

## Log Splitter Fitted With Press, Extra Hydraulic Outlets

Ross St. John and his son Kevin, recently built a wood splitter that doubles as a hydraulic press. It's fitted with a double spool valve that provides a pair of extra hydraulic outlets.

"The press and the hydraulic outlets let me do work and make repairs anywhere, without having to make a trip back home," says St. John.

The 2-wheeled machine is powered by an 8 hp Honda engine. It shaft-drives a high volume hydraulic pump that powers a 24-in. long splitting cylinder. A single control valve is used to extend or retract the wedge, which slides back and forth on a 7-in. steel beam. He made the V-shaped wedge out of two 3/8-in. thick steel plates, grinding the edges sharp and then welding them together. The stop is made from 1-in. thick metal.

"I've used the splitter to handle blocks up to 24 in. long. In fact, I haven't found a block yet that it couldn't split," says St. John.

The splitter's wheels and hubs are the donut spare tires off old cars. St. John welded spindles to the hubs and then welded the spindles to both sides of a big hydraulic reservoir, which serves as the axle.

The splitter is equipped with a 2-in.

receiver ball hitch on front, which is welded to a length of 2-in. sq. tubing that's welded to the bottom side of the I-beam. By removing a pair of cotter pins, a free-standing metal leg can be swung down and used to keep the splitter upright whenever it isn't hooked up.

St. John fitted the machine with a double spool valve and Pioneer couplings to provide the extra hydraulics. "The hydraulic outlets are surprisingly handy," says St. John. "I use them any time I need to operate hydraulic motors and pumps for various jobs. For example, let's say I want to move an implement between fields but don't have a tractor. I can pull the splitter behind my pickup to the field and use it there to raise the implement so I can hook it up to the pickup. I also use the extra outlets to operate a hydraulic-operated attachment that screws grain bin anchors down into the ground."

The press measures 18 in. high by 8 in. wide and is welded to the back end of the splitter. It's operated by a 3-in. dia. cylinder with a 6-in. stroke. The operator sets the object to be bent underneath the press on a metal bar.

"I use the press when I'm in the field mending fences and want to weld a horizontal



Ross St. John's home-built wood splitter is fitted with a hydraulic press (1) and a double spool valve (2) that provides a pair of extra hydraulic outlets.

pipe onto a vertical post. I can flatten the end of a length of oilfield pipe into an oval shape so it fits tightly onto the post for welding," says St. John.

He says he saved money and is happy with the way the splitter turned out. "I had most of the material that I used to build it. My only expense was the \$500 I paid for the hydraulic

pump. Comparable commercial splitters sell for \$1,500 to \$1,900 and don't have extra hydraulic outlets or a hydraulic press," he notes.

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## Riding Mower Converted To Heavy-Duty Splitter

"My friend Julius Larson and I built a heavy-duty log splitter out of an old Cub Cadet garden tractor and scrap materials. It's built heavy enough to handle logs up to 60 in. in dia.," says Jim Allen, Muskegon, Mich.

The splitter is powered by a late 1980's Cub Cadet 1610 garden tractor equipped with a twin cylinder, 16 hp engine. The engine shaft-drives a 28 gal./min. hydraulic pump that operates a 5-in. dia., 30-in. splitting cylinder. The log is split by a 24-in. high, 1-in. thick hard faced knife.

They cut the tractor in half behind the steering wheel and kept the engine, steering wheel, hood, headlights, muffler, and one of the front fenders, to which they mounted a toolbox. The tractor is fitted with welded-on brackets that bolt onto an 8-in. H-beam that's boxed in with 1/2-in. thick steel plate. The axle and springs from a mobile home trailer allow them to pull the splitter down the road without jarring everything apart.

