Fall 2018 **Volume 12, Issue 3**

Greetings! In this issue we share these stories:

- Progress on our state-of-the-art LM2500 composite gas turbine module -- a joint program with General Dynamics Bath Iron Works and the United States Navy
- New Approval in Principle from Lloyd's Register for GE's Digital Twin READY
- The Royal Australian Navy's *HMAS Adelaide* performance during RIMPAC 2018
- Operational and maintenance benefits of GE LM2500 and LM6000 split casing design
- An update on program activities with the United States Navy
- Recent christenings, commissionings and other milestones for the global fleet of GE marine gas turbines
- News from our Ohio headquarters

As always, I encourage you to contact me with any questions or if you need additional information. All the best.

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What a Blast!

A picture speaks volumes! Shown left is GE's new, state-of-the-art composite LM2500 gas turbine module during shock testing.

In order to conduct the test to U.S Navy MIL-S-901D requirements, the gas turbine module was mounted on a barge, which was then floated. A depth charge was detonated and this test was repeated at four different distances from the barge. The composite module was inspected and was fully intact. Further, the module was returned to GE and was x-ray inspected and pressure tested confirming structural integrity. This test provides clear proof of the robustness of the LM2500 composite module under such conditions.

Prior to the shock test, the module successfully completed acoustic attenuation and weight comparison testing between the new module and the steel enclosure. Results verified these attributes of the composite design: a 2,500-kilogram weight reduction and a significant improvement in noise attenuation—60% quieter—when compared to its steel predecessor. **Read more here about this new composite module.**

RIMPAC 2018

A GE LM2500 marine gas turbine that is part of an Integrated Power System (IPS) helped Australia's *HMAS Adelaide* amphibious assault ship (shown right) play a crucial role during RIMPAC 2018 exercises. *HMAS Adelaide* embarked with other amphibious forces including the United States Navy off the coast of Oahu, Hawaii, during RIMPAC, which concluded in early August.

Naval ships are requiring more and more power to operate state-of-the-art radar, weaponry and propulsion systems. GE's popular and reliable LM2500-family of gas turbines offer the right engine with best-in-class power density, size and performance. The GE gas turbine generator set in this IPS configuration eliminated the need for separate propulsion and power generation systems. Further, the GE gas turbine is able to react quickly to the rapid large load variations such as activation/deactivation of the electric pods. **Read more** here **about the HMAS Adelaide during RIMPAC 2018.**

Approval for Digital Twin of Assets

Lloyd's Register announced that newly released Digital Compliance has been validated through a co-creation project with GE, resulting in an Approval in Principle (AiP) to 'Digital Twin READY' for GE's Predix Asset Performance Management. Each asset can have a digital twin, including the gas turbine, diesel engine, compressors, pumps, alternators, etc. This Digital Health Management (DHM) system uses digital twins and advanced diagnostic/ prognostic techniques to increase asset reliability and availability. The system also optimizes maintenance costs, mitigates operational risks, and reduces total cost of ownership.

GE's LM2500 gas turbine was the asset used to pilot through LR's Digital Twin READY AiP compliance framework. Digital Twin READY can be applied to most commercial ship types. A pilot project is now underway with the United States to employ Digital Twin READY on military ships; other international navies are considering how to use Digital Twin READY to analyse the health of ship assets. **As shown in the photo to the right, LR presented GE with the AiP during the recent *SMM 2018* conference in Hamburg, Germany. Click** here **to read more about this AiP.**

