

The Wave

GE Marine's gas turbine products, systems and services



Winter 2020

Volume 14, Issue 2

While the novel Coronavirus (COVID-19) pandemic continues, GE Marine remains steadfastly dedicated to our customers, employees and suppliers.

I'd like to update you on the bustle of activity we've had over the past six months, including the selection of GE's LM2500+G4 marine gas turbine to power the **United States Navy's FFG 62 next-generation frigate**

Other news items in this edition highlight state-of-the-art technologies, new build projects and existing programs that use GE's reliable gas turbines:

- GE, the United States Navy, shipyards and other strategic partners hold virtual celebration for LM2500 Module Modernization Program and delivery of the new build on DDG 128
- Finland becomes 39th Navy to select LM2500 engines for new corvettes
- Pakistan Navy's new MILGEM corvettes to be powered by LM2500 gas turbines
- Royal Australian Navy's HMAS *Sydney* commissioned at sea
- GE LM2500 gas turbines to power new Turkish fleet replenishment ship
- ROK KDDX integrated full electric propulsion
- GE-related news items
- RIMPAC 2020 coverage
- Our team and their stories
- We are always here!



Wishing you all a joyous holiday season and a happy New Year. Please continue to stay resilient, and don't hesitate to reach out to me if you have any questions or need additional information.

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U.S. Navy welcomes LM2500+G4 for FFG 62



GE will provide Fincantieri Marinette Marine with a LM2500+G4 aeroderivative marine gas turbine to power the United States Navy's *Constellation* class (FFG 62) frigate. GE also will supply the gas turbine auxiliary skids (electric start, fuel forwarding and water wash systems) and the gas turbine control system.

The new U.S. Navy *Constellation* class is based on Fincantieri's proven FREMM design already in operation onboard the Italian Navy *Carlos Bergamini* class frigates (10-ship program). The U.S. Navy frigates will

feature the same power dense GE LM2500+G4 gas turbine in a Combined Diesel eLectric And Gas turbine propulsion system. Click [here](#) for more information.

“GE Marine brings a proven and reliable gas turbine that integrates perfectly in our combined diesel electric and gas turbine (CODLAG) propulsion system. Fincantieri has a decades-long relationship with GE, and we are proud to have these American-made gas engines on our U.S. Navy frigates.”

**Dario Deste, President
Chief Executive Officer
Fincantieri Marine Group**

LM2500+G4

The **LM2500+G4**, introduced in 2012, offers state-of-the-art naval engine technology. Including the new FFG 62 frigates, a total of 37 LM2500+G4s have been selected for naval applications; 20 engines on FREMM frigates for the French, Italian, Moroccan and Egyptian navies, as well as the Italian Navy's new PPA multipurpose patrol boats.

GE celebrates U.S. Navy, shipyard partners



GE Marine recently hosted a virtual meeting that drew more than 60 attendees from the U.S. Navy, Bath Iron Works, Huntington Ingalls, RL Industries and Leonardo DRS, to celebrate the teams involved in the Module Modernization Program (MMP). The event also lauded those individuals who participated in the manufacturing and assembly of this first, new GE LM2500 gas turbine composite module for the Arleigh Burke destroyer *USS Ted Stevens* (DDG 128).

“This new module design provides significant weight reduction, improved sensors, along with reduced noise transmission and thermal heat rejection. The lightweight enclosure is especially important since the U.S. Navy has more than 370 GE LM2500 engines in service as the backbone of the DDG fleet, logging over 6 million operating hours.”

**Lee Fuglestad
U.S. Navy Technical Director of the AEGIS Destroyer
Program Office (PEO Ships PMS 400)**

This four-year collaborative U.S. Navy program resulted in the design, development, qualification and manufacture of a new lightweight composite module design for the LM2500 marine gas turbine. GE currently has orders for more than 50 new composite enclosures for U.S. and international navy applications. Read more about the celebration [here](#).

LM2500s for new Finnish corvettes

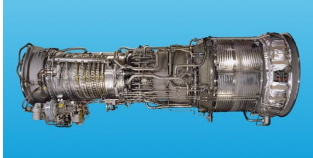
GE LM2500 marine gas turbines will power four new *Pohjanmaa* class multipurpose corvettes to be built as part of the Finnish Navy's Squadron 2020 Project. The Finnish Navy is now the 39th navy worldwide to adopt GE's LM gas turbines for naval propulsion.

Pohjanmaa class corvettes (shown right) are designed for year-round service in the seasonally freezing Baltic Sea, and will have the ability to operate independently in ice. Each 3,900-ton corvette will feature one GE LM2500 gas turbine in a CODLAG configuration to reach speed in excess of 26 knots. GE also will provide its lightweight composite gas turbine module, along with a full complement of gas turbine auxiliary systems including electric start and water mist firefighting systems, fuel forward and water wash skids, and controls. Read more [here](#).



