First Heliborne AOEW Pod for Navy Expected in Late 2019

WASHINGTON – Lockheed Martin expects to produce the first engineering development model (EDM) of a heliborne electronic warfare pod by late 2019, a company official said.

Orders for materials for the ALQ-218 Advanced Offboard Electronic Warfare (AOEW) pods began last month, Joe Ottaviano, director of electronic warfare programs at Lockheed Martin Rotary and Mission Systems, told reporters Nov. 28 at the Association of Old Crows convention.

The AOEW pod is designed to be taken aloft by an MH-60R or MH-60S Seahawk helicopter and serve as an offboard electronic attack system to counter anti-ship cruise missiles. The helicopter provides power and mobility for the pod, but the pod's operation is independent of the helicopter crew and linked to the SLQ-32(V)6/7 shipboard electronic warfare system.

"It's bringing capability that hasn't been brought before," Ottaviano said, who noted that testing will be a challenge because of the novelty of the capability. "It is designed to be autonomous or [alternatively] work with the fleet."

He said Lockheed Martin expects to roll out the first AOEW EDM in late 2019. The system completed its critical design review in June. The company has been awarded a contract for six EDMs. Initial operational capability is planned for the 2020. Additional pods are expected to be ordered in a low-rate initial production order in the 2021-2022 time frame.

The pod has successfully completed a fit check on the MH-60 helicopter and can be attached to either side of the helicopter.

“How to get all of this capability in a very small pod was a challenge,” Ottaviano said, noting that the pod “generates a lot of heat” and has no supplementary cooling system.

Virtual Training Means Less Danger for Carrier Flight Deck Crews

ARLINGTON, Va. – One of the most dangerous environments in the U.S. Navy is the deck of an aircraft carrier. Catapult systems that can remove limbs, furious engines, whipping propellers and high winds create a hectic environment.

The driving force behind all of these activities is helping a pilot land an aircraft on a short slab of pitching steel, in the middle of the ocean.

Although pilots are the stars of the show, they could not accomplish their missions without the support of flight deck crews, who are responsible for safely launching and recovering aircraft.

Previously, flight deck crews could only conduct training while on the job. But thanks to a collaborative effort between the Office of Naval Research Global (ONR Global) TechSolutions program and the Naval Air Warfare Center Training Systems Division (NAWCTSD), a new technology called Flight Deck Crew Refresher Training Expansion Packs (TEPs) will deliver cutting-edge training to Sailors and Marines.

The system is an expandable framework of game-based immersive 3D technologies that allows for individual, team or multi-team

training events.

“Having a simulator that allows us to tie the full flight deck team with all the key decision-makers, supervisors, catapult crew and watch stations together – and train in a virtual environment – is just fantastic,” said Cmdr. Mehdi Akacem, air boss aboard the Navy’s newest aircraft carrier, USS Gerald R. Ford.

The first three TEPs will help a carrier’s Primary Flight Control team; the Landing Signal Officer (LSO) team; and the Catapult Launch Team.

The idea for the Flight Deck Crew Refresher Training came from an LSO instructor at Naval Air Station Oceana. TechSolutions – ONR Global’s rapid-response science and technology program that develops prototype technologies to address problems voiced by Sailors and Marines, usually within 12 months – listened to the idea and found the right people to make it happen.

Courtney McNamara, a computer scientist and the Advanced Gaming Interactive Learning Environment Team Lead at NAWCTSD, helped develop the technology.

“All of the ship systems, characters, flight deck crew characters and team members can be both driven synthetically or by live players,” said McNamara.

The training stations simulate real-life with the aid of virtual environments. Even the flight patterns that occur during the simulations are based on real flight patterns conducted by pilots.

The training can simulate normal operations and emergency conditions, exposing deck crews to a wide array of real-world scenarios.

“This is really the first example I’ve seen of extending the

value of a simulation environment to such an essential, tangible thing as a carrier flight deck," said Akacem. "It's really a need we've had for years, one we've been able to get by without because of the grit and will of our Sailors and Marines."

Navy to Commission Guided-Missile Destroyer Thomas Hudner

ARLINGTON, Va. – The Navy will commission its newest guided-missile destroyer, the future USS Thomas Hudner (DDG 116), during a ceremony at Flynn Cruiseport in Boston Dec. 1.

