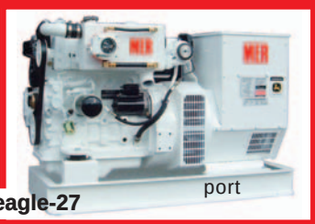
Smooth Operator

GENSETS—A New Breed

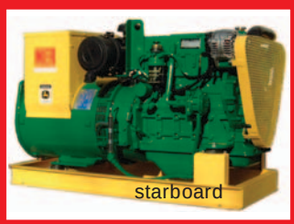
Introducing the New MER-made

SAVAGE BEAGLE Generator Series

The Beagle Molly
dog not to scale



The Beagle-27



The Beagle-45
January '06: First Beagle out the door, still wearing JD's green-&-yellow standard.

a smooth, quiet ride that saves on fuel

"We called it the Beagle because it's easy to live with, and Savage because it's tough."
Bob Allen, MER President, owner of Molly

Anyone who's ever heard the mind-numbing throb of a boat's diesel engine will want to hear this: The new MER-made line of fuel-efficient electronic marine generators is so smooth and so quiet, you can't even hear it saving money. Powered by John Deere's new PowerTech Turbocharged 2.4-Liter and 3.0-Liter diesel engines from the 250 Series engine family, MER is the first to offer the JD 250s specifically designed for the marine industry.

MER-made Savage Beagles are available from 20-kW to 45-kW continuous output, filling a niche in horsepower range we didn't have in a Deere. The many advantages and design features of the JD engine help make the Beagle a leader of the pack: well-bred, well-tempered, low maintenance, fewer trips to the vet.

The Beagles' fuel efficiency saves on operating costs while the exceptionally smooth, remarkably quiet operation saves on operator wear & tear.

Advanced electronic speed-governing achieves the lowest possible fuel consumption and virtually zero droop in engine speed from no load to full load. An innovative fuel system basically eliminates injection noise with all-internal fuel injection pumps, injectors, and fuel lines.

The Beagle Series also features hydraulic valve lifters–reducing maintenance costs–and dynamic anti-vibration for smooth, quiet operation. Clean and compact, the engine has a narrow profile for tight fits and installation ease. Beagles have cold-weather starting aids and 40% fewer moving parts for better reliability, easier service, and significantly lower operating costs.

John Deere started building the engine in '98 and had 25,000 working in the field by '05 with the lowest failure incidence of any of their engines. And Deeres are known for reliability.

"It's one of the smoothest-running engines I've been around," says MER General Manager Mike Hoyt. "Surprisingly so." And Mike has been around a lot of engines.

"People are going to like them," he says. "They all like it smooth, especially in hotel sets. They're not disruptive with the main engine off." The Beagle brings to bear applications for gensets, hydraulic-power units, and propulsion.

In addition to a quiet ride, the environmentally friendly SAVAGE BEAGLE gensets meet all EPA Tier 2 emission standards with potential for Tier 3. Smooth, clean, and quiet, Beagles suit commercial and pleasure-craft applications alike with optional single-phase output.

Of the many benefits a Beagle has to offer, the one you might appreciate most–day in and day out–is the reduced noise. As you may well know, noise can be extremely fatiguing, stressful, irritating ... and contribute to hearing loss. What?

Backed by science, sound-comparison data show the John Deere 2.4L/3.0L with lower decibels against a field of engines in this horsepower–as much as 8 decibels lower. And 8 dB(A) is 90% quieter. 90%!

We encourage you to come by the shop and listen to a Beagle for yourself. In an irony of nature noise can sometimes sound the loudest only after it stops, when you suddenly hear so much ... quiet.

MER-made diesel Marine Generators MG-20, MG-24, MG-27 built with the 4-cyl. John Deere 4024TF-270 diesel engine; MG-35, MG-40, MG-45 with the 5-cyl. JD 5030TF-270.

Maintenance Matters

HOSES—Spring Cooling

Check all hoses and look for balloons or bubbles in pressure lines. Suction lines can also fail from the inside out—they look great on the outside but start to go flat and collapse.

