnology.com/2023/12/hensoldt-wings-for-aid-partner-on-cargo-drone-operations/**

HENSOLDT and Wings for Aid have entered into a strategic partnership to improve the air safety of cargo drones.

Wings For Aid has developed the “MiniFreighter”, a 650kg Remotely Piloted Aircraft System (RPAS) that delivers humanitarian goods to people isolated by natural disasters and man-made crises.

In the first phase, these cargo drones will be equipped with the “SferiRec LCR 100” flight data recorder. Equipped with this, the drone will have a significantly improved recording capability of the flight attitude data and the flight control system. The drone has already completed successful flight tests at various locations, including Magdeburg-Cochstedt airfield. This is home to the DLR’s National Test Centre for Unmanned Aircraft Systems, one of Wings For Aid’s partners.

In a possible second step, further technical upgrades will be added to increase aircraft autonomy and improve the Wings For Aid flight test capability as Original Equipment Manufacturer (OEM) and global system provider. The operational data collected from test and flight missions up to that point can be used directly for this purpose. Capabilities such as “Detect and Avoid” (DAA) and the improvement of the Drop Zone Safety Automation System should then ensure that the operational range is increased and the workload of the pilot-operator is significantly reduced. This is essential to scale up so-called BVLOS (beyond visual line of sight) flights with multiple aircraft.

“We are very proud to be making a contribution that will enable relief supplies to be transported to crisis areas even faster and more cost-effectively in the future,” said Steffen Kolditz, Head of the Airborne Solutions business unit at HENSOLDT.