

# Forty GE LM2500 Marine Gas Turbines to Power 10 DDG 51 Destroyers

EVENDALE, Ohio – GE's Marine Solutions announced in a Nov. 29 release that 40 LM2500 marine gas turbines will power the U.S. Navy's next-generation of DDG 51 Arleigh Burke-class destroyers. The Navy awarded firm construction contracts to Huntington Ingalls Industries (six ships) and Bath Iron Works (four ships) with options for additional ships.

Each of the DDG 51 destroyers feature four LM2500 engines that will be made at GE's facility in Evendale. GE has already provided more than 300 LM2500 gas turbines for the U.S. Navy's existing fleet of Arleigh Burke destroyers. The LM2500 gas turbine modules will use GE's lightweight composite that offers significant performance advantages over a steel design in terms of weight, noise, access and life-cycle costs.

"GE continues to identify and invest in new technologies that keep our gas turbines nimble and ready to meet the ever-changing needs of the U.S. Navy, our largest marine gas turbine customer," said Brien Bolsinger, vice president and general manager, GE's Marine Solutions. "GE proudly manufactures these engines in Ohio that help safeguard our country at home and abroad."

GE has delivered gas turbines onboard 646 naval ships serving 35 navies worldwide. GE has provided 97 percent of the commissioned propulsion gas turbines in the U.S. Navy fleet. With a GE gas turbine, the U.S. Navy has support worldwide whether onshore or at sea, and interoperability benefits with other U.S. and allied naval ships.

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# Volvo Penta to Supply Engines for Next-Generation RIBs for Coast Guard Cutters

CHESAPEAKE, Va. – Volvo Penta of the Americas has been selected to supply the engines, drives and controls for the new U.S. Coast Guard cutter boat large (CBL) rigid-hull inflatable boats (RIBs), which are being built at Metal Craft Marine.

The boats will be powered by Volvo Penta three-liter 220 hp diesel Aquamatic sterndrive systems with HD controls.

The Coast Guard awarded a five-year indefinite-delivery/indefinite-quantity (IDIQ) contract to Metal Craft to build and deliver a minimum of 46 new 7-meter RIBs with deliveries to begin in 2019. They will be constructed at Metal Craft's shipyard in Cape Vincent, New York.

The RIBs are designed for a top speed of 35-plus knots carrying up to 13 passengers with an operating range of 200 nautical miles in up to 4-meter wave heights. They will be carried on three different classes of U.S. Coast Guard cutters.

“The Volvo Penta diesel sterndrives are the perfect propulsion package for these rugged workhorse RIBs,” said Bob Clark, contracts manager at Metal Craft Marine. “They have an unsurpassed reputation for dependable performance under the most difficult conditions, and Volvo Penta's extensive global service network ensures rapid availability of spare parts and technical support will ensure maximum uptime for these critical shipboard assets.”

“We will work closely with the Metal Craft shipyard team to provide smooth and seamless installation and validation of the propulsion system on each boat to ensure the boats are delivered on time,” said Jens Bering, vice president of marine sales at Volvo Penta of the Americas.

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## **Canadian Surface Combatant Contract Award on Hold Pending Challenge**

VICTORIA, British Columbia – A legal challenge by a U.S. defense firm has resulted in a near unprecedented order for the Canadian government to put on hold awarding a contract to Lockheed Martin for a new fleet of warships that are to form the backbone of the future Canadian Navy.

The Canadian International Trade Tribunal issued the order Nov. 27 on the 60 billion Canadian dollar (\$45.2 billion) Canadian Surface Combatant project after Alion Science of McLean, Virginia, complained the ship being proposed by Lockheed Martin Canada did not meet the Royal Canadian Navy requirements.

Lockheed Martin Canada, which offered the BAE Type 26 warship, was named by the Canadian government as the “preferred bidder” on the surface combatant program on Oct. 19. Negotiations were underway with Canadian government officials to sign a contract in early 2019.

In response, Alion went to Federal Court of Canada on Nov. 16 to request a judicial review of the decision to name Lockheed Martin the top bidder. On Nov. 21, it went to the Canadian

International Trade Tribunal with its complaint that the Type 26 is not only unproven but does not meet the government's stated requirements in the area of speed. The details about surface combatant speed requirements were removed from the complaint because of national security reasons.

Alion's request for a judicial review could take some time. The company's position, however, received a boost when the Canadian International Trade Tribunal issued an order to put a halt to any awarding of a contract to Lockheed Martin until the tribunal could examine the validity of Alion's complaint. Canadian defense industry sources told Seapower that firms often ask the tribunal to put a defense contract on hold but it is rarely done, if ever.

Rania Haddad, a spokeswoman for Public Services and Procurement Canada, the federal department overseeing the surface combatant program, declined to comment.