The future USS Thomas Hudner honors naval aviator and Medal of Honor recipient Capt. Thomas J. Hudner Jr. President Harry S. Truman awarded the Medal of Honor to Hudner on April 13, 1951, who displayed "conspicuous gallantry and intrepidity" for attempting to save the life of his squadron mate, Ensign Jesse L. Brown, in the Battle of Chosin Reservoir during the Korean War.

Although Brown perished in the incident, Hudner survived the war and retired from the Navy after 26 years of service. He passed away Nov. 13, 2017, at the age of 93 and was interred with full military honors at Arlington National Cemetery on April 4. This will be the first U.S. Navy ship to bear the name Thomas Hudner.

Massachusetts Gov. Charlie Baker will deliver the ceremony's principal address. The ship's sponsors are Georgea Hudner, Hudner's widow, and Barbara Miller, wife of retired Vice Adm.

Michael Miller, former superintendent of the U.S. Naval Academy. In a time-honored Navy tradition, they will give the order to “man our ship and bring her to life!”

“The commissioning of USS Thomas Hudner continues a spirit of faithful service that Thomas Hudner embodied throughout his life, and his legacy will live on in those who serve aboard this ship,” said Navy Secretary Richard V. Spencer. “USS Thomas Hudner is a testament to what the service and teamwork of all of our people – civilian, contractor and military – can accomplish together, from the start of the acquisition process, to the delivery, to the start of the first watch.”

The future USS Thomas Hudner will be the 66th Arleigh Burke-class destroyer. It will be homeported at Naval Station Mayport, Florida.

Northrop Grumman Announces Next Generation Jammer-Low Band Team

BALTIMORE – Northrop Grumman Corporation has teamed with Harris Corp. and Comtech PST for the U.S. Navy’s Next Generation Jammer–Low Band (NJG-LB) Demonstration of Existing Technologies (DET).

Naval Air Systems Command (NAVAIR) awarded Northrop Grumman a $35 million, 20-month contract Oct. 25 to demonstrate existing jammer capability for the NJG-LB program. Northrop Grumman is the airborne electronic attack integrator for the Navy’s current EA-18G Growler electronic warfare (EW) system.

Harris is providing cutting-edge electronic attack equipment developed at its North Amityville, New York, operation to Northrop Grumman for NGJ-LB DET. Comtech PST, a subsidiary of Comtech Telecommunications based in Melville, New York, is providing high-power radio frequency (RF) amplifier systems.

“The Northrop Grumman team brings extensive electronic warfare expertise and a long history of building and deploying systems that support the challenging carrier-based aviation environment. We are proud to be working with Comtech and Harris to help the Navy maintain its warfighting edge,” said Paul Kalafos, vice president, surveillance and electromagnetic maneuver warfare, at Northrop Grumman.

Harris’ equipment is integrated within Northrop Grumman’s NGJ-LB pod system to provide a modular, scalable and reconfigurable capability that will allow the Navy to stay current with rapidly evolving threats. Harris draws on its expertise in coherent electronic attack technologies and deployed jamming techniques.

“Harris is a leader in EW solutions worldwide and has extensive experience with the EA-18G Growler. Our significant investments in open architecture systems are ready made for the U.S. Navy NGJ-LB DET,” said Ed Zoiss, president, Harris Electronic Systems. “Our work on NGJ-LB also advances the company’s strategy to extend into new EW markets through pods and unmanned systems.”

“Comtech is very pleased to be part of the Northrop Grumman team. Our long-standing relationship and position as a premier provider of high-power RF systems positions the team well to support the Next Generation Jammer program for years to come. We look forward to a very successful partnership,” said Michael Hrybenko, president, Comtech PST.

The NGJ system will augment, and ultimately replace, the EA-18G Growler aircraft’s legacy ALQ-99 tactical jammer system

with advanced airborne electronic attack capabilities for defeating increasingly advanced and capable threats. Developed in three frequency-focused increments – high-, mid- and low-band – NGJ will bring a significant increase in airborne electronic attack capability to counter complex air defense and communications systems.

Commander, 2nd Fleet, Exploring Headquarters, Command Ship Options

WASHIGNTON – The commander of the newly established U.S. 2nd Fleet said he is looking at various options for a new headquarters and the possibility of having a command ship.

“We are looking at options to equip the 2nd Fleet with a platform that allows us to show that we are indeed lean, agile and expeditionary,” Vice Adm. Andrew “Woody” Lewis, said Nov. 28 at the Center for Strategic and International Studies, a Washington think tank.