A collapsed hose restricts the flow of coolant and the engine overheats—*the most common source of engine failure.*

Easy to prevent: look carefully at your cooling hoses and squeeze them to see if they retain their shape and set. If using biodiesel additives—which can be hard on some rubbers—look harder. Life of a cooling hose is about 5 years, losing resiliency with age. Sorta' like people.

While you're there remember to check your antifreeze & Supplemental Coolant Additives. Quick recap of SCAs & coolant *(from Vol. 4)*:

SCA gets used up instead of the cylinder wall it protects–***it's very important to replenish & keep SCAs at specific levels***. Too little, engine self-destructs with cavitation; too much, coating clogs passages & you get deposits on internal seals.

Use SCAs only with green coolant found in many pre-'02 engines. Advanced chemistry of yellow extended-life coolant in newer engines depletes more slowly. Don't mix the 2 or it cancels out long-life protection. Long life? about 5 years.

Keep cooling system clean. Periodic flushing with clean water & flushing agents scrubs system, gives a fresh start. Use distilled water only unless an emergency.

Test coolant often and replace regularly. Need to use test strips, not hydrometer. Warm the engine, dip the strip, compare to chart. Check for leaks. Look at cooling system daily.

Nutshell: Always check operator's manual for engine specifics–and ask us about coolant ratios, filters, matching SCAs & correct antifreeze for your system.

AN EFFICIENT COOLING SYSTEM EXTENDS ENGINE LIFE.

RUNNING LIGHT: I have a degree in Liberal Arts; do you want fries with that? Ham & eggs. A day's work for a chicken, a lifetime commitment for the pig.

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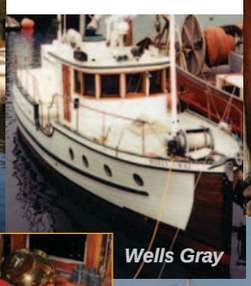
MER's Maids & Men

Meet the MER Crew–David Walker, Sales Manager

David Walker came onboard last fall to join MER as our new Sales Manager, bringing with him not only an accomplished career history in both sales and equipment, but a lifelong love of boats as well.

Raised above the Seattle Yacht Club, Dave's been a self-described water dog all his life, where a family outing for the 9 kids was his dad renting a little row boat for a couple dollars telling them all to "come home when you're hungry." The boats got bigger but he's still out there: experienced yachtsman, licensed captain, member and past president of the Puget Sound Maritime Historical Society, and Staff Commodore of the National Classic Yacht Owners Association out of Long Beach, Cal.

Argonaut II


Wells Gray

Dave and his fleet.

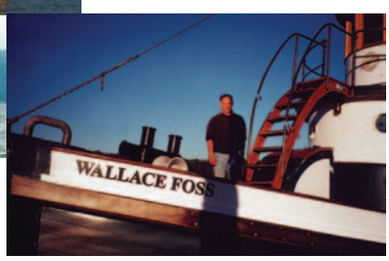
For a day job, in his early years Dave went to work for American Mail Lines as Traffic Manager in charge of freight moving in and out of the Port of Seattle. "Helps to know the system a little bit," he says, with MER shipping engines all over.

Venturing north Dave worked 10 years in the Arctic as Transportation Manager for the Government of Northwest Territories in Yellowknife, Canada, then as Superintendent of Field Operations for the Trans-Alaska Pipeline Service Co. out of Prudhoe Bay. As Project Manager he was also charged with dismantling and shipping millions worth of surplus equipment from the Alaska Pipeline and the intermediate DEWLINE sites (the US Distant Early Warning System) in remote northern Canada.

Returning to Seattle Dave worked 17 years in sales and marketing for the local John Deere Industrial Equipment Distributor, which also served the marine industry at that time. While there, he earned several marks of excellence including Salesman of the Year.

Dave's probably well-known in a lot of boating circles and maritime industries, but if you don't yet know the man perhaps you know his boats: *Argonaut II*, *Wells Gray*, *Wallace Foss*.

Wallace Foss



Detail insets: The *Argonaut II's* spotless engine room with her Gardner 6LX diesel *(far right, top)*, **the workbench** *(below)*, **& wheel.**

Throughout a 20-year hobby restoring boats more than a few classics have passed through his life, each always made the better for it. You can tell a lot about a man from his boats:

About 25 years ago Dave switched from fiberglass boats and went with wood. First a little troller then the 50-ft. *Wells Gray*, a fairly rundown old ranger boat from the Canadian Forest Service built as a corporate yacht in 1927. For 10 years he restored the classic bridge-deck motor boat, but with a growing family went to bigger boats.

