



Instead of buying Deere's 47-in. wide front-mount snowblower, Jim Gergen built his own 59-in. blower from scratch.

## He Built His Own Snowblower

"Last winter I built a front-mount snowblower for my Deere 4100 compact utility tractor. The blower is 59 in. wide, 28 in. tall and weighs about 350 lbs.," says Jim Gerken, Zumbro Falls, Minn.

"I wanted a single stage blower to keep impeller wear low since I would be using it on my gravel driveway. I designed it to fit Deere's front quick-tach system which lifts the blower and powers it with a 2,100 rpm pto.

"Deere sells a similar front-mount blower but theirs is only 47 in. wide and it's 2-stage with a high-speed impeller that would wear out fast when picking up stones off the driveway. Also, Deere's blower sells for about \$2,600. Mine cost about \$850 in materials.

"I did all the metal work myself except for rolling the housing, which is made from 12 ga. steel. The auger flighting is 1/4 in. thick, and the paddles 5/16-in. thick because they take the most abuse.

"I used a 1:1 ratio right angle helical gearbox (from the Surplus Center at [www.surpluscenter.com](http://www.surpluscenter.com); 800-488-3407) to run the power over to the side of the blower where I installed a 2:1 reduction chain drive on the side. The chain drive is completely

enclosed and has a sliding tensioner made from UHMW plastic. There's a shear pin in the pto driveline running over to the chain drive.

"I made the impeller itself from a 1.25 dia. shaft fitted with a 4-in. dia. center pipe. I attached 15-in. dia. auger flighting to the center pipe (from Egbers Auger Supply - 800-462-2588), using both right and left hand helicoils. As I welded the flighting into place, it was carefully adjusted for proper balance after each step of the process. To do this, the shaft was allowed to roll freely on a pair of knife edges and weight was added as I went along to balance it out. Even the seam weld on the 4-in. center pipe was counterbalanced with small sections of steel stock welded on.

"Two righthand helicoil flights - interwoven together - feed from one side and two left hand helicoils feed from the other side. Each section of flighting attaches to a paddle at the center - four paddles total - which each have a small cupped side opposite the flight serving it. The paddles are sloped backwards from the rotation direction 10 degrees on the main tube so snow will not stick.

"Impeller speed is 1,050 rpm's at pto speed. With the 15-in. dia., that's about 4,000 ft. per



Blower's 15-in. dia. auger rotates at 1,050 rpm's, powered by Deere's front drive system. Clearances between the auger and housing are less than 1/10th in.



Flighting mounts on a 1.25 in. dia. steel shaft fitted with a 4-in. dia. center pipe. Gerken balanced it as he went along with small pieces of steel stock.

minute velocity out the chute.

"Clearances between the impeller and the housing were kept as tight as possible at less than 1/10th in. The chute rotor was built using a small hydraulic cylinder and cable sheaves to give a 3 to 1 distance advantage. In other words, the cylinder's stroke length



Chute turns 300 degrees, controlled by a small hydraulic cylinder.

is amplified by three to get a nice 300 degree rotation, using the cable and sheaves in a manner opposite what you would normally think of in a force-amplifying block and tackle arrangement.

"Some of the more complicated shapes were cut out on my home-built plasma cutter table that lets me cut anything I can put into a computer.

"Last last winter we had a couple heavy snows which I used for testing before painting and the performance was very good. Imbalance was at a level that was undetectable."

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## Gray Market Tractors Hot, But Not For Long

Gray market tractors are still a cheap way to get a good used tractor, says Richard Cole, but that may not be for long. EPA rules only allow import of noncompliant emissions standards tractors if they were built prior to 1996. This means that with each passing year, available tractors are that much older.

"Over a period of time, this will spell the end of gray market tractors," says Cole. "That's why the Chinese are bringing all their new tractors into compliance at a price that's competitive with gray market tractors."

Although Cole has also started importing new Chinese tractors, he is still importing reconditioned tractors from Japan. Brands include Yanmar, Mitsubishi and Kubota and sell for about a third the price of a similar-sized new tractor.

"A new 20 hp Deere with a Deere loader and tiller will sell for more than \$20,000," says Cole. "We can sell the whole thing for \$7,999 to \$8,995."

Tractors are either shipped to Vietnam for reconditioning or reconditioned in the U.S. Reconditioning includes engine, transmission, steering, hydraulics and electrical system. New front and rear tires are installed

along with a new seat. All fluids are replaced, and the tractor receives a new paint job.

"It may take three to four tractors to make one," he says. "We buy from a number of suppliers that we have dealt with for several years, and they send us good quality, low-hour tractors."

The tractors are loaded in shipping containers, up to 16 at a time, depending on their size. "If you tell me what tractor you want, I will try to locate it," he says. "I get a list of 100 to 200 tractors each month and pick out the load I want."

This may be the best time ever to buy a low-cost compact tractor, adds Cole, pointing to the current availability of reconditioned tractors and the low-cost, new tractors from China. However, he doesn't expect these prices to last as the gray market disappears.

"Once the Chinese establish market share, I expect their prices will rise," says Cole.

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Reconditioned tractors are imported from Japan. Brands include Yanmar, Mitsubishi and Kubota and sell for about a third the price of a similar-sized new tractor.



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