“For the foreseeable future, the 2nd Fleet will be located at Naval Support Activity Hampton Roads, but we are looking at options for both permanent and expeditionary spaces that would allow for flexibility and mobility,” Lewis said. “This could be a combination of facilities at Naval Station Norfolk as well as options for a command ship through our Military Sealift Command.

“Mobility allows to be ready to fight, ready to fight so we don’t have to,” he said. “As a lean and expeditionary staff, a small number of our team will operate forward either from a

ship or an austere location as a command-and-control element with reach-back capability to our home guard."

USS Mount Whitney, currently the flagship of U.S. 6th Fleet in the Mediterranean Sea, was the flagship of the former iteration of the U.S. 2nd Fleet that was in existence from February 1950 until it was disestablished in September 2011.

The current U.S. 2nd Fleet was established on Aug. 24. Lewis said he is driving his staff to reach full operational capability in 2019. He expects to be fully staffed in January with 80 personnel.

Coast Guard Repatriates 74 Dominican Migrants After Four At-Sea Interdictions

SAN JUAN, Puerto Rico – The Coast Guard returned 74 Dominican migrants to law enforcement authorities in Santo Domingo, Dominican Republic, Nov. 27 following the at-sea interdictions of four migrant vessels off Puerto Rico, the 7th Coast Guard District said in a release.

The interdictions were a result of ongoing efforts in support of Operation Unified Resolve, Operation Caribbean Guard and the Caribbean Border Interagency Group.

"While smugglers will continue to sell false promises and mislead migrants into unsafe and illegal attempts to cross maritime borders, the Coast Guard and our partners will continue to diligently patrol the Florida Straits and Caribbean Sea to stop these voyages before they end in tragedy

and ensure the security of the United States," said Capt. James Passarelli, chief of staff of the 7th Coast Guard District. "When these voyages are discovered by the Coast Guard or by our partners, these migrants are rescued from their unseaworthy vessels, cared for humanely by our crews, and promptly repatriated to their country of origin or departure."

Ramey Sector Border Patrol agents detected the first migrant vessel early Nov. 25, approximately eight nautical miles west of Punta Borinquen in Aguadilla, Puerto Rico. Coast Guard watchstanders diverted the Cutter Resolute that responded along with a Puerto Rico Police Joint Forces of Rapid Action marine unit. The crew of the police marine unit interdicted the makeshift boat that was carrying nine people onboard, seven men and two women, who claimed Dominican nationality. Resolute arrived on scene shortly thereafter, safely embarked the migrants and destroyed the migrant vessel as a hazard to navigation. The migrants were subsequently transferred from the Resolute to the Cutter Donald Horsley.

Donald Horsley interdicted a second migrant vessel Nov. 25, after the crew of a patrolling Coast Guard HC-144 Ocean Sentry aircraft detected the 25-foot makeshift boat, approximately 12 nautical miles off Mona Island, Puerto Rico. The cutter crew safely embarked 16 Dominican men from the migrant boat and destroyed the vessel as a hazard to navigation.

The crew of a patrolling MH-65 Dolphin helicopter detected a third migrant vessel Nov. 26, approximately three nautical miles off the northern coast of Camuy, Puerto Rico. Responding Puerto Rico Police Joint Forces of Rapid Action marine units interdicted the 28-foot makeshift boat that was carrying 18 Dominican men onboard. Donald Horsley arrived on scene shortly thereafter and safely embarked the migrants, while Puerto Rico Police crews took custody of the migrant boat.

During a routine patrol of the Mona Passage Nov. 26, the crew

of a Customs and Border Protection (CBP) Caribbean Air and Marine DHC-8 maritime patrol aircraft detected a 30-foot makeshift boat, approximately 35 nautical miles northwest of Aguadilla. Donald Horsley and a CBP marine unit arrived on scene and interdicted the migrant vessel with 31 people onboard, 27 men and four women, who claimed Dominican nationality. The Donald Horsley crew safely embarked the migrants, while the crew of the CBP marine unit took custody of the migrant vessel.

Once aboard a Coast Guard cutter, all migrants receive food, water, shelter and basic medical attention

Resolute is a 210-foot medium endurance cutter homeported in Key West, Florida, while Donald Horsley is a 154-foot fast response cutter homeported in San Juan.

