The MER Technical Support Blog is online, providing hard to find information for mariners, aiding our customers in keeping their equipment running safely and efficiently. We are especially strong on How-To resources. Some of our recent additions are:

- Electromagnetic Clutch Alignment
- Electrical troubleshooting with a Volt Meter
- Proper Engine Mount installation

The Blog is also loaded with as many high resolution images as we can fit, as a picture always does a better job of explaining than we do!

Check out our blog at: www.merequipment.com/blog/

Alaska Northern Outfitters: Sea Quest Repowers

The M/V Sea Quest 46 foot by 18 foot aluminum catamaran

Built for Alaska Northern Outfitters (ANO) of Seward, Alaska, the Sea Quest was designed for their wildlife tour and charter fishing business. She has become the fishing platform of choice for serious halibut and salmon fishermen from around the world. In 2010 ANO decided to repower for maximum performance and fuel efficiency.

Repowering is an art form. Optimizing vessel performance requires marrying the proper engine, gear and prop combination to the vessel’s hull. MER carefully considered all of these factors, and worked with ANO to meet all of their performance requirements, while allowing them to keep their existing gears and exhaust.

“We have been extremely pleased with the new 6125 John Deere engines that MER sold us in 2010,” reports Jeremiah Campbell, ANO’s manager and part owner. “We now have a regular cruising speed of 22 knots at 1,750 rpm, well within the continuous duty rating for these engines. We can drop down to 1,600 rpm to save fuel and still make 19 knots. MER provided exceptional support in preparing the engines, during installation, sea trial and with any questions we’ve had since. Our charter fishing season is only 90 days long, and every single day counts. We have not missed a single day with the new engines. We would strongly recommend MER and John Deere engines to other Alaska charter fishing operators.”

For more on the Sea Quest, go to: www.AlaskaNorthernOutfitters.com.

Vessel Stats:

- Vessel: M/V Sea Quest: Twin Engine, 46 foot by 18 foot aluminum catamaran
- Weight: 38,000# 55,000# loaded.
- Screws: 2” shafts w/ 27x26 4-blade propellers
- Yard: Armstrong Marine, Port Angeles

- Old Engines:
  - Twin 580 hp Cummins QSM-11
  - Heat Exchanged
  - Max RPM: 2300.
  - Gears: V Drive 2F 325 IV
  - Ratio: 1.5:1
  - Housing: SAE #1x14

- New Engines:
  - Twin 526 hp John Deere 6125
  - Heat exchanged
  - Max RPM: 2100
  - Gears: Existing
LED lights were introduced as a practical electrical component in 1962. The 50 years since have seen many refinements and innovations to arrive at today’s energy efficient, work-ready lights. The brands today run the spectrum of cheap, check-out isle flashlights, to four digit stadium lights used in professional sporting arenas. They are becoming increasingly popular in the demanding marine market because of their simplicity, durability, and most importantly, their cost savings through energy efficiency.

Here is the math: A working vessel can expect to pay $100 per kWh to make electricity, at today’s fuel price. A typical vessel lighting load is around 4.5 kWh. Running lights 12 hours a day, a boat will burn through 54 kWh. At $50 per kWh, that pencils out to $27.00 per day just for light.

Boats today look like a Radioshack with the amount of electronics they carry. All this stuff looks incredibly complicated, and most of us have no idea how a lot of it works, but you can figure out how to fix almost all of it. All it takes is a basic understanding of electricity, a multimeter, and some knowledge of how to use it. A good multimeter is the most effective tool you can have in your tool bag for tracing electrical equipment failure back to its source.

Depending on brand and price, multimeters, also known as volt-ohm-milliammeters, have a host of available functions that range in usefulness aboard ship. There are three levels of ability a good multimeter should have to qualify for a spot in your tool box:

- DC and AC volt reading ability: Simply stated, “Is it hot?” The number one most important thing you need to know when working with anything electrical is if it’s live. There’s not much point in fixing something if you’re too dead to use it. Voltage doesn’t have to be extreme to kill. 120VAC kills more people every year than all other voltage levels combined. Beyond self preservation, it’s very useful to determine if an electrical component has the voltage it’s supposed to. If it doesn’t it’s time to find out why. That’s where resistance testing comes into play.

- Resistance testing: One of the number one failures is in electrical connections, whether at splices, or terminal connections. Put another way, does the juice have a clear path to travel? If nothing appears to be broken…

  …This article is way too long for the available space. For the full list of essential features, as well as diagnostic tips and tricks, including wire harness trouble shooting, please read the whole article on our blog www.merequipment.com/blog/multimeter

Oil Analysis, Your Canary In The Coal Mine

One of the most frequent questions I am asked is, “What can I do to prolong the life of my engine and transmission?” The answer is simple, regular oil analysis.

From a customer stand point I have to ask the question, “What does an added $20 expense save me?” The answer is your equipment. Regular oil analysis acts as your canary in the coal mine by providing vital information about the operating condition of your equipment:

- Lubricant Condition: This is a measurement of the lubricity of the oil and the remaining quality of the additives. If, at the recommended oil change interval, readings show your oil’s going strong, it may be possible to extend intervals.

- Contamination: The leading cause of equipment wear is from lubricant contamination from dirt, moisture, or process contamination. Monitoring these levels will tell you if your engine has adequate air filtration, and if preventative action is needed to maintain equipment longevity.

- Machine Wear: If you’ve ever looked for metal on your oil pan plug magnet, that’s what this does, with a microscope. A spectro-chemical analysis measures, in parts per million, the levels of wear components and different metals in the oil. This is everything from molybdenum to tin. The first sample sets the baseline against which future samples are compared.

Example: a report comes back showing a spike in aluminum content. Where did it come from? Is this a piston break down? If the report indicates glycol in the oil, then we better take care of that head gasket leak, the pin hole in the water pump backing plate, or the oil cooler.