With all the torque provided by the tractor, they had trouble with big logs snapping grade 8 bolts on the push plate. To solve the problem they used 1/2-in. plate to weld together a solid steel box that completely encloses the H-beam and keeps it from bending under pressure. The push plate slides along the top of the box and is partially boxed in on each side by a brass plate so that

it can't get twisted. The bottom side of the push plate extends down each side of the H-beam and goes underneath it, with a shaft running across from side to side so it can't lift up. An automatic oiler keeps the brass plate lubricated at all times.

"With most push plates you're running steel on steel, which causes friction and wear," says Jim. "The brass plate reduces friction and increases the power to the splitter. There's nothing to wear and now even the biggest logs just go right on through. If the brass plate ever wears out, we can simply unbolt the push plate and replace the brass plate with a new one.

"We've split about 100 cords since we redesigned the system, with very few problems. There's so much torque that when we split a really big heavy dry log we can actually see the H-beam bow in the middle and it will snap back when the log finally starts going on through. People in our area know this splitter can handle really big wood so local tree guys often dump off truck loads of big wood."

The Cub Cadet's battery and alternator were too small, so they replaced them with a 100-amp car battery and alternator. "Return oil from the hydraulic pump goes to a hydraulic motor that's used to belt-drive the alternator. As a result, any time return oil is



Cub Cadet's engine shaft-drives a hydraulic pump that operates the splitting cylinder. The Cub's battery and alternator were replaced with a 100-amp car battery and alternator. Return oil from the hydraulic pump goes to a hydraulic motor that belt-drives the alternator.

going back to the reservoir it's charging the battery. The battery has enough power that we can operate a winch or radio or even lights so we can work at night," says Jim.

The splitter is fitted with long hydraulic hoses and there's a reason for that. "If the Cub Cadet ever breaks down, we can disconnect the hoses to the hydraulic pump and hook them up to a pto-driven external hydraulic pump on a farm tractor," says Jim.

"Julius and I operate a total of 4 outdoor wood burning furnaces so we need a lot of wood. The garden tractor sits up high enough to keep fumes and noise from the engine out of the operator's face.

"We machined all the parts ourselves and used a lot of stuff we already had to save money. The only new parts we bought were the hydraulic cylinder and pump and a new can of purple paint.

"It has a lot of power. The knife-style wedge slices through the wood instead of spreading it apart and cuts right through knots. If the log is odd shaped we cut it into smaller chunks, but if it's round 2 men can usually roll it up onto the splitter table."

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## Self-Propelled Wood Splitter

"I got the idea from Richard Hammond, a close friend of mine who built one for himself. So, I asked him if he'd help me make one because I got tired of having to take my tractor out to move the splitter. It's handy to drive and has a lot of power," says Wayne Langlois about his self-propelled log splitter.

The machine is powered by a Honda clone gas engine. The engine shaft-drives a hydraulic pump, which operates a 5-in. dia. hydraulic cylinder on the splitting wedge. A hydraulic motor is used to belt-drive the rear end and wheels off an old Datsun pickup.

The dual wheels on back are off a wheelbarrow, and the seat is off an old Allis Chalmers tractor. A horizontal tiller on back provides directional steering and an upright

lever is used to go forward or reverse.

A crane fitted with tongs lifts heavy chunks onto a metal pan and then up onto the splitter table. Either a hand winch or a hydraulic jack can be used to raise and lower the pan.

The splitting table mounts on a 7-in. wide by 8-ft. long I-beam that's welded onto the pickup axle. The splitter wedge is made from 3 pieces of welded-together, 1/4-in. thick steel plate. The push plate is made from a 3/8-in. steel plate.

"I like how it turned out. It really saves on my back," says Langlois. "I've used it on big logs up to 2 ft. in diameter.

"We used scrap parts to build it. I already had the crane, which was designed to lift things into a pickup bed. I got the pan from



Wayne Langlois's wood splitter is fitted with a crane with tongs. It lifts heavy chunks onto a metal pan and then up onto the splitter table.

a gravel screening plant and cut it down to size. My only expense was the \$100 I paid for the Honda clone engine."

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