"As this matter is the subject of a complaint which has just been accepted for inquiry by the Canadian International Trade Tribunal and is also the subject of litigation in the Federal Court, comments cannot be provided at this time," she said Nov. 28.

Cindy Tessier, a spokeswoman for Lockheed Martin Canada, said the firm is not commenting as the case is before the courts.

The Canadian Surface Combatant project is the largest procurement in Canadian history.

A Department of National Defence source said work on the surface combatant project is on hold for now until it can be determined whether the Canadian government will go to court to challenge the tribunal's order. That decision is expected in a week or so.

Alion has offered Canada the Dutch De Zeven Provinciën Air Defense and Command frigate, which the firm said meets all of

Canada's requirements.

The Canadian Surface Combatants will be constructed at Irving Shipbuilding in Halifax, Nova Scotia. The Type 26 is currently under construction for the U.K. Royal Navy and in late June Australia's government selected the Type 26 design as its future frigate for the country's navy.

The Canadian government has committed to building 15 surface combatants.

"This is probably the largest and most complex procurement in the history of Canada," André Fillion, an assistant deputy minister at Public Services and Procurement Canada, told Seapower in October.

The new ships will replace the existing Halifax-class frigates and form the backbone of the Royal Canadian Navy for the next generation.

The Canadian government had expected to sign a contract with Lockheed Martin Canada sometime between January and March. If those negotiations fail, the government will go to its next highest-rated bidder on the program. That could be Alion or Navantia of Spain, whose proposal is based on the F-105 frigate design, a ship in service with the Spanish navy. Neither firm knows whether it has the second highest-ranking design.

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## **Coast Guard Repatriates 11 Migrants to Cuba**

MIAMI – The Coast Guard Cutter Isaac Mayo crew repatriated 11

Cuban migrants Nov. 29 to Cuba, the 7th Coast Guard District said in a release.

A good Samaritan located a rustic vessel approximately 18 miles southeast of Islamorada on Nov. 26. A Coast Guard Station Islamorada 33-foot Special Purpose Craft-Law Enforcement interdicted the migrants and transferred them to the Coast Guard Cutter Charles David Jr. when it arrived on scene.

“The Coast Guard bears the responsibility of enforcing immigration laws with our partners and securing the maritime domain, while also ensuring the safety of life at sea,” said Lt. j.g. Vladimir Domanskiy, executive officer of Isaac Mayo. “The rustic vessels we interdict are often overloaded, manifestly unsafe and the people aboard may have been at sea for days without proper food, water or medical attention. The individuals repatriated were stranded at sea for more than a week and the crews of the cutters Charles David, Jr. and Isaac Mayo ensured they were cared for and treated with the utmost respect following their rescue.”

Once aboard Coast Guard cutters, all migrants receive food, water, shelter and medical attention.

Approximately 137 Cuban migrants have attempted to illegally enter the U.S. via the maritime environment since fiscal 2019 began on Oct. 1, compared to 384 Cuban migrants in fiscal 2018. These numbers represent the total number of at-sea interdictions, landings and disruptions in the Florida Straits, the Caribbean and Atlantic.

The cutters Charles David Jr. and Isaac Mayo are 154-foot Sentinel-class cutters homeported in Key West, Florida.

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# 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."

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# 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.

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## **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.

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# 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.

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## **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.

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## **Coast Guard Repatriates 27 Migrants to Cuba**

MIAMI – The Coast Guard Cutter Charles David Jr. crew

repatriated 27 Cuban migrants Nov. 22 to Cuba, the 7th Coast Guard District said in a release.

A Coast Guard Air Station Miami HC-144 Ocean Sentry airplane crew located a rustic vessel traveling northbound approximately 29 miles north of Cuba Nov. 17. Charles David Jr. arrived on scene and safely embarked 27 Cuban migrants who attempted to enter the United States illegally.

“The Coast Guard diligently patrols the Florida Straits and Caribbean Sea to ensure the safety of life at sea and the security of the United States. United States policy is to promote safe, orderly and legal travel and migration,” said Rear Adm. Peter Brown, commander of the 7th District and director of Homeland Security Task Force Southeast. “When unsafe, disorderly and illegal maritime migration attempts are discovered by the Coast Guard or our partners, migrants are rescued from distress, humanely treated and promptly repatriated to their country of origin or departure.”

Once aboard Coast Guard cutters, all migrants receive food, water, shelter and medical attention.

Approximately 296 Cuban migrants have attempted to illegally enter the U.S. via the maritime environment since Oct. 1 in fiscal 2018 compared to 2,098 Cuban migrants in fiscal 2017. These numbers represent the total number of at-sea interdictions, landings and disruptions in the Florida Straits, the Caribbean and Atlantic.

Charles David Jr. is a 154-foot Sentinel-class cutter homeported in Key West, Florida.