

## Shop Made Press With Lift Arm

Albert Stier's 50-ton press can handle any job, from a few inches high to too large to handle by hand. If the 22-in. reach of the paired 5 1/2-in. cylinders doesn't provide enough flexibility, he can raise or lower the massive steel tabletop. If the workpiece is extra-large, he uses the lift cylinder suspended from a carriage that travels along a 7-ft. long, 2 by 2-in. sq. steel tube that pivots off one end of the press.

"I can set an 8-ft. long beam on the press and work on one end while the rest sticks out about waist high, supported by the lift cylinder," says Stier. "The other day, a fellow brought in a forklift from a pallet mover. It had a bend in a 2 1/2 by 4-in. beam. I used the lift cylinder to set it on the table, pressed it straight, and sent him on his way."

Stier is rightly proud that the press was fabricated from virtually all salvaged parts. The vertical posts and the 4-ft. wide, 17-in. deep steel tabletop are channel iron from old bridge beams. The cylinders push against a V-framework welded to the tops of the vertical posts. They pass through and are retained by 3-in. channel iron, which is reinforced with a 3/4-in. thick steel plate to house the cylinders.

"I bought the framework with the tabletop from another welder in the area," says Stier. "I added the cylinders for the press, the hydraulic pump, and the lift mechanism."

The cylinders had never been used when Stier got them, but he paid less than salvage.

"We had a John Deere dealer who sold out and was cleaning out the shop before the change in ownership," recalls Stier. "He found the cylinders under a workbench and offered them to me for \$5. I jumped at the deal."

Other components were mostly scrap leftover from other projects.

"If I see some good potential in something, I don't throw it away," says Stier. "I'm 85 years old and have lived here for 60 years. I've accumulated a lot of stuff over the years."

To the right of the press is a 2-hp, 3-phase electric motor that powers a hydraulic pump supplying all three cylinders. The pump and its tank came from an old combine. A two-spool directional control valve from an old loader allows him to engage either the press cylinders or the lift cylinder.

An angle-iron stabilizing bar is suspended from the press rams. It rides between pairs of angle iron welded to the vertical channel iron at either end of the press. Stier attached flex-neck lights to the stabilizing bar.

"The lights ride up and down with the press, so I always have good light on the workpiece," says Stier. "On one side of the press, I mounted a piece of ruler to indicate if the rams are maxed out. If 9 1/2 in. isn't enough, I can bring it down to 9 3/4."

True to his philosophy of using leftovers whenever possible, the lights are encased in

cut-off soup cans, which further reflect the light where he wants it.

Stier mounted scrap angle iron to the front face of the press table. The angle iron holds parts and miscellaneous pieces. He keeps sections of steel from an old plow beam on the press table.

"I can stack them or lay them down flat as needed to hold workpieces," says Stier.

Stier uses the sides of the vertical channel-iron frame facing away from the press, as well as the edges. He welds hooks onto them for hanging chains and adapters.

The chains come in handy if he needs to adjust the worktable. He simply wraps a chain around the table and hooks it to the press. The table is pinned to the verticals and can be lifted or lowered and then re-pinned.

"I don't have to move the table very often, but it's an option," says Stier. "When I built the press, I didn't think I would use it much, but sometimes I use it twice a day and two or three times a week."

Stier has contributed several articles to FARM SHOW over the years. At 85, he's in great health and remains busy.

"If it's broke, it can be fixed, and if someone made it, I can make it work again," he says.

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Electric motor and hydraulic pump with valves.

## Custom Door Strut Kits For Polaris Rangers

Flatlander Offroad LLC of Kindred, N.D., manufactures and sells 4-door Strut Kits for 2019 to 2026 XP1000 Crew models and all 1000 Crew Polaris Rangers.

"Our family started off-roading in 2000 with our first Toyota Land Cruiser," says Seth Sauvageau, owner of Flatlander Offroad LLC. "Over the years, we transitioned to side-by-sides like Polaris Rangers and RZR's."

Sauvageau notes that Polaris Rangers and similar vehicles have doors that require extra caution on hills and in windy conditions.

