

Charger Rejuvenates Drained Batteries

Living off battery power is simpler with the patent-pending portable charger invented by Rafael Ruiz. Powered by gas or biodiesel, the charger runs for a couple of hours to charge a large bank of lead acid batteries that can run a household for a week.

The design came out of need 10 years ago when Ruiz was using solar panels and wind turbines to generate power for his Poteet, Texas, home. A big storm hit and caused a lot of damage, cutting off his power. Insurance covered the roof, but not the solar panels or turbines. Needing to find a way to restore power, he applied his experience building alternators for wind turbines. He rigged up a setup with a generator, alternator and geared up old drill press and fully charged his batteries.

"From there I decided to make it convenient and use a biodiesel engine," Ruiz says. He filters used cooking oil from a local restaurant, uses a trap to remove water, and blends 1 gal. of diesel per 4 gal. of cleaned oil to fuel the 1-cyl. diesel engine battery re-

juvenator charger.

Ruiz charges 10 Trojan T105 batteries (common in electric golf carts) in two to three hours with about a gallon of fuel. His system is designed for auto, truck, marine and deep cycle lead acid batteries. He's used the same batteries for 11 years.

"We've used this charger to rejuvenate batteries that people were going to throw out," he says.

The charger meets California safety and EPA regulations and is on a handy cart, making it compact and portable for independently-powered home, farms, cabins, marine, camping, hunting, RVs and any uses. It gained international attention last year, when it won a silver medallion at an invention show in Taipei, Taiwan.

"It's great for underdeveloped countries and off-grid in the U.S.," Ruiz says. His company is committed to educate the public on the benefits and simplicity of a greener lifestyle.

The gas model starts at \$1,600 and the



Portable charger can be used to charge a large bank of lead acid batteries.

biodiesel model at \$2,700. Electric start and recoil options are available.

"It's a quality product even for an emergency backup system," Ruiz says. "The small gas model is equal to 15 solar panels. And with this, you don't have to wait for sun or

wind."

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Applicator dispenses chemical around cylinder wall. It can also be squirted in through spark plug or nozzle openings.

Great Way To Free Seized Engines

By Keith Berglind

As a mechanic, I've learned to deal with rusted nuts and bolts and other simple rust problems by using penetrating oil, drills, grinders and torches.

But one situation often taxes the skills of most of us: a rust-seized piston in an engine. Engine rebuilders/restorers often encounter engines that have sat for years with water collecting in one or more cylinders. The piston rings and piston walls are locked to the cast iron cylinder wall.

Easy jobs may require only some penetrating oil, then a block of wood driven by a large hammer. But all too often this means the piston is destroyed and the cylinder wall cracks from the wedging action of the rust jammed between the piston and the wall.

Back when pistons were cheap and easy to locate, I preferred to chisel the piston to pieces and do everything to protect the cylinder wall. But diesel pistons are usually expensive, and some old model engine parts are getting scarce. So, I'm always looking for a better way to loosen-up a rust-seized engine.

This past spring a supplier suggested I try a product called Engine Release. He sent enough technical information to attract my attention so I ordered enough to do a 6-cylinder engine. It turns out one kit is required for each cylinder, so I ended up with 6 small kits. Each kit consists of an 8-oz. can of Engine Release, a small applicator bottle, and a dispenser hose.

The proper application is to put 2 oz. into the small bottle and squirt it into the cylinder through the spark plug or nozzle hole. Then

repeat this step every two days until the entire chemical is gone. From my experience, after all the chemical has soaked in, the piston rings will break free of the cylinder wall and the piston will move.

The first engine I tried it on was a well-rusted block from a Ford 6000 tractor. This block was stripped except for the one piston and rod that a mechanic friend had been unable to drive out with a hammer six years ago. It had lain on its side outside since the last attempt.

After the second 2-oz. application of the chemical, the piston moved after a sharp blow with a hammer and block of wood. We were impressed by the underside view of how the chemical soaked down into the lower skirt area.

The instructions claim that it is possible to treat a seized engine, and then as soon as it is free to turn, the engine can be started. As the engine runs it will purge out the rust and chemical, leaving you with a usable engine.

I don't doubt that this may work for some jobs, and it's worth the try in order to save dismantling. I think this is a good time to add some upper-cylinder lubrication into the gas, to help lubricate the ring grooves.

I got my kits from www.engine-release.com (ph 514 636-1423). The cost is \$19.95 a kit plus \$4.95 S&H. Delivery is by mail, usually in 10 to 14 days.

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He Built His Own Drywall Jack

Putting up drywall is now an easier job for Frank Dyck, who built his own drywall jack.

"It's a real time saver," says Dyck, of La Crete, Alberta. "I came up with the idea because I was finishing a basement and had to put up the 8-ft. high ceiling by myself."

The jack rides on four small caster wheels and consists of an adjustable length of thin wall, 1 1/4-in. sq. tubing that fits over a 48-in. length of 1 1/2-in. sq. tubing. The outside tube has a roller chain welded along its length to match the teeth on a sprocket that's operated by a hand crank. The crank and sprocket are mounted on another 48-in. length of 1 1/2-in. sq. tubing welded to the base about 3 in. beside the other one.

"It's especially useful on 12-ft. long sheets which are almost impossible for one man to put up," says Dyck. "My total cost was less than \$100. Comparable commercial jacks sell for \$500 or more."

The angle iron frame on top measures 42 by 42 in. so I can lift a half sheet.

A sprocket is welded onto a 3/4-in. dia. shaft, which drives a bigger double chain sprocket. The shaft at the top of the double chain sprocket supports another sprocket that engages a length of roller chain that's welded onto the sq. tubing. He welded a saw blade to one end of the shaft. The blade's teeth engage in a pawl to hold the load in position and serve as a brake.

"The top H-frame is attached to the sliding post with a heavy hinge so when I approach the lift with a sheet, it's already tilted toward me," says Dyck. "I made a stopper



"It lets me do ceilings and walls by myself, taking my time to do the job right," says Dyck about his home-built drywall jack.

on it so it can only tilt about 45 degrees. I step on the nearest base end so it stays, lay the sheet on it, and tilt it level. Then I wheel the load into position, crank it up, and lock the pawl in place. It has a maximum lift of 98 to 99 inches."

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Super Charge Older Tractors With 12-Volt Conversion

Ronald Hodsdon's 1956 Deere 420 tractor used to be a bear when it came to cold weather. All it wanted to do was hibernate. Now he hits the starter for half a turn, and it's off and running, no matter how cold it is.

"I changed it from a 6-volt system to a 12-volt, but I kept the old 6-volt starter," says Hodsdon.

The change was easy. He bought a new 12-volt battery and pulled an internal resistor coil and an alternator out of a couple of old Volkswagens.

"The alternator fit the original generator mount with minor changes," says Hodsdon.

"I installed a flexible cowl over it to keep it dry."

The larger battery was more of a problem. Hodsdon fabricated a battery box out of angle iron and sheet metal and hung it on the right side of the bell housing. The old battery space became tool storage.

Hodsdon made the change 30 years ago and says he has had to overhaul the old starter a few times over the years. "But that's a small price to pay for the quick starts," he notes.

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