

Crowley and MER Team Up for Ship Assist

by Michael Hudson

In today's world of transportation, ship assist services play a key role in moving freight to docks. Crowley Maritime operates one of the most advanced ship assist fleets in North America, staffed by many of the most competent and experienced mariners in the world.

When the time came for repowering the West Coast Harbor Class tugs, Crowley port engineers and management knew exactly what they liked and where they wanted to see improvements. On board, generators are at the heart of the vessel, supplying electrical power and driving hydraulics off the front of the engine for winches.

Crowley had achieved excellent results in the past with Bollard™ gensets driving hydraulics, so they came to MER with specific objectives for the Harbor class tugs. At the top of the list was that the entire system must provide maximum reliability and durability for minimum down time and a long life expectancy. For ship assist applications, this is a big challenge for any supplier.

It quickly became apparent that the solution would require new engineering and collaboration between Crowley and MER. A new, heavy duty, SeaDrive™ hydraulic pump drive was planned for a 6.8-liter engine based on similar configurations previously designed for larger engines. The system would feature a front mounted cast SAE 2 bellhousing and include a 10" constriction air clutch. The design would be compatible with both single and twin hydraulic pump drives to match the configurations on different vessels of the same class.

Taking torsional compatibility into account, the decision was made to rigid mount to a common base frame and install vibration isolation mounts underneath. The service life of the clutch could be significantly improved by reducing vibration. The new configuration was designed to match the existing foundation and position of the



Bollard™ MG105 with heavy duty SeaDrive™ - built for the long haul.

hydraulic pump. This would substantially reduce time and materials for installation, allow the hydraulic systems to be left as they were, and improve alignment.

Following inspections of the Harbor class tugs, MER engineers produced concepts for Crowley's review and approval. New features were proposed such as mount "pads" on the base frame to enable decoupling and sliding the generator set aft from the SeaDrive™ for alternative for access to the clutch.

Crowley gave the green light to move into production and testing under full load. Plans for installation included partial take down of the new machines to enable clearance through an access hatch on board the tug, and reassembly once all equipment was in place. Installation went very smoothly due to the planning and design work done previously. The cost of design was largely offset by savings during installation.

A torsional vibration analysis was performed and then it was time to go to work. On the first boat in class, that was 12,000 hours ago. The desired reliability and durability has exceeded all expectations. As a testament to that success, most of the Crowley Harbor class tugs have since been upgraded to the Bollard™ design.

Additional benefits have come from a few significant developments. The generator

sets are now equipped with SCOR™ lube oil bypass filtration systems. Oil change intervals have been successfully (and safely) extended from 250 hours to 2,500 - 3,000 hours. For a fleet, that adds up to big savings in lube oil and service expenses. The engineers enjoy far fewer oil changes and much less oil to dispose of.

Port engineers at Crowley have been keeping an eye on SeaDrive™ developments - particularly with DC electric clutches in the power range they utilize. One attractive feature has been the elimination of having to drill shafts in the hydraulic pumps for air supply to the constriction clutches. Switching to an electric clutch would greatly reduce maintenance of the air supply system

Crowley approved the redesign of the SeaDrives to accommodate a 2,000 ft. lb. electric clutch. During testing on the first tug with an electric clutch, the hydraulics were dead-locked to the point of the engine stalling. The clutch did not slip. Crowley has switched to the electric clutch for recent projects.

These days, from the pilot house of Crowley Harbor class ship assist tugs, engineers and port engineers stand by the decision to team up with MER. It has certainly paid off for Crowley Maritime. The crew at MER are proud to have a position on that team.

SeaFire™ LED Development Update

Getting ahead of the curve and 2018 reliability upgrades!



It appears we were ahead of the curve when we introduced our SeaFire™ lights 6 years ago. It takes quite a while for new technology to catch on in the marine industry. Not many people want to be the guinea pig for unproven tech. But as many have noticed, the once dim halls of PME are now lit up like Christmas lights. So what the hell is going on?