Maintenance Made Easy

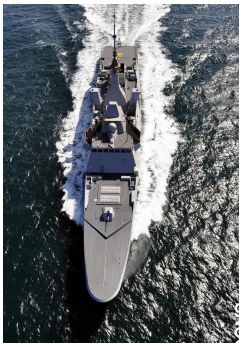
GE's LM2500 and LM6000 marine gas turbines are designed similar to an automobile hood so that the top or bottom casings can be opened without removing the engine from the ship. This ingenuous design allows for in-situ repair, has prevented hundreds of engine removals and has eliminated long periods of unavailability. Gas turbines without split casings require complete engine removal from the ship, increasing repair time and gas turbine unavailability to weeks or even months. In addition, the cost of repair per event increases to ~$1.5 to $3 million. **Find out more** here **about this cost-savings maintenance approach in the Canadian publication *Vanguard.***

U.S. Navy Update

In May, two new warships were were welcomed into the United States Navy fleet. First came the *USS Cincinnati* (LCS 20; shown left), christened in Mobile, Alabama, at the Austal USA shipyard. Cincinnati is the hometown of GE Aviation and the manufacturing hub for the LM2500 gas turbines that power these sophisticated surface combatants. Later the same month, sister ship *USS Manchester* (LCS 14) was commissioned in Portsmouth, New Hampshire. Each of the two LM2500 engines that power these sophisticated surface combatants produce over 29,500

horsepower to propel these ships to speeds of 40+ knots or 46 miles per hour. To date, GE has contracts to provide gas turbines for ships up to LCS 30 (even ship numbers are Austal *Independence* class ships). **Check out this great video and article about the LM2500 marine gas turbine and the LCS program.**

GE in the News



Here are a few news items regarding programs that use GE's reliable LM2500 family of engines (shown right is the French Navy's *Aquitaine* FREMM frigate).

- "Japan launches first Improved Atago-class destroyer" on *Jane's.com*
- "France takes delivery of its 5th FREMM" on *Defencenews.com*
- Thailand to receive Korean-made modern frigate" on *VietnamPlus*

Trade Shows 2018

Shown right is our team of GE marine gas turbine experts at the recent *CANSEC 2018* trade show in Halifax, Canada. Look for us at these other trade shows in the fourth quarter 2018:

- *Gastech**, September 27-20, Barcelona, Spain
- *Kaoshsiung International Maritime & Security Defence Expo**, Kaohsiung,
Taiwan, September 27-30
- *DEFSEC Atlantic,** October 2-4, Halifax, Nova Scotia, Canada
- *Euronaval*, Paris, France, October 17-21, Stand# H72

* GE will not have a booth at these shows, but experts will be giving presentations and/or will be available onsite for meetings.

Headquarter Highlights

Bob Bare (shown right top) joins our team as the marine manufacturing programs leader, stepping in for Tim Johnson who retired at the end of September. Thank you Tim; we wish you nothing but the best in a well-deserved retirement!

Bob will work closely with our engineering and supply chain counterparts, managing all aspects of manufacturing programs including source selection, hardware delivery, assembly and test. Bob joined GE in 1983 and has worked in various positions of increasing responsibility including: manufacturing, repair engineering, sourcing, Six Sigma, and manufacturing programs for LMS100, GE38, GEnx, and the Adaptive Engine Transition Program. He graduated Ohio State University with a degree in mechanical engineering.

Separately, Michael (Mike) Brown (shown right bottom) joined GE Aviation in late June 2018 as part of the Junior Officer Leadership Program. His first assignment is with GE's marine gas turbine business in a sales and marketing role. Mike served on active duty in the United States Marine Corps for 11 years, beginning his military career at The Basic School in 2007. He graduated in 2010 with honors from the Naval Flight School, later selected to fly the UH-1Y Venom utility helicopter. His served in various positions including deployment to Afghanistan for Operation Enduring Freedom; trained ground combat Marines at Camp Pendleton in aviation fire support integration; supported initial stages of Operation Inherent Resolve; and was a Marine Corps instructor pilot at Marine Light Attack Helicopter Training Squadron 303. Mike holds a Bachelor of Science degree in Mechanical Engineering from Carnegie Mellon University.

Look for these GE advertisements in key industry trade publications and/or on their websites.

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Learn more about GE marine gas turbines