The analysis caught it though and now the bill to replace it is covered. How hard is it to sample your oil? It’s a simple first step to an oil change. Warm up the engine as you would, then stick the plastic hose in the squeeze bottle. Slide the hose into the dipstick tube until it’s about half way down in the pan. Squeeze the bottle flat and let the vacuum do the rest. Cap the bottle and, when you’ve finished the oil change, mail it back in the included box. We’ll have results in two to four weeks to begin helping track your engine’s vital statistics.

Regular oil analysis will increase the lifespan of your equipment, and provides the peace of mind of knowing it’s in good health, all for less than the cost of an oil filter.

Purchasing LEDs for your vessel will net you a 1,875% return on your investment.

A Vessel using 4.5 kWh can expect to pay about $4800 to retrofit with LEDs. Doing so will conservatively cut the lighting load by 80%. $27 per day becomes $5.40. A vessel working 180 days out of the year will save $3,988. That will pay for the trip to Hawaii when the season is done.

The warranty on our lights is 50,000 hours. At 12 hours a day, 180 days a year, the warranty expires in a little over 23 years. At $3,988 in savings per year, that’s $90,000 all today’s fuel prices, or a 1,875% return on your investment.

Instant on, instant off, zero warm up time, unaffected by vibration, and dimmable. No 5 minute shut down when equipment kicks on, no filaments to deteriorate from cycling, or breakage from vibration. LED’s are here, and ready for working vessels.

MER Service Training

The MER service department continues to conduct marine engine and power generation training. Feedback from students is very positive, and has led to an expanding list of classes:

- Beginning the December MER is adding Marine Power Generation to the list.
- Classes cover topics that help reduce maintenance costs and improve vessel safety.
- They are geared toward beginners, DIY’ers, and professional maintenance staff. To ensure participants receive maximum benefit from the class, they are tailored to the skill level of the students and focus on the engines they are using.

Testimonials

F/V Windward:

Kodiak fisherman K.J. Herman recently repowered and refitted his Bristol Bay boat. MER repowered the engines and made the modifications to make them work for the Windward. K.J. says, “MER did what they said they would, and followed through after the sale. Changing from V8s to inline engines greatly increased space in the engine room, making maintenance far more convenient. With the first season under my belt, I would definitely choose MER again.”

Marson Construction Co.:

“Marson Construction Co appreciates the professional Engine and Generator Packages assembled by the friendly crew at MER Equipment. We especially thank Dave Walker, Sales Manager for the creative John Deere Industrial and Marine Power Plants, delivered on time and onprice!”

We expect MER and Dave to continue to be a resource for Marson’s future auxiliary equipment needs.”

— Don Brunson

MER’s focus, as always, is effective, rugged, and long lasting equipment to meet the demand of today’s work boat. On display this year:

- New line of Ultra Efficient, Motor Starting Generators, engineered with the demanding loads of RSW and pumping systems in mind. They are mass-loaded for longevity, vibration dampening, and sound attenuation.

- The new additions to the John Deere Line Up:
  - 6568AFM & SFM 150 kW prime; 330 hp
  - 6590AFM & SFM 250 kW prime; 425 hp
  - 6135AFM & SFM 380 kW prime; 750 hp

- Sound Enclosures: A cost-conscious alternative to available sound enclosures. MER has developed our own line for marine and industrial applications.

- Marine LED Lighting. If High Pressure Sodiums were an iPad, durable and simple to operate, our lights come with a 50,000 hour warranty and will save tens of thousands of dollars in fuel over their life time.

Come talk shop with us at booth 1321.
From The Founder

Slim the Fireman, Part II

In part I, the boiler had gone down, leaving the cannery scrambling to find a way to process the pack...

...We fired up the stand-by boiler and slowed up canning to our ability to cook. I called Wayne Axelson, manager at Alltak, and arranged to have the fish on the Logger canned at his plant.

After the boiler cooled off, we looked inside and found six tubes leaking from the crown sheet. The boiler had run out of water, warping the tubes. That spring, our fireman had changed the gaskets in the water level sight glass to stop a leak. When he crammed in several washers, they blocked the tube, keeping it from equalizing. It held water, showing the boiler was full, when it had in fact gone empty, overheating the boiler.

I flew to Kodiak, where there was a semi-retired boilerman. He agreed to bring his beading equipment to Uganik to replace the leaking tubes. We had 15 spares, and got another 18 out of Port Bailey. That night, after the boiler cooled, we replaced the leaking tubes.

The next day we crossed our fingers, and fired her up. Meanwhile I called Slim to see if he would come up, as our fireman had quit in the night. Slim was on the dock in two days. The machinist crew was glad to see him.

After the first day’s canning we found 3 or 4 more leaks. By then, the boilerman from town was beat and headed for town. He left his tools, and our beach boss, Boyd “Buck” Roberts took over.

After the second night of swapping tubes, the boiler worked, but leaked again as soon as it cooled off. We’d rushed more tubes from Anchorage, so again we went through the routine, and continued to, for the rest of the season.

By August 14th we’d put up 80,000 cases and it was time to call it quits. Slim had been run ragged by weeks of sleepless nights keeping the boiler working. While he and the gang celebrated the season’s end, he took sick. Weather had grounded all the planes. The machinist Crew carried him on a stretcher down to the Deep Sea, a tender, to get him to town. Slim died on board, still tied to the dock.

Everyone felt miserable. We had to break the news to his wife, waiting at home for Slim to go to Sweden. This was a terrible time for all of us; something I live with to this day.

Keep In Touch

For more content on useful technical information, visit our website, or the MER blog. You can register to receive our monthly e-letter or visit links to product promos, new articles, and equipment training schedules.