Wallace Foss was Seattle's first Foss tug when brought into service in 1920 as the *Rouse*, but she'd already had a colorful past when built as the steam-driven tug *Oscar B* in 1897 during the Alaska Gold Rush. If bulwarks could talk. Dave owned this much-decorated classic for 8 years–winner of numerous Best, Oldest, and People's Choice awards–and you might have seen him running the tug races every year at the Seattle Maritime Festival.

Dave currently owns the well-appointed *Argonaut II*, built in 1922 of cedar, teak, and fir. This beauty exhibits the luxury and grace of a bygone era, replete with fireplace and c. 1930s pump organ. A corporate yacht of her day as the *Grete M*, she went on to work for the Powell River Timber Company before becoming a deacon's mission boat, hospital, and lifeline for Canada's upcoast communities as the *Thomas Crosby IV*, until sold into private ownership in the 1970s as the *Argonaut II*.

Dave loves boats, so if you need some good advice about yours, call him up or email at david@merequipment.com. We welcome Dave to the MER family.

Maintenance Matters

That Ounce-of-Prevention Thing

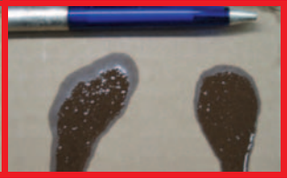
Grounds for Diagnosis

Check your engine's lube oil to see how things are going in there, and look for signs of trouble. Look for water contamination when pulling the dipstick to check your oil level or when you're draining the sump—water shows up as gray-white wisps. Or put some oil in a pan on a stove, oven, or a hotplate and take it up to about 250°. If it boils or sputters—you've got water.

It's usually from the cooling system, so check the block, oil cooler, cylinder heads, head gaskets, and valve covers for cracks or bad seals. Easier to repair a cracked oil cooler than replace an engine with seized pistons. Water often enters the crankcase through the exhaust system. Look there first for possible points of entry.

To check and see if your oil's working to keep your engine clean, drop a little oil onto a paper coffee filter. If it spreads in an even pattern the detergent properties should be stable. If the pattern is feathered or irregular then change oil more frequently. Drop another few oil drops on a brown paper bag and if there's any fuel in the oil it'll separate and you'll see it.

TEST YOUR OIL FOR ...



We put two oil samples on cardboard slanted at a 45° angle and took the photos 5 minutes later. On the left of both samples: lube oil with fuel contamination; on the right: staight engine lube oil.

The fuel in the oil penetrates cardboard faster than straight lube oil and leaves a larger border. *For comparison purposes the sample must be 100% lube oil.*

RUNNING LIGHT: Half of all Americans live within 50 miles of their birthplace. He who dies with the most toys is nonetheless dead. Being over the hill is much better than being under it. The gene pool could use a little chlorine. Consider a statue of a horse & rider: horse with both front legs in the air, rider died in battle. Horse has one front leg in the air, rider died from wounds received in battle. Horse has all 4 legs on the ground, that rider died of natural causes.

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Shooting Trouble

GENERATORS—FAILURE TO LAUNCH

Got No Juice?

How many times you hear a guy complain his generator was fine in the fall, come spring there's no voltage?

Why is that?

There are two likely culprits, moisture and dirt.Here are some reasons why .

Because generators are air-cooled they take in ambient air from the engine room and circulate it through the generator, picking up whatever's in the air along with it: dirt, grime, grease, oil, moisture, carbon, smoke. Compounded by dirt & oil from crankcase blowby, open ventilation filters, leaky engine seals. It all gets sucked in through the air intake to collect in the generator.

What's in your air?

Moisture, no doubt, from winter weather conditions: cold, damp, unheated, leaky decks, high humidity, condensation. All that dirty buildup acts like a sponge–holding more moisture–and forms a coating so the generator can't cool as well as it should. A generator runs hot anyway, but now it starts to run hotter. The more heat, the more electrical resistance, less efficiency. Result is higher fuel burn, hotter engine room, reduced life span of the generator.