The industry is warming up to LEDs - both in a figurative and technical sense. Operators are learning that 5000K (cool colored) LEDs are extraordinary for deck lighting but

abysmal in distance applications; that 2700K (warm colored) LEDs are not only possible but in many cases outperform their sodium counterparts in distance applications.

This is good news, but there is a catch. Most LEDs are built for industrial land-based applications. Very few lights are actually ready for harsh marine environments. This is where we chime in.

We make sure that our LEDs are built with the marine environment in mind. This is why

we have continuously upgraded our lights over the years to squeeze out every last bit of reliability we can. This year is no different.

We have some new features coming to our LEDs that are specifically targeted at improving reliability. Here are just a few examples:

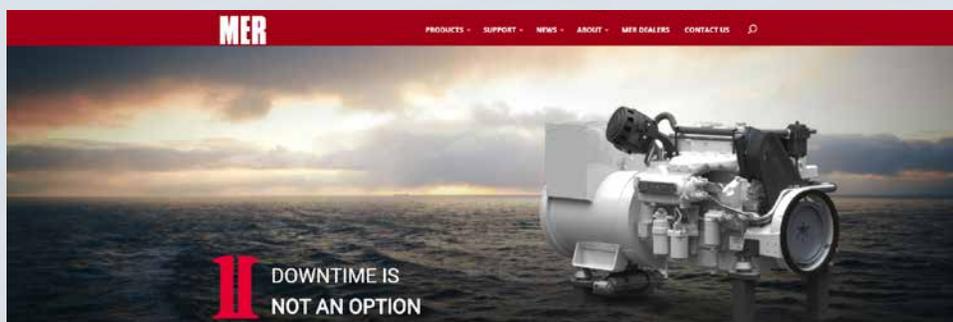
- Potted drivers (water proof)
- Internal fan to reduce driver heat
- Reusable gaskets
- User-replaceable cones & lenses
- Lens cages (to protect from impact)
- Improved housing design (better transfer of heat from driver)

What all this adds up to is a combination of existing performance while adding a much needed layer of security to make sure our lights last for years to come.

Come see the new models at PME 2018!

New Website is Live!

Reimagining our website - by Austin Shaner



At the start of this year we set out the daunting task of reimagining one of our largest and most important assets - the website. Over the years, our website has been a great source for product information, support, and useful articles. However, as products evolved and technology kept changing, our site began to feel less impactful, difficult to navigate, and time consuming to keep over **2000** pages up to date... We decided it was time to fix that. It has been a journey and thousands of changes were made, but we'd like to share some of the most impactful updates.

Better, more intuitive navigation:

On the old site, getting to specific product information required a lot of categorical hurdles to jump through. The new site allows you to jump between pages within 1-2 clicks. For more general browsing, we have added a

"filter by" menu that is now common on many e-commerce websites. This should make navigating our site feel more familiar.

Mobile-Tablet friendly:

The old site was nearly impossible to use on a phone or tablet, making it very inconvenient for people in today's age to readily look up information on the go. The new "responsive" site automatically scales to fit any screen.

Support downloads:

Like the old site, each page still has links to relevant downloads available. However we've added an improved "resource library." This will help you quickly browse through all downloadable literature and installation manuals across multiple product lines.

Merging the blog:

The blog is no longer a separate, hard to find

Testimonial

"Thanks for the great service over the years and the hand holding over the telephone. You are a great crew and I will miss everything about sailing including the wonderful rapport with the people that kept us afloat for the past 40 + years."
~ David Tovell and the crew of Panache V

site. It's now fully integrated with our main site and will be updated more regularly.

Syncing our aesthetics:

The previous site was one of the last remaining bulwarks of our old branding. Although iconic, many of our other media forms, such as brochures and classifieds, have all received face lifts. Syncing these makes all products and resources feel like they are from the same company.

We are proud of our new site and we hope you find it informative, useful, and pleasant to use. Websites are living documents, so there are many more updates to come. If you have any comments or suggestions we always appreciate the feedback!

Please send all comments and/or suggestions to: austin@merequipment.com



Pacific Marine Expo 2018 - Booth 1321 CenturyLink Field Event Center, November 18th-20th

It's that time of year again! PME 2017 was a fantastic show and each year we receive a lot of valuable feedback from our customers! We take your feedback to heart and spend all year developing the best equipment possible with our customers in mind. Here are some of our products that you can expect to see at the show!