Pakistan Navy MILGEM to use LM2500s

GE will provide STM (Savunma Teknolojileri Mühendislik Ve Ticaret A.Ş.) with LM2500 gas turbines to power the Pakistan Navy's new MILGEM



multipurpose corvettes. Two of the ships will be built in Turkey and the other two in Pakistan.

GE's LM2500 gas turbines continue to reliably log operating hours onboard the Turkish Navy's four MILGEM corvettes, the first of which was commissioned in 2011. In fact, the propulsion system for all these ships consist of one LM2500 gas turbine in a combined diesel and gas turbine configuration with two diesel engines; total propulsion power is 31,600 kilowatts. Follow this [link](#) for more information.

Australia commissions warship at sea

In May, the HMAS *Sydney* (Destroyer - DDG; shown right) was the first Australian warship commissioned at sea by the Royal Australian Navy since the Second World War. HMAS *Sydney* is the last of three Hobart class ships built and delivered by the Air Warfare Destroyer (AWD) Alliance; sister warships HMAS *Hobart* and *Brisbane* were commissioned in 2017 and 2018 respectively. All three ships features two GE LM2500s configured in a COmbined Diesel Or Gas turbine (CODOG) arrangement with two diesel engines. Read more [here](#).



Shipmates to teammates

Check out this [video](#) about Rob Liner, Steve Maynard and Randy Johnson (shown left to right). These gas turbine experts don't just know each other from working at GE Marine. For a short period in the early 1990s, all three served aboard the former U.S. Navy Spruance class destroyer, *USS Fletcher* (DD 992), which was

powered by four GE LM2500 gas turbines. This video was produced by GE to honor Veterans Day 2020.

LM2500s for Turkish replenishment ship

Two LM2500 engines will power the Turkish Naval Forces' new Fleet Replenishment Ship, known as the DIMDEG project. This new-generation ship will satisfy the fuel, water transport and supply needs of Turkey's surface combatants in the open seas around the world. Click [here](#) for more details.

ROK KDDX: Integrated full electric propulsion

GE Marine recently had a virtual booth at the *Chungmugong YI-SUNSHIN Defense Exhibition 2020* in Seoul, Republic of Korea. Specifically, GE's **ROK KDDX Team Korea** (GE Marine, GE Power Conversion, and Hanhwa Aerospace) is the only team capable of providing high quality performance and low risk integrated full electric propulsion solutions for the ROK Navy's KDDX destroyer and LPX LHD ship programs. This [video](#) highlights GE's propulsion system experience in the ROK and with other world navies.



GE in the news

Here are newsworthy items about GE marine gas turbines that highlight how our program managers and field service representatives have been busy getting ships out to sea!

- "USCG's ninth National Security Cutter completes acceptance trials," [Marinelog.com](#)
- "U.S. Navy Aircraft Carriers Conduct South China Sea Drills as China Watches," [Gcaptain.com](#)
- "Future USS Savannah (LCS 28) Christened at Austal USA," [ASDNews.com](#)
- "Profile: GE Marine," [Monch.com](#)
- "India's Next Generation Stealth Frigate Of Project 17A Takes Off At Mazagon Dock," [Businessworld.in](#)
- "U.S. Navy Guided Missile Destroyer USS Delbert D. Black Joins The Fleet," [Navalnews.com](#)



RIMPAC 2020

Ten nations, 22 surface ships, one submarine, multiple aircraft, and approximately 5,300 personnel participated in an at-sea-only iteration of the biennial Rim of the Pacific (RIMPAC) exercise in the waters around the Hawaiian Islands, August 17 through 31. Several of the U.S. Navy and allied surface combatants that participated are powered by GE LM2500 marine gas turbines.

In fact, the Royal Australian Navy ship HMAS *Hobart* (DDG 39) executed a live missile firing (shown above) off the coast of Hawaii during its first RIMPAC. This Air Warfare Destroyer is powered by two GE LM2500s configured in a CODOG arrangement with two diesel engines. Click [here](#) for more RIMPAC information.

Our people

Congratulations to these individuals who worked so hard and have since retired, and others that are now joining and growing our team:



Dave Hartshorne has retired after 32 years with GE and 44 years working as a gas turbine industry expert. Mark Lipton will take over as Product Line Leader.



Eric Myles opted to stay with GE Marine during his rotation in the company's Human Resources Leadership Program. Eric is now a Client Human Resources Manager for the team.



Randy Johnson, is now a Senior Product Manager responsible for overseeing the packages used for GE marine gas turbines.

We are always here!

Due to the COVID-19 virus, the GE Marine team remains uncertain how many trade shows and one-on-one meetings will take place over the next several months. That's why we want to remind you that the GE Marine team is ready **anytime** to answer any questions. Please reference the proper GE expert below in the "[Contact our team](#)" section of this newsletter.

Stay safe, healthy and strong!

Contact our team

If you need answers to questions, please don't hesitate to contact the following members of GE's marine gas turbine team.

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[Learn more about GE marine gas turbines](#)