Heat's a real killer, a good cause for premature failure. Might not happen catastrophically, but over time. The plastic coating that insulates copper windings is only rated for a certain temperature, and the longer it runs hot, shorter the life expectancy. Like a plastic cup in the microwave–works for awhile, starts to crack, falls apart, smoke and flames. If too much grime's on the rotor it can come in contact with the stator and grind the insulation off. Soon as the insulation's gone–smoke and flames soon follow.

The simple precaution to avoid moisture-related failure is to thoroughly dry the windings before starting up. After it shorts, that ship has pretty much sailed–maybe to the tune of a new generator, cost of getting the old one out, new one in, time and money wasted.

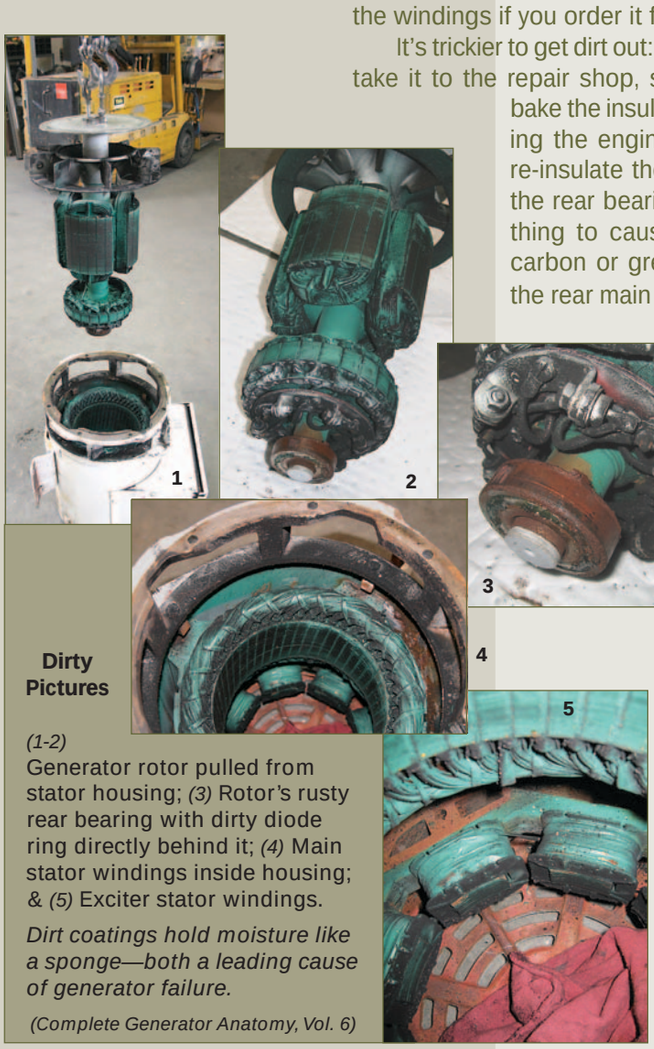
Before start-up, dry those windings. Put a heat lamp or heater in the engine room, use a blow dryer. If a generator's sitting out back get a heater out there and blow some heat on it til it's nice and dry.

Remember you're blowing heat against plastic–don't go over 180º F (80º C) at the intake. Some generators have a little electric heater embedded in the windings if you order it factory-installed.

It's trickier to get dirt out: Take the generator apart, take it to the repair shop, steam clean, re-insulate, bake the insulation on. If you're rebuilding the engine that's a good time to re-insulate the generator and replace the rear bearing. Or if you had something to cause excessive buildup of carbon or grease in the generator–if the rear main seal starts to go and the fan picks up oil and throws it everywhere–might want to do some preventive maintenance.

The rear bearing, by design, is lubricated for a 50,000-hour life. But life can be funny that way, and get cut short.

Recap: Try to keep clean air flowing across those windings. And dry them out before you pour on the juice.



Dirty Pictures

(1-2) Generator rotor pulled from stator housing; *(3)* Rotor's rusty rear bearing with dirty diode ring directly behind it; *(4)* Main stator windings inside housing; & *(5)* Exciter stator windings.