BOLLARD™ Marine & Industrial Generators

SeaFire™ Marine LED Lighting

IRON™ Marine Generators

Generator Monitoring & Control Panels

SCOR™ Oil Regeneration Systems

Paralleling & Switchgear

SeaDrive™ Front Power Take Off

SuperFlex™ Exhaust Solutions

Technical Bulletin - IMO III is a pain in the ass

by Tyler Allen

If you don't know what it is, then you're either lucky enough not to have to deal with it, or you're in for a rude awakening. IMO III is the latest diesel engine emissions level reduction requirement for NOx.

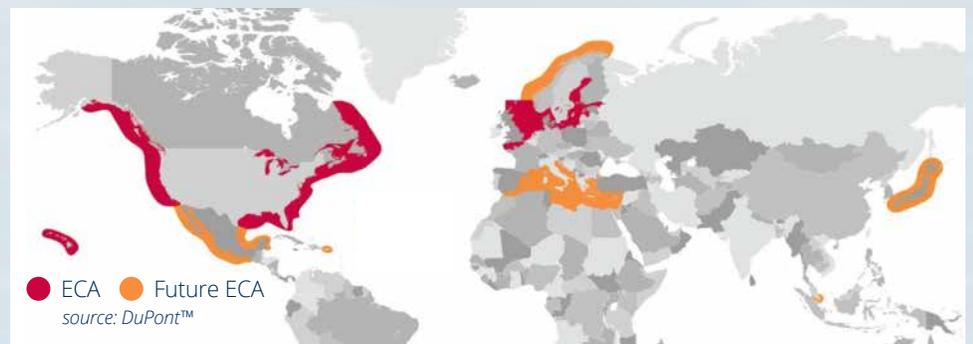
The rules are confusing, and like all government regs there are loop holes to navigate and pitfalls to avoid. As a generator supplier, we've been forced to become familiar with them. If any of the following apply to your vessel, then your generator and auxiliary engines may be required to comply:

- The vessel will operate in one of the IMO Environmental Control Areas (ECA);
- The vessel keel was laid or was repowered on or after January 1st, 2016;
- The auxiliary engines are rated at 130 kWm or greater;
- The vessel will visit foreign waters and return to the USA (this includes dipping into coastal Canada);
- The vessel is a pleasure craft greater than 24m and 500 gross tons (beginning in 2021, it won't matter what the tonnage is.)

There are ever changing exemptions for domestic operation, emergency use, space restraints, and engine availability. If IMO is required, it's no easy task to comply, for several reasons

1. Engine availability:

Engine MFGs are only starting to offer compliant engines. IMO III cuts NOx to the point engines must be outfitted with exhaust aftertreatment. They're big, complex, and expensive - and since the marine industry is such a small market for engine MFGs, they haven't focused on it. Scania, CAT and John Deere will soon have a few, but between the three of them there aren't enough engines to cover the HP range working vessels need.



2. Cost and timing:

Because the MFGs have been slow, it's been left to OEMs like us to come up with solutions. This means working with third party manufacturer to develop, test and certify aftertreatment systems. It's all doable, but nobody wants to stick their neck out and develop a system on speculation. On the other hand, it takes a long time to develop a system, so waiting means not having a solution when it's needed.

3. Space constraints and complexity:

Adding aftertreatment requires injecting exhaust fluid, also called DEF or urea, into a large exhaust catalyst plumbed into the exhaust piping. The dosing is monitored by a dosing cabinet with a urea day tank. Urea consumption can run upward of 10% of the fuel consumption, so finding room onboard for a storage tank sometimes isn't even possible, let alone practical.

"OK Tyler, so what are the solutions and the potential workarounds?"

1. Use smaller, parallel generators

The cost of the switch gear and the additional engines is often less than aftertreatment. If individual engines are < 100 kW then they aren't even subject to Classification.

