

Home-built shears mount on back of an older 25 hp tractor. Houston uses the shears to cut up trashy wood around construction sites.



Retracting a hydraulic cylinder causes shears to slice cleanly through nearly anything, including nails.

## Tractor-Mounted Cutting Shears

John Houston built shears to cut up trashy wood around construction sites. The heavy steel jaws bite through pallet boards, nails and all.

"There's always a lot of wood left around worksites but it often has nails in it or is dirty, so I hate to use a chain saw," says Houston. "I was going to make a shears with straight blades, and then I found a set of curved steel pipe supports."

The heavy steel plates were predrilled for bolting to pipe flanges. Houston took them to a friend with a plasma cutter who put edges on them. He then used a grinder to smooth off the edges and sharpen them.

Houston bolted the two slabs together with

a 1 3/8-in. bolt through one of the predrilled holes. The bolt acts as a pivot point for the two jaws and is slotted with a grease zerk mounted for lubrication.

Houston mounted the bottom jaw on one end of a 4 by 6-in. length of rectangular tubing. He mounted the top jaw to a shorter length of 4 by 4-in. steel tubing and capped the ends of both.

"I mounted a hydraulic cylinder to the 4 by 6-in. base and attached the ram to the 4 by 4-in. top," says Houston.

The extended cylinder creates a throat of 4 to 5 in. Retracting the cylinder slices cleanly through nearly anything.

Houston mounted the shears to an older

1715 Ford New Holland, 25 hp tractor. He centered the shears on 1 1/4-in. steel pipe. Lower link lift pins were welded to the ends of the pipe. A bracket for the adjustable top link was welded to the lower shears jaw.

The most expensive part of the whole project was a wet hydraulics kit for the tractor. However, having hydraulics makes it possible to use other attachments, notes Houston.

"The kit cost about \$700, and hoses from the kit to the cylinder cost about \$30 each. The cylinder cost about \$80," he says. "Everything else was salvaged from construction sites."

To make sizing the pieces sheared easier, Houston attached two 16-in. long, 2 by 12

pieces of plank parallel to the shears. They are held in place by two stainless steel strips welded to the lower shears jaw.

"The tractor only produces about 6 1/2 gpm flow, so the shears runs slowly, but that's probably okay from a safety standpoint," says Houston. "At the tractor's rated 1,800 psi, I figure the shears have about 8,000 lbs. of force."

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## "Made It Myself" 6-Ft. Mower Blade

"I wanted to use my 1998 New Holland CM 274 4-WD riding mower to clear snow and grade my driveway, so I made a 6-ft. steel blade that mounts on front," says John Herren, Louisville, Ky.

The blade can be angled left or right by pulling a pair of pins and then manually moving the blade. The mower's original lift cylinders are used to raise and lower it.

"The company offers interchangeable attachments for the mower deck, including a blade, but it sells for \$1,500 to \$2,000. I used salvaged material so my cost was almost nothing," says Herren.

The 30 hp riding mower was originally equipped with a pair of mower deck mounting

arms that fit into a pair of 2-in. sq. sockets. Herren removed the arms and used 4-in. I-beams to make new ones, "turning them down" at the end to fit into the 2-in. sockets.

A 700-gal. water heater, salvaged from a commercial building, was used to make the blade. He cut a 12-in. wide by 6-ft. long section out of the tank. A 2-in. high steel plate welded on back of the blade provides reinforcement. He welded a semi circular flat metal plate on back of the blade that's used to change the angle of the blade. Four holes drilled into the semi circular plate match up with a pair of holes drilled into the mounting arms. The blade swivels on a 3/4-in. bolt that fits inside a pipe.



Home-built blade can be angled left or right by pulling a pair of pins and then manually moving blade.

"I can hydraulically raise and lower the blade using the mower's original lift arms. I welded a length of pipe between the mounting arms to help keep them rigid.

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## Heated Waste Oil Burns Better

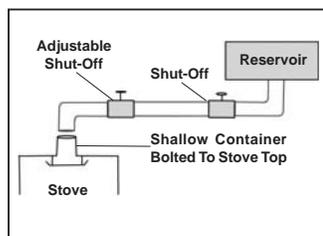
Gravity-fed and simple describes Bram Lohr's waste oil burner that heats the oil before burning it. The oil flow runs into a catch basin at the top of the furnace where it's heated before dripping over the side and into the flames.

"We had several years worth of waste oil from tractor oil changes, and my son wanted to heat the shop with it. There are many other ways to burn oil but this simple method works well," says Lohr.

He positioned a 30-gal. oil reservoir in a neighboring building. A gravity line runs through the walls to the burner. Valves below the reservoir and on the 1/2-in. fuel line act as safety valves and control the rate of flow into the burner.

"When the 1/2-in. line reaches the stove, it slips into a very short 3/4-in. pipe that extends out of the top of the stove," explains Lohr. "The oil coming through the 3/4-in. stub drips into a small steel container bolted to the top of the stove."

The 1/2-in. deep, 3/4-in. thick steel container fills with oil until it spills over and into the fire. In really cold weather, Lohr adds wood to the fire chamber so the oil drips onto it. This causes the wood to burn more slowly, but with greater heat. If no wood is present,



Oil flow runs into catch basin at top of stove, where it's heated before dripping over the side and into the flames.

the oil drips directly into the fire.

"The steel container gets hot enough once a fire has started to heat the oil for a complete burn," explains Lohr.

The outlet pipe extends up several inches from the bottom of the reservoir, allowing heavy sediments to settle out while cleaner oil runs into the line.

"We use about 20 liters (about 5 1/3 gal.) of oil a day," explains Lohr.

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## Reversed AC WD45 Tractor

"It's the best loader tractor I've ever used because of the maneuverability and up-front visibility," says Coyote Green, Burns, Kan., about his Allis Chalmers WD 45 tractor that was converted to run backward.

When Green bought the tractor it had already been converted. The tractor's front axle was replaced with the steering axle of an IH 915 combine. The tractor has 1,000 lbs. of wheel weights on back. The Farmhand F11 loader is equipped with a 7-ft. bucket and can lift 16 ft. high.

A hydraulic pump that mounts on the "old front" of the tractor operates the loader. A 3-spool control valve mounts on one side of the tractor. Two spools are used for the loader and the third one is an auxiliary located next to the bucket.

"I use it to haul gravel, dirt and hay bales on my hobby farm. I plan to build a 'crash cab' for it," says Green. "It has hydraulic steering. The steering wheel swivels so I can swing it off to the side and out of the way, which makes it easier to get on and off the tractor. The combine steering axle causes the back end to swing around pretty fast on turns, which takes some getting used to."

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Loader on reversed AC WD45 tractor can lift 16 ft. high.