Dirt coatings hold moisture like a sponge—both a leading cause of generator failure.

(Complete Generator Anatomy, Vol. 6)

More Hot Tips:

SPACE HEATERS: The generator will gradually dry out with an electric heater plugged into a power source other than the generator. Speed it up by enclosing the unit with a covering and adding more heaters–leave a hole at the top to let the moisture out. Take care not to overheat various accessory equipment mounted with the generator.

FORCED AIR: Another way to dry the generator is to run the set with no excitation. Open the input power to the automatic voltage regulator. Remove the fuse or disconnect and insulate one of the regulator input power leads.

Source: MARATHON ELECTRIC generator maintenance manual

You can also cut open your oil filter cartridge and spread out the paper pleats to check for metal particles. If you find some, that could mean wear in the piston rings, bearings, distributor, or oil-pump. Have that oil tested.

These simple diagnostics just give a glimpse inside your engine. If you notice a problem, send an oil sample to a lab for testing. Regular oil analysis is a great predictor of wear-related problems. Not the catastrophic failures–the broken piston rods or broken valve stems–but a pretty thorough diagnostic checkup.

It can sure save you a pound of that cure.

Source: *Engine X-Ray*, by Jim Daly, Feb. '06 *Motorboating* magazine

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The MERmadeMechanic

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Beagle-45

Vol. 7 Spring 2006

SPRING START-UP ISSUE

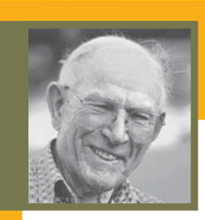
MER EQUIPMENT

The MERmadeMechanic

MARINE ENGINE & REPAIR quarterly

newsoy can use:

SAVAGE BEAGLES—Starting Up—New Crew—Generator Failure ... *& Ivan Fox*



From the Founder— Ivan Fox Remembers ... POWER SCOWS

Ivan's 54 years in the Alaska fishing industry saw equipment, technology, & vessels come & go. The original power scows from the war, built of wood hulls and houses, were expensive to maintain and the industry soon turned to building either steel or aluminum hulls. Built in a time gone by, the old wood power scows still serve as sturdy workhorses to the fleet.

Our first barge was the *Viekoda*, built in Seattle's Maritime Shipyard in 1941. It had a registered length of 71.7', 24' breadth, 5' depth, and two Superior diesel engines 100 hp each. It was underpowered and could do 7 knots with fair wind and tide. We used the *Viekoda* almost exclusively for brailing traps. I don't think it was the first power barge built but was one of the early ones. The Army took it over after the salmon season and used it for transporting freight about Alaska during WWII.

The Army quickly saw the advantage of this vessel. The flat bottom was shallow draft and easy to load and unload, and they started a program of building power scows. After the war the vessels became surplus and were quickly picked up by the Alaska fishing industry used as cannery tenders and tally scows in Bristol Bay, and for transporting supplies from Seattle to Alaska every spring.

San Juan Fishing & Packing Co. purchased the barge *Logger* fall of 1948 from a SE Alaska logging company, the length 105', breadth 31', & depth 10.5'. Built in '44 & surplussed by the Army it was powered with two D-1700 Caterpillars rated at 135 hp each. Stan Bailey kept a well-stocked storeroom on his vessel and was well-known throughout Cook Inlet & Kodiak, a real wheeler & dealer when it came to buying fish. To give you an idea of the strength of those barges, the planking was $3\frac{3}{4}$" net x $11\frac{3}{4}$" net x 14', caulking seams $\frac{3}{32}$" x 2".

San Juan purchased the 105-ft. *G.W. King* in 1960 built by Martinolich Shipyard in Oakland. It had a flat deck, no camber or sheer. The hull was one strake higher than the Maritime scows, which gave it more freeboard when loaded. The captain, Jim Markey, was a close friend of Stan's and a competitor. He was a hustler and just as ingenious.

Both power scows were equipped with RSW systems around 1960, three tanks on deck forward, and two wing tanks aft that we kept full of chilled sea water to trim the vessel. Each had 8,000 cu. ft. of holding space. If they came in loaded, you would have enough salmon on each vessel to can 5,000 cases of 48/1# talls.