"The doors are large and heavy, and either close on your legs as you are getting in or open too far so you can't reach them from inside to close them. Worse, if the wind catches them and blows them open too far, the hinges get bent, and the door will be misaligned and not close right."

Sauvageau developed brackets to mount using the existing holes in the door and the seat belt mounting tab on the roll cage.

"I created a working prototype and used that to apply for a provisional patent in February 2023," he says. "That allowed me to market the design to see if it would be worth the effort and expense of applying

for a full non-provisional patent."

The Flatlander door strut kits prevent doors from closing on legs when entering a vehicle. They also protect hinges from damage caused by opening too far.

"It holds the door open to block the wind, so you can stand behind it or sit in the seat when ice fishing, for example," Sauvageau says. "That's great for kids who may not be able to control the doors well. Many owners also like that it allows them to hold on to the open door for stability as they're getting in and out."

The brackets are powder-coated steel to match the Ranger frame. Each heavy-duty strut has steel coupler ends that connect to the ball stud. All door brackets attach using existing body clip holes in the upper door. The mounting bolts are black-coated stainless steel, ensuring they blend in like factory-installed parts.

"The response was clear. There's a large demand for our door strut kits," Sauvageau says. "I received a patent in February 2024 and have adapted the design to work on the Can-Am Defender and earlier models of Polaris Ranger. I'll be adding other models as time goes on."

Sauvageau notes that he's benefited from many local manufacturing resources.

"My nephew, Dave Sauvageau, uses CAD to create digital files of the brackets that I use to 3D print prototypes for testing. The steel brackets are laser-cut and CNC-bent at Metal Tech in Fargo, and then powder-coated at Weisgram Metal Fab (formerly Midwest Coating Inc.) in West Fargo. The struts are custom-made in the United States."

The team sources additional hardware from multiple locations, including New York, Indiana and Utah.

"It's important to me to use U.S. suppliers whenever possible."

Flatlander door strut kits have sold in 49 states, nine countries across three continents, and all Canadian provinces. The kits are priced at \$400 each or \$430 with an included Rivet Nut Tool featuring an M6 mandrel. A 23/64-in. drill bit is needed to install the rivet nuts. Each kit offers door strut systems for either two or four doors. Most customers install the kits themselves; however, the company works with a growing network of dealers worldwide.

"We work hard and have been very intentional about developing our reputation for



Flatlander door strut kits prevent doors from closing on legs when climbing into a vehicle. They also protect hinges from damage caused by opening too far.

great quality, high functionality, and excellent customer service," Sauvageau says. "Search Facebook or any Ranger Forum, and you'll quickly find genuine customer reviews. We've found social media to be very effective at reaching Ranger and Defender owners looking for solutions to this widespread problem."

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## Low-Cost Fan Drive Solution

AgTronics offers its Dura-Cool Fan Drive at half the cost of the OEM option by replacing variable-drive units with direct-drive, constant-ratio mechanical drives.

"I'm a farmer and always looking for a better solution," says Jon Pigg of AgTronics. "I replaced multiple fan drives over the years. They're a troublesome component, and I wanted something better."

The Dura-Cool Fan Drive eliminates common failure points in the Deere Vari-Cool system used on 9-liter engines. Hydraulic pistons, electronic solenoids, and variable-

speed components are removed.

"It delivers consistent cooling with no fan speed surging or sudden shutdowns, fault codes or downtime," says Pigg. "The Deere Vari-Cool was engineered for precision, not for long-term durability in harsh field conditions."

He has operated his bolt-on mechanical drive system on his own equipment and on neighbors' equipment for the past two years, and he started selling it this spring.

"It requires virtually no maintenance aside from a belt," says Pigg. "It's easy to install

for anyone with decent farm mechanic skills. There's no need to change programming. Just plug in our controller, and it makes the ECM happy."

AgTronics offers a 9 L drive for \$2,100, compared with an OEM drive that costs over \$4,000 plus the cost of a technician to install. Pigg plans to introduce a 13.5 L drive soon.

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Fan drive eliminates typical failure points in the Deere Vari-Cool system on 9L engines.