Portable Wood Chipper

After he got tired of paying a commercial garbage service to haul brush away from his place, Tad Schreiner, Prior Lake, Minn., finally decided to do something about it. He built his own portable wood chipper.

The 3-wheeled rig mounts on a frame made from 2-in. channel iron and has two chutes - one on top for leaves and brush and another on front that handles branches up to 3 in. in diameter. Power is provided by an 8 hp Kohler gas engine which belt-drives a home-built chipping hammer.

"I use my garden tractor to pull it around our yard. It really works slick," says Schreiner.

He started with a heavy duty squirrel cage fan housing. He built a steel cylinder fitted with four steel rods. Sixteen hammers that measure 1 1/4 by 3 in. bolt to the rods. The hammers are staggered to provide chopping action across the entire width of the cylinder. The hammer rods mount between two discs made from 1/4-in. thick steel plate. He cut two slots on one of the discs 180 degrees apart, then inserted 2 by 3-in. chunks cut out of an old car leaf spring and put a 30 degree bevel on them.

"It works fast. As soon as I put a 1-in. branch into the top chute it's instantly gone," says Schreiner.

"I use it every year when I trim trees in our yard and place the chips around our shrubs. I also use it to grind up all the plant material in our garden at the end of the growing season. The chopped-up material goes back into the garden. I made two interchangeable screens for the exit chutes. One has larger holes than the other. The smaller the holes, the longer the material stays inside the hammermill and the smaller the material gets shredded. If I'm chipping wet, green stuff from the garden, I use the screen that has bigger holes to keep the chute from plugging up."

The engine has a 4-in. dia. pulley on it and there's also a 4-in. pulley on the chopping cylinder which creates a 1:1 drive ratio. The cylinder and engine both rotate at 3,600 rpm's which is more than adequate, says Schreiner. An idler pulley is used to disengage the belt, allowing him to stop the chipper with the engine running.

"One big difference between my wood chipper and some commercial ones is that the drive belts on mine are outside the fan housing. When the belts are inside the fan housing, all the chips flying around can cause the belts to get warm and stretch out or break.

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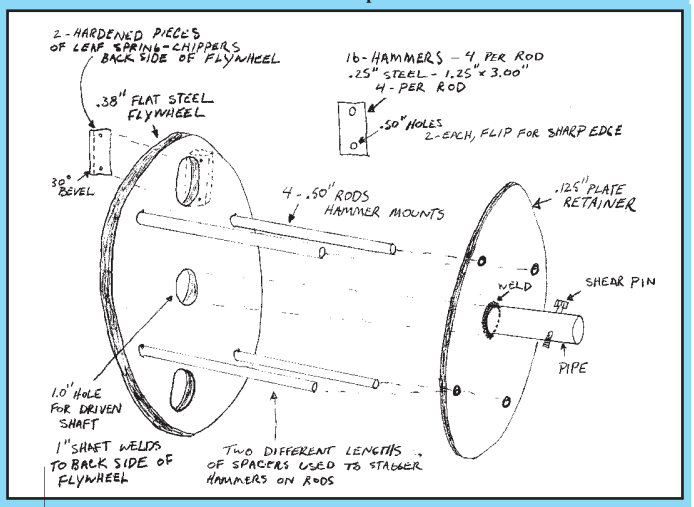
Tad Schreiner's portable wood chipper has two chutes - one on top for leaves and brush and another on front that handles branches up to 3 in. in diameter.



State-Of-The-Art Self-Propelled Sprayer

Several years ago, Brian and Tim Leverson, who farm with their father, Tom, converted an old truck into a self-propelled sprayer. They liked the way it worked but figured they could make something even better.

"Our first sprayer had a gasoline engine and no air conditioning. This time, we wanted a good air conditioner and a diesel engine with more power," says Brian.

After looking around, the Leversons bought a 1987 school bus for about $4,500. The bus had an IH 466 in-line 6-cylinder diesel engine and an Allison automatic transmission.

"We stripped off everything except the engine and radiator, the transmission and rear end," Brian says.

They shortened the driveline and moved the rear axle forward about 8 ft. and then cut about 12 ft. off the back of the bus frame.

"All my other equipment is John Deere, so I looked for a Deere combine cab to put on it," Leverson says. "Cabs from newer combines were too expensive and if I went with one off an older machine, it meant we'd have to redo the side where it fit over the combine engine."

Instead they found a junked New Holland TR96 combine with a good cab. "It had been sitting idle for several years, but was in good condition and had an air conditioner," he says.

"While we were taking off the cab, we took the combine's hydraulic reservoir and steering for our sprayer, too," he continues.

"All we had to do was hook the power steering lines from the steering wheel to the pump on the old bus engine," he says.

Up front, the Leversons used the wheels and spindles from the steering axle on a 9600 Deere combine. "We made an axle beam from steel tubing and mounted the spindles on that," he says. They also used the 14.9 x 26 tires from the 9600 combine.

They mounted 18.4 by 34 lugged tires on the bus' rear axle. "We had to put together wheels for it. The bus had dual wheels on the rear and we left those in place. Over them, we welded tractor rims that fit the tires and braced the rim with strips of flat steel to keep them from flexing," he explains.

With the larger tires on the rear end, they were concerned about having too much speed so they added an auxiliary 4-speed manual transmission between the automatic transmission and the driveline. "It's a manual transmission, but we never shift it. With the manual transmission in low gear, we can run about 50 mph on the road, so we don't need any more speed," he says. "Still, it has plenty of power when we're in the field."

The bus engine had extra pulleys, so adding a hydraulic pump to power the sprayer pump and lift the boom was no problem. "We did have to add a flow control valve in the hydraulic line, so we'd be able to use the hydraulic cylinders to raise the boom without losing pressure to the orbit motor that powers the sprayer pump," he says.

They selected a 20-gal. per minute hydraulic pump and then added an oil cooler in the line ahead of the reservoir to keep the oil from overheating.

"We made the steps and railings in our shop. We designed the hood and fenders, but had those bent for us on a brake by a metal fabricator from 14-gauge sheet metal," he says.

It has a 500-gal. tank and 80-ft. hydraulic-folded boom. "It's a commercial sprayer, built by a North Dakota company. We bought it without the trailer and fastened it onto the machine with four U-bolts."

They added a fuel tank next to the cab on the right side. On the left side near the access steps is a toolbox where they keep extra tips, spare parts and any tools that might be needed.

The sprayer is equipped with foam markers, but Leverson says they seldom use them. "We seed with a 40-ft. air drill. Since the boom is 80 ft., we're spraying two drill widths with each pass, and you can line it up by watching the gaps between the drill passes," he says.

They added an electric clutch on the hydraulic pump so it doesn't run all the time. This way, when they're ready to spray, they can just flip a switch in the cab to turn on the pump.

While the new unit has capacity to handle a larger spray tank, the Leversons chose to stay with the original 500-gal. tank. "We prefer not to have all that weight compacting the soil. As long as there's someone to haul water to the field, it doesn't slow us down too much to stop more often to fill up," he says.

Brian and Tim Leverson converted an old school bus into this state-of-the-art self-propelled sprayer. The cab is off a junked New Holland combine.

Leverson figures the new power unit cost about $10,000 to build, if they don't put a value on time in the shop.

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