

Build A \$50,000 Biodiesel Plant For \$5,000

In more than 20 years as an industrial engineer, Paul Oliver says he never used plastic in an industrial processing system. He wasn't going to start when he built his own biodiesel plant.

"I saw biodiesel processing systems on the market from \$20,000 to \$50,000, and they were made with a lot of plastic," he says. "I would have been laughed out of the industry if I had ever used plastic in my business."

A dedicated recycler, Oliver looked for low cost metal alternatives to the plastic tanks and other fixtures when he designed his biodiesel systems. For his 25 to 50-gal. per batch plant, he recommends salvaged steel drums. His 250 to 350-gal. per batch system uses 500-gal. propane tanks.

Oliver says some entrepreneurs buy his plans, build a unit and then sell it. He heard of one individual who was asking \$50,000 for a completed 250 to 350-gal. system. However, most customers for his larger system are farmers and small to medium-size construction companies. He says some customers make up to 5,000 gal. a week, while others make enough for the month in one batch.

Oliver sells detailed plans for both systems and provides technical phone support. "I am

on the phone all day long talking to people," says Oliver. "It's a chance to teach and share my experience and knowledge."

For buyers without access to discount pipe fitting parts, Oliver also offers a complete parts package as an option.

"If you're going to a pipe fitting supply store or even a Home Depot, my parts kit will probably save you 50 percent because of the quantity discounts I can get," he says. "It also saves you the cost of hunting down individual parts."

Plans are available online only (can be printed) or with both online and paper editions. Prices for the 25 to 50-gal. MM63 are \$99 (online only) and \$139 (online and paper versions). Parts kits are priced at \$559.

Plans for the larger MM500 are priced at \$750 for the online version and \$790 for online and paper editions. Parts kits are available for \$2,750.

The only things not included in the parts package are tanks (\$800 new; \$100 to \$300 used), structural steel for the legs, black iron pipe, junction boxes, switches, wire and conduit, and a 50-lb. or greater scale.

Both systems require basic welding, drilling, cutting, electrical and plumbing skills.



Paul Oliver sells detailed plans for two different biodiesel plants, as well as parts kits.

Oliver also sells plans for variable size pump-out tanks he calls "Super Suckers". These units are intended for use when picking up used vegetable oils at restaurants.

Oliver says his customers tell him building the biodiesel plant and making the fuel is the easy part. "Going out and collecting the

oil is the time consuming part," he adds.

Contact: FARM SHOW Followup, MurphysMachines.com, 11375 Faircrest Dr, Washington Township, Mich. 48094 (ph 586 995-0101; information@murphysmachines.com; www.murphysmachines.com).



Cart rides on bike wheels and can be pulled with a mountain bike.

Bike Cart "ATV" Helps Keep Him Healthy

John Hohmann, 67, has his own kind of ATV, one that gives him a bit of exercise as he works around his 217-acre Pataskala, Ohio, farm.

"I can trace this back to my grandfather, who made me a cart on bike wheels when I was a child. I just pulled it around," Hohmann says.

Twenty years ago, he built a cart that he can pull with a mountain bike.

"It rolls nicely behind. I used an adult tricycle I picked up at a sale. We cut it off at the fork, where the handlebars and steering wheel are, and welded an old steel pipe to go to the hitch," Hohmann explains. He welded a hitch receiver under the mountain bike seat.

He built the cart's box out of scrap wood. It's big enough to hold a couple rolls of baling twine or two 5-gal. buckets. In the winter, he unhitches the cart and pulls it right into the back porch with a load of firewood every day.

Use air-filled tires, Hohmann emphasizes, to make the cart roll easier. Having a mountain bike with gears also makes it easier to pedal on grass and gravel.



A steel pipe serves as hitch for the cart, which pivots easily on hitch pin.

With many chores - fencing, feeding animals and growing a large garden to sell produce - the cart is used regularly.

Instead of riding expensive gas-guzzling vehicles around the farm, Hohmann suggests bike carts make sense in many ways.

"You get a lot of exercise and the only fuel you need is a quart of water an hour for the rider," he notes.

Contact: FARM SHOW Followup, John Hohmann, 11015 Mill St. S.W., Pataskala, Ohio 43062 (ph 740 927-8268).



Work plate fits over forklift forks, allowing O.H. Rutledge to pick up an engine or other heavy object off the ground. Note how supports under plate are cut at an angle so it can slip plate under loads.

"Work Plate" Doubles As Bench

Frustrated with the limitations of working with loader forks and pallets around his farm shop, O.H. Rutledge came up with a unique answer. His loader work plate lets him pick up an engine or other heavy object off the ground. He can carry it to where it's needed and even use the plate like a work bench.

"We use it all the time, putting engines on it, taking them to the pressure wash and doing assembly work," says Rutledge.

He notes that it's often a pain to get a heavy item on a pallet in the first place. He wanted something that could wriggle under an object without heavy lifting.

"We took pieces of 4 by 8-in. square tubing and cut and welded them at an angle for sleeves to fit over the loader forks," he explains. "We wanted a taper that would let us get the edge flush with the concrete or ground."

The open top wedges were then welded to a 4 by 5-ft., 3/8-in. steel plate to fit the farm's 5-ft. wide forklift. A 5-ft. length of 1-in. angle iron was then welded to the rear of the top side of the plate. Short lengths of 1 1/4-in. pipe welded perpendicular to the angle iron serve as supports for a rear rack made from 1-in. pipe.

"We can set the lift plate down on a base and drive the forklift away, remove the rear rack and have 360° access to whatever object is on it," explains Rutledge.

A final step was to weld 5-ft. long, 3/4-in.



He can carry the work plate to wherever it's needed and even use it like a work bench.

round steel rod to the top surface of the steel plate. The ribbed surface makes it easier to load objects on and keep them on, says Rutledge.

Contact: FARM SHOW Followup, O.H. Rutledge, 3024 Rutledge, Crystal Springs, Miss. 39059 (ph 601 892-2131).

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