2. Hybrid Systems:

If additional sets can't be added, or the gensets only occasionally need to output >130 kW, then combining two 129kW

generators with a battery bank paralleled to the ship bus may be an option. We're currently developing a system that acts as a spinning reserve, instantly powering the bus if the load exceeds generator capacity. When the load drops, the flow is reversed and the generators top off the batteries until they are needed. If the load is low enough, the vessel can run off batteries alone. There is grant money out there for these systems since they cut harbor emissions. Thank you Volkswagen.

3. Aftertreatment:

If smaller isn't an option, then aftertreatment might be required. Up until recently, SCR was the only technology available. LNT, or Lean NOx Trap technology, promises a simplified solution. SCR and LNT use a catalyst and hydrogen to convert NOx to CO2. Where an SCR system relies on the catalyst to reform urea into hydrogen, LNT uses a specialized reformer to convert diesel fuel to hydrogen, eliminating the urea tanks, dosing cabinet, and the bulk of the catalyst.

4. Fuel Cells:

Smart money says that in 10-20 years, a fuel cell will be cheaper, more efficient, and easier to operate than the overly complicated and heavily regulated diesels of today. When that happens, today's generators will be yesterday's solution. Until then, if you need help figuring out the rules, and what your options are, give us a call. We've unfortunately become the experts.

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From The Captain

Jody Fox - 6/14/1930 - 7/30/2018 | by Robert Allen

We lost a great woman this summer when my favorite Mother in Law passed over the bar. Ivan and Jody would have been married 67 years this year. They will be forever missed by the fishing and seafood processing community.

Jody didn't want to have a memorial service. However, in honor of Ivan - who gave me the best advice in life when dealing with loved ones, "Tell her what she needs to hear, and do the best you can". We all got together at Ray's Boathouse to pay tribute to a life well lived. There were hugs, prayers, stories, and readings, one from the Book of Timothy. According to Google, Timothy was killed by flying debris in a hurricane while shielding others from the storm. It seemed a fitting coincidence given the recent events.

Jody and I didn't agree on lots of things. We agreed not to talk politics, but we always forgot, and then had to agree to disagree. I never had to guess where she stood on issues but she respected my opinion even when she knew I was wrong. I heard an enlightening quote from a Native American Leader the other day. "Every bird has a left wing and a right wing, and it takes two wings to fly." Jody was a fascinating personality - riddled with quirks, strengths, and fears. She always had time for a cup of tea and would convince me I did too, whether I thought I did or not.

When Jody and Ivan first opened the doors of MER on Ballard Avenue in '64 she kept the books on weekends. She always made certain the joint was clean and the bills got paid. After she retired she volunteered to help me at the office with payroll & employment taxes when our regular bookkeeper was on vacation. When I would walk by her office I could usually hear a lively conversation going on. It would often be Jody arguing with Jody. She didn't always require a second person for the debate.

Jody was a child of the depression era. Like Ivan, she was very frugal and sometimes called herself a "A selfish person." However, when doing her taxes, I found she quietly gave to over 30 charities every year. I never did convince her that QVC wasn't tax-deductible however.

Shortly before Ivan passed, we were in his basement talking about life and death, his wishes, his thoughts, regrets, & accomplishments. He was proud of his children and grandchildren. He had a healthy anticipation for the next chapter and no regrets on the last one. He told me he had no idea what lay behind the veiled curtain, but he would write me a letter. In the context of that conversation he told me "I'm worried about Jody." He knew his children would be OK because he had done everything he needed to for them, but he asked me to take care of Jody. At the time, I didn't know about her dementia or where it would lead, but he knew she was slipping and needed our help. We all need a little help from time to time. We're only here for a brief moment in the grand scheme of things. Being there for each other in time of need is something I've always admired about the fishing community.

Jody was a shining example of that character, integrity, and humanity. She was a great woman behind a great man. To quote a good friend who knew her well, "She was the one quietly getting the work done while the rest of us were making noise in the background." Jody taught me a few things, not the least of which: "To make time for each other, To show up, even if the drive is inconvenient, and to be kind to everyone you meet - because life is short and we all carry a heavy burden." Jody and Ivan are deeply missed but not forgotten.



Keep in touch

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