

Have Wheelchair, Will Mow

Being in a wheelchair doesn't stop Don Bragdon, London, Arkansas, from cutting grass.

He built a 2-wheeled trailer that lets him operate a Snapper walk-behind mower, equipped with a 48-in. deck, right from his wheelchair.

The trailer is made from expanded metal with channel iron sides and measures 4 ft. long by 3 ft. wide. The trailer's bed is raised and lowered by means of a cantilever system that's connected to both wheels. A pair of hinged metal arms on front of the trailer connect to a 1/4-in. dia. metal rod that goes back to the wheels. There's a hinged tailgate on back of the trailer that's also connected to the cantilever system.

To access the trailer, Bragdon pushes the arms forward to lower the trailer and tailgate to the ground and then guides the wheelchair up onto the bed. Then he pins the trailer to a drawbar on back of the mower. Pulling back on the handles causes the trailer to lift up off the ground and at the same time brings the tailgate to an upright position, where it serves as a safety guard to keep the wheelchair from ever accidentally falling off the back of the trailer. Hold-down latches on each side of the trailer lock the wheelchair down, and for extra safety he also installed a kill switch with a small cable that's attached to the wheelchair.

"I really enjoy using it," says Bragdon.

"My only expense was for the expanded metal, which was less than \$50. The walk-behind mower has a 14 1/2 hp engine and has no trouble pulling me up hills. The Snapper mower doesn't have a reverse gear. If something ever happens to the mower, I just lower the trailer down and back the wheelchair out."

Before he built the trailer, Bragdon had used a trapeze in his shop to get into the seat of his riding mower. "The mower was under the trapeze and I'd pull the wheelchair up next to the mower, then reach up and grab the trapeze so I could lift myself over onto the mower seat. Once I got on I was all set. However, one day while I was cutting grass the belt that drives the transmission broke and I had no way of getting off the mower. Luckily, I had a cell phone and after waiting for some time, my neighbor came and brought me my wheelchair.

"I bought the Snapper walk-behind mower used with only 264 hours on it. I paid \$300. At first I tried hooking the wheelchair directly up to the mower's drawbar, but whenever the wheelchair went through mud I got all dirty. That's when I decided it was time to build the trailer."

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Home-built 2-wheeled trailer lets Don Bragdon operate his Snapper walk-behind mower, equipped with a 48-in. deck, right from his wheelchair.



Trailer's bed is raised and lowered by means of a cantilever system that's connected to both wheels. Hinged tailgate on back of trailer also raises up.

Do-It-Yourself Helicopter Designed For Farm Use

If you've always wanted to fly a helicopter but couldn't justify the cost, you'll be interested in this new do-it-yourself helicopter kit.

"For the price, no other helicopter kit can match the performance of this machine," says Ron Willocks, Pawnee Aviation, Inc., McCook, Neb. "We have three items that no one else on the market has: A very high power-to-weight ratio, a rotor system designed for high altitude, and a very high gross weight."

It measures 8 ft. 2 in. high, 32 ft. 3 in. long, and has a 30-ft. dia. rotor. It cruises at 85 mph and, with two 15-gal. fuel tanks, has a range of 250 miles. Payload capacity is 880 lbs. Power is supplied by a four-stroke, 8-cyl. high performance gas engine rated at 355 hp. The tail rotor consists of a direct-drive system using a driveshaft.

The cockpit has two seats and controls. In order to keep the price down, the kit comes with some conventional components, including a standard fuel racing tank and an automotive muffler.

Building time is estimated at 150 to 200 hours. It operates for less than \$30 per hour.

The Chief sells for \$67,500.

"It's built like a tank and has unheard of performance for the price," says Willocks. "We designed it like a farm machine. In fact, one of our advisors on this project was an Illinois inventor of farm equipment who builds helicopters as a hobby. We like to think of this helicopter as a flying combine, because it uses a lot of farm-type sealed bearings that will never need maintenance."

According to Willocks, the helicopter has outstanding power for its size because of its high horsepower and high lift blade design. "We worked with the National Aeronautic Space Administration (NASA) and two universities on the rotor blade design. The rotor blade is made from carbon fiber, which eliminates the potential for metal fatigue."

The high payload capacity is important to farmers, says Willocks. "If your cattle are stranded, you can use this helicopter to sling a load of hay bales to them.

"Other helicopter kits have a lower payload. We looked at those and said, 'If you can't take two 250-lb. people and a full load of fuel, what's the point?'"

He recently displayed the helicopter at the recent 3I show near Great Bend, Kansas. "One farmer at the show told us he's interested because he has 34 center irrigation pivots and is tired of driving to his pivots. Another farmer with several thousand acres of milo and corn and a big cow-calf operation said he plans to use our helicopter to check on his cows during calving. He has been a helicopter pilot for many years, and says cows get so used to the helicopter that he can fly close enough to read their tags."

Willocks says they've gone to extremes to make sure this helicopter is high quality and reliable. "When we design a part, we do structural stress analysis on the computer just like Boeing does on their aircraft."

The dual engine/rotor tachometer uses LED lights instead of needles or a digital readout. "When the engine and rotor are at the correct operating rpm's, you'll see a green LED light so you know you're good to go without having to figure anything out. There's a built-in high and low warning horn, so if the engine rpm's go dangerously low an alarm will let you know."

Willocks says they used all aircraft-grade materials in building the helicopter. "The General Motors Ram Jet racing engine is actually based on a conventional small block, V-8 Chevy engine, which is one of the most dependable engines ever made. The engine is built for racing and high rpm's."

The engine belt-drives a pair of driveshafts, which drive the main rotor and tail rotor. The sheave on the secondary shaft contains a Sprague clutch. "If the engine ever stops the Sprague clutch instantly disengages the rotor system, allowing auto-rotation for a safe and controllable descent to a normal landing," says Willocks.

If the engine ever should fail, there's a built-in 2-second reaction time so you can do an auto rotation to get the helicopter go-



"For the price, no other helicopter kit can match the performance of this machine," says Ron Willocks about his company's new do-it-yourself helicopter kit.

forward and down, so the upflow of air will keep the rotor turning and flying. "On most helicopters you have one second or less to get everything set up before the rotor speed gets too low to fly," says Willocks.

He says they plan to build 20 to 30 helicopters this year. "The introductory price is \$67,500. Once the first units are sold the price will go to \$72,500."

The helicopter will be demonstrated on July 24 at a big air show in Oshkosh, Wisconsin.

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Here's a simple way to cut your lawn in comfort. Reader Richard Purdy, Shelton, Wash., simply straps the handle of a push mower to the cargo rack on back of his 4-wheeler. "It's not fancy, but it's better than walking," he says.