BAE Systems Wins DARPA Contract to Apply Machine Learning to the RF Spectrum

BURLINGTON, Mass. – The U.S. Defense Advanced Research Projects Agency (DARPA) has awarded BAE Systems a contract valued at $9.2 million for its Radio Frequency Machine Learning System (RFMLS) program. As part of the program, the company aims to develop new, data-driven machine learning algorithms that will help to decipher the ever-growing number of RF signals, providing commercial or military users with greater situational understanding of an operating environment.

Modern data-driven machine learning research has enabled revolutionary advances in image and speech recognition and

autonomous vehicles. At a time when adversaries have built capabilities to disrupt the RF spectrum, it has become critical to explore how machine learning could be applied to traditional RF signal processing. Through the explosive growth of RF devices and the Internet of Things, the number of connected devices such as phones, sensors, and drones make it even more important to be able to identify signals intended to hack, spoof, or disrupt RF spectrum usage.

“The inability to uniquely identify signals in an environment creates operational risk due to the lack of situational awareness, inability to target threats, and vulnerability of communications to malicious attack,” said Dr. John Hogan, product line director of the Sensor Processing and Exploitation product line at BAE Systems. “Our goal for the RFMLS program is to create algorithms that will enable a whole new level of understanding of the RF spectrum, so users can identify and react to any signals that could be putting them in harm’s way.”

Under this Phase 1 contract, BAE Systems’ scientists intend to create machine learning algorithms, using cognitive approaches, that will use feature learning techniques to differentiate signals. In addition, researchers aim to create algorithms that can learn to differentiate important versus unimportant signals in real-time scenarios through a deep learning approach.

The technology being developed for the RFMLS program is part of the machine learning and artificial intelligence research focus area within the company’s autonomy technology portfolio, and adds to previous work in this area, including the DARPA Communications Under Extreme RF Spectrum Conditions and Adaptive Radar Countermeasures programs. BAE Systems has also advanced to the second round of another major DARPA effort to bring machine learning and artificial intelligence to the RF domain called the Spectrum Collaboration Challenge. Work for the RFMLS program is being done by the research and

development team at BAE Systems' facilities in Burlington and in Durham, North Carolina.

ESM System on Navy E-2 Aircraft Set for Digital Upgrade in 2022

WASHINGTON – Lockheed Martin is developing a digital upgrade of the analog electronic surveillance measures (ESM) system installed on the Navy's E-2D Advanced Hawkeye carrier-based early warning aircraft and plans to complete development by 2022.

The current ALQ-217 is the analog ESM system that alerts operators to radar activity and identifies the emitter.

Under a $65 million contract awarded in June, Lockheed Martin Rotary and Mission Systems is developing the digital upgrade and is scheduled to complete the engineering and manufacturing development phase – including design, qualification testing, acceptance testing and flight testing by 2022, Max Pelifian, Lockheed Martin's program manager for Advanced Airborne Electronic Warfare, told reporters Nov. 27 at the Association of Old Crows International Symposium. The next phase will bring the digital system to initial operational capability.

The ALQ-217 includes eight line-replaceable assemblies – antennas, antenna front ends and a receiver/processor – of which five will be upgraded under the contract.

Lockheed has been providing the analog ALQ-217 to the E-2 aircraft since 1999. Lockheed Martin has delivered 28 ALQ-217

analog sets for the E-2C Hawkeye and 46 sets for the E-2D Advanced Hawkeye. The company has 29 more on order for the E-2D, some of which could receive the digital upgrade on the production line if the timing permits.

The company completed the Navy's system requirements review for the digital upgrade this month. The critical design review is anticipated by the end of 2019.

Marine Corps' Sea Dragon Effort Turning Focus to Information Operations

STAFFORD, Va. – After two years focusing on increasing the lethality of the small ground units and providing logistical support in the contested littorals, the Marine Corps Warfighting Laboratory (MCWL) is moving into intensive trials on information operations and ways to more fully integrate the naval forces to fight the maritime campaign, which will include a search for Marine-operated anti-ship weapons.

The focus of the Sea Dragon force development effort in the current fiscal year will be on "a handful of select, high-value capabilities" that will enable Marine expeditionary forces to maintain their "battle networks in the most highly contested environments," providing a "high degree of domain awareness" through experimental technologies for sensing the environment and feeding that "into networks we can fire and fight from," Brig. Gen. Christian F. Wortman, the MCWL commander, said Nov. 27.

They also will be testing capabilities to disrupt an enemy's

ability to sense the environment and target Marine units, Wortman told reporters at an office near Marine Corps Base Quantico.

