



# FISHERMEN'S NEWS

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## THE TOOLBOX

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## Green Tuna Boat

I recently had the pleasure of meeting Bill Maidhof, owner of the *F/V Golden Eagle*. Bill's boat is an interesting departure from most tuna boats found up and down the west coast. The Golden Eagle is a 53-foot long two-masted motor-sailer. The boat could be seen during July and the first part of August at Fishermen's Terminal in Seattle undergoing modifications. Bill recently purchased the boat to fish tuna off the Washington and Oregon coasts, and fish the South Pacific.

Bill has fished most of his life out of California ports. When the State of California established a myriad of new rules for fishermen, including GPS monitoring 24/7 by the State, Bill figured he'd had enough of the bureaucracy and sold his boat and California permits. Long live the free spirits.

Bill's boat was built by Ernie Rasmussen in Port Townsend in 1977. About twenty boats of this design were built at that time, using thicker layers of fiberglass than is generally found on newer boats. The main engine is a venerable Detroit Diesel 471, with a newly installed 8-kW Mitsubishi powered generator set for auxiliary power. A 3:1 Twin Disc gearbox turns a massive 40 inch wheel. According to Bill, "There's a distinct chop from the prop when underway. I'm pleased with the performance as the boat travels at 8 knots at idle."

The boat carries 1,800 gallons of fuel, and 700 gallons of water. Plans are being considered for adding a watermaker to the boat, making it possible to carry another 500 gallons of fuel in lieu of water.

Nine fish holds on the boat have a capacity of 15 tons, and a new refrigeration system manufactured by Integrated Marine Systems of Port Townsend is being installed. Powered by an Isuzu 3CB Diesel Engine, the system incorporates a new state-of-the-art direct drive refrigeration compressor that can chill the holds to -40° F within 24 hours.

New to sailing, Bill figures he'll learn with time. "I've been told never to raise the sails when the wind is over twenty knots," said Bill. "With decent weather, sails will allow us to travel using a minimum of fuel. At three dollars a gallon, the wind is cheaper."

### Dry It Out!

Several times a year, I'll get a frantic phone call from a fisherman with a shorted-out generator set, right in the middle of their fishing season. Typically, I hear, "We started the generator set, switched on the load, and it just started smoking." When

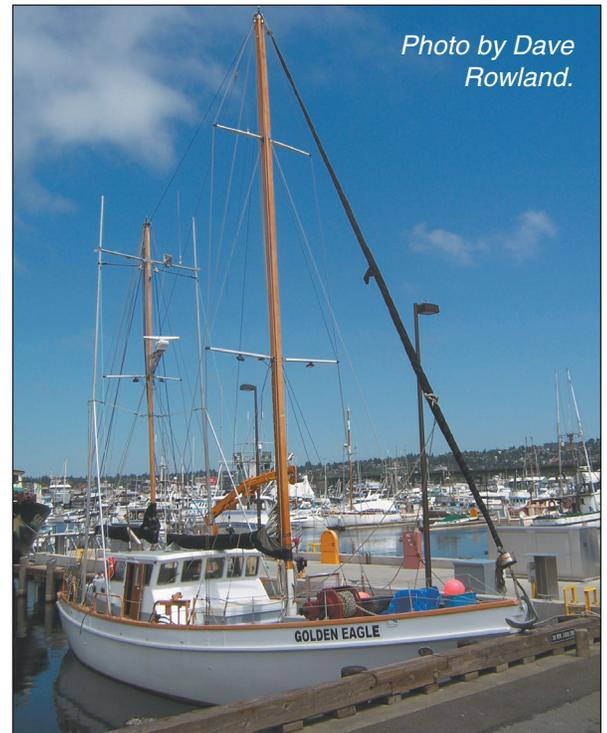


Photo by Dave Rowland.

possible, we try to autopsy the generator, and most often moisture is found as the cause of creating a short circuit.

Moisture is a given hazard in the marine environment. Generator sets will create heat in the electric windings when generating electricity. When a warm piece of machinery is shut down, moisture can collect in the windings during the cooling process. Excessive moisture can cause a short circuit in a generator. Once a short circuit has taken place, windings are usually damaged on the rotor or stator. Having the generator winding rewind with fresh insulation can keep a generator set out of service for a lengthy period. Replacing the generator end is usually quicker, and sometimes not much more expensive than a generator rewind.

Replacing the generator is general-

ly simple. When ordering the new generator, care must be taken to order the new generator with the proper adapters for the drive engine. Generator ends are driven by a drive plate that is fastened to the flywheel of the engine. The generator body must have a properly sized adapter to bolt up to the engine flywheel housing. Consult the provider of the generator end to assure the proper adapters are installed on the generator.

Newer generator models may have different mounting feet than those found on older out-of-date models. This may require modification of the generator set skid base. It's also a good idea to replace old vibration isolation mounts, if so equipped, when replacing a generator end. Make sure the vibration mounts are matched for both the engine and generator.

If ordering a direct replacement, make sure the vendor understands exactly what you are replacing, the operating voltage of the generator, and whether the generator is three-phase or single-phase. Most generators have twelve leads coming from the windings. On this type generator, the leads can be connected in different arrangements to provide single-phase or three-phase power at different voltages. Some generator sets, however, have dedicated windings, meaning they

cannot be changed from one type power to the other. It's best if the windings are wired for your operating voltage by the vendor prior to shipment.

After the new generator is successfully installed onto the engine, the generator set voltage must be checked before connecting the generator set to any load. Self-regulated generator sets will generate voltage according to engine speed. If the engine speed is set correctly for the self-regulated generator, the generated voltage should be a few volts higher than the required voltage at full load. Generator sets with automatic voltage regulators will generally require adjustment to dial in the voltage. Once an automatic voltage regulator has been set, it should not be necessary to make any further adjustments in the future. After the voltage and Hertz (frequency) have been checked and meet standards, the generator set can be connected to the onboard load.

Preventing moisture-related short circuits can be done a couple of ways. First would be to start the generator set with the load disconnected, or main breaker disconnected. Run the generator set for about five minutes. This allows the generator cooling fan to blow out the moisture and dry the windings. This will minimize the chance of a short circuit. Larger generators can be ordered with a

built-in heater. Actuating the heater prior to operation will also dry out the windings.

## Wow!

A couple of years ago, I used a crane at a port up north that gave everyone present heart failure. Apparently a tooth was missing on the electrical-mechanical machine. While lowering a generator set to the deck of a boat twenty feet below the dock, the missing tooth caused the thousand pound machine to suddenly drop about five feet before it could be stopped. One can only imagine what would have happened if it had hit the deck in the drop.

This last month, I had the opportunity to use one of the new dock cranes on one of the new docks at Fishermen's Terminal in Seattle. What a wonderful piece of machinery! I've never operated a crane that was so responsive. The cranes are hydraulic, with electric motors providing power. Control levers are well-marked and simple to use. The cost of using the cranes is also very reasonable.

I understand the Port came under criticism for the costs of the new cranes, which can be found on three of the docks. The money was worth it. Fishermen who have used the cranes have been pleased with the safety and ease of use. 🐟