Then, the gains from the first three years of the re-energized Sea Dragon will culminate in fiscal 2020 experiments to address Marine "contributions to a maritime expeditionary campaign," with close cooperation with the Navy, Wortman said.

Those efforts will be in direct support of Marine Corps Commandant Gen. Robert B. Neller's commitment to an integrated naval force, he added.

"We know that fleet and Marine forces are far more lethal, survivable and effective when they fight as an integrated team. So we're approaching naval and Marine Corps development as an integrated team, to the maximum extent possible."

As a key part of Neller's commitment to the integrated naval campaign and the Corps' effort "to support the sea fight in contested maritime domains," Marine elements will conduct, in partnership with the Navy staff, the research establishment and industry, a series of "fight the naval forces forward" advanced naval technology exercises (ANTX) in 2020, Wortman said.

The ANTX series will focus on "naval fires, technology to close the kill chain in highly contested environments and to deny the enemy the ability to target our forces."

A key part of that will be a search for land-based, long-range, anti-ship missiles that Marines could employ from advanced expeditionary bases within an enemy's defensive shield to support the Navy's fight for sea control.

"The commandant is determined to provide a capability to strike a killing blow against advanced surface ships from our tac [tactical] air assets or land-based locations," Wortman said.

Where the first year of the new Sea Dragon campaign resulted in major changes to enhance the lethality of the infantry squad and other small ground combat elements, 2018 focused on the logistical and sustainment challenges of distributed operations in contested areas. Those experiments identified unmanned and autonomous logistics distribution assets “as high value. We are working aggressively” on unmanned underwater, surface, air and ground vehicles “to support our logistics distribution requirements,” the general said.

The goal is to sustain the expeditionary forces in high-tempo operations “while dramatically reducing the risk to our Marines and frustrating the ability of potential adversaries to interrupt our sustainment operations.”

In response to a question on the possible role of underwater vehicles, Wortman said “anything that offers us the ability to move bulk liquids, ordnance or other consumables over extended range in a manner that is hard for an enemy to target is really attractive to us.”

They also see the potential of those systems in the sea-control fight by “employing unmanned underwater systems from expeditionary advanced bases with a wide range of payloads that will challenge or destroy adversary capabilities in some of these contested environments.”

Wortman said the 2018 experiments also introduced the new “experimental opposing force,” a cadre of eight to 10 civilian experts who will challenge the MCWL experimenting units and the technologies and concepts they are testing.

Vice Adm. Merz: New Round, Gun Removal Options for Zumwalt DDG

WASHINGTON – The Navy is looking at options for the Advanced Gun System (AGS) on the Zumwalt-class guided-missile destroyer (DDG) as it completes mission systems installation, options that include developing a new round or removing the guns all together.

The Zumwalt DDG is equipped with two 155 mm AGS guns – built by BAE Systems – for which the Long-Range Land-Attack Projectile (LRLAP) was developed by Lockheed Martin. The LRLAP, however, proved too costly and its range too short, resulting in its cancellation. The Navy has been exploring options to develop a new round but is not letting the lack of one delay the ship's entry into the fleet.

"We determined that the best future for that ship is to get it out there with the capability that it has and separate out the Advanced Gun System, leaving everything else in place," Vice Adm. William R. Merz, deputy chief of naval operations for Warfare Systems, testified Nov. 27 before the Senate Armed Services Seapower subcommittee, in response to a question from Sen. Angus King, I-Maine, the state in which the Zumwalt class has been built.

"[The Zumwalt] is a very capable platform with or without that gun," Merz said. "We will be developing either the round that goes with that gun or what we are going to do with that space if we decide to remove that gun in the future. The ship is doing fine, on track to be operational in 2021 in the fleet."

Merz said the Zumwalt, built as a land-attack platform, has been "remissioned to a strike platform, whether sea targets or land targets. It takes advantage of its tremendous arsenal of

VLS [vertical launching system] cells. Those VLS cells are larger than any other surface ship VLS cells so that opens up an aperture of more weapons options for that ship."

He termed the projectile challenge "as a science and technology challenge, not an engineering problem. We just cannot get the thing to fly as far as we want."

Asked by King if the Zumwalt would be a platform for a future directed-energy weapon, Merz said the ship had the "balance of SWAPC – space, weight, power and communications – that allows us to expand this ship over time. She is going to be a candidate for any advanced weapon system that we develop."