

Backhoe-Mounted Driveway Grader

Bryan Allen, Minocqua, Wis., recently sent FARM SHOW photos of a backhoe-mounted driveway grader he built. It consists of a 5-ft. long, 9-in. square I-beam with 4 ripper shanks, spaced 16 in. apart, bolted on back. The I-beam is bolted to a homemade, heavy-duty steel bracket that bolts onto the backhoe arm.

The backhoe's bucket cylinder is used to tilt the I-beam forward to use it as a blade which can cut up to 2 in. deep, and backward to use the rippers which can dig up to 8 in. deep. By keeping the I-beam level he can use it to smooth and grade.

In addition, by swinging the backhoe loader arm left or right, Allen can angle the I-beam and throw dirt to either side.

"During the winter I use a snow blade on another tractor to move snow, and by the following spring the roads are all chopped up with potholes. I plan to use the rippers to dig them up and then use the I-beam to level the loose soil," says Allen.

"I had been using a 3-pt. mounted grader on the same tractor, but it took an hour to take the backhoe off and hook the grader up to it. Reconnecting the backhoe was even more of a job because I had to get all the holes lined up. Now I never have to remove the backhoe. I just remove the bucket from the loader arm and attach the grader with 2 pins.

"It took me longer to figure out how to build it than to build it. I've come up with a

lot of inventions over the years, but my dad says this is my best one yet."

Allen disassembled the 3-pt. grader and used some of the parts on it to make the new grader. Those parts included the I-beam, which had served as a weight; brackets for the rippers which were originally part of the 3-pt. grader's frame; and the grader's thick steel cutting edge which he converted into 2-part "windrow wings" that extend from both ends of the I-beam. One part extends 4 in. beyond the I-beam to contain material as the I-beam is dragging, and the other is used to knock down any windrows.

"By swinging the backhoe loader arm to the left or right I can angle the I-beam at up to a 40-degree angle to make a crown in the middle of the road. Then I can come back with the blade directly behind and level the crown," says Allen.

He finished building the grader last fall and tested it before the ground froze. "It worked even better than I expected, and now I can't wait to use it. I think it'll make grading roads a fun job," says Allen.

"I bought the 4 rippers on eBay for a total of \$88 including shipping. They're bolted into place so I just use the backhoe controls to control their depth. With the I-beam in the level position the backhoe loader arm can exert enough downpressure to actually compact the ground and make it flat and hard, which is something you can't do with a 3-pt.



Backhoe-mounted driveway grader was built out of a 5-ft. long square I-beam. It can be tilted forward to use it as a blade, and backward to dig up to 8 in. deep.



Four ripper shanks spaced 16 in. apart are bolted on back of I-beam which bolts onto backhoe arm with a pair of homemade steel brackets.



hitch.

"It works fast. A job that used to take me 3 hrs. with my 3-pt. mounted grader now takes only about a half hour. Unlike a 3-pt. grader, the blade stays put if it hits a rock because of the major downpressure created by the

backhoe arm," he says.

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Pat Burrington built this 6-ft. wide, 3-pt. mounted "quick-adjust" box scraper. A 4,000-lb. trailer screw jack is used to raise and lower scraper's ripper teeth.

"Quick-Adjust" Box Scraper

When Pat Burrington needed a small box scraper to level his road and driveway, he built his own 6-ft. wide, 3-pt. mounted "quick-adjust" box scraper for only about \$700. He uses his Allis Chalmers WD-45 tractor to pull it."

He mounted a 4,000-lb. trailer screw jack equipped with a hand-operated crank on the scraper frame. The bottom of the jack is bolted to a horizontal steel tube that raises and lowers the scraper's ripper teeth. To raise or lower the teeth, Burrington just reaches back from the tractor seat and turns the crank.

"It's the lazy man's way to adjust the ripper teeth depth on a box scraper," says Burrington, who operates a local fabrication shop. "The quick-adjust feature is something I haven't seen on any commercial box scraper. Most small box scrapers come with individual ripper teeth that pin into place, so you have to get off the tractor and pull the pin on each one to adjust the ripper up or down. If the hole spacings are 2 in. apart, you have to live with that amount of pre-determined adjustment.

"With my design I never have to get off the tractor, and I can adjust the teeth depth

incrementally. I can set all the teeth to dig deep on the first pass and then raise them on the second pass to level the loosened ground in a matter of seconds and never leave the tractor seat. Or I can raise the teeth completely out of the ground and use the scraper to fill pot holes."

Another advantage, says Burrington, is that the scraper is built "simple" without needing hydraulics to adjust the teeth depth, which makes it easy to operate. "I added more than 100 lbs. to the scraper with the jack, the pivot arm and miscellaneous hardware, which helps it dig better since I don't have 2-way hydraulics on my old tractor's 3-pt. hitch."

The box scraper's body is made from 3/16-in. steel plate. The frame is made from 2 by 4-in. rectangular tubing. The wear bar is an old grader blade; the pivot arm is made from square tubing and flat bar; and the teeth are built from 1/2-in. thick abrasion resistant AR400steel. "I cut out all the teeth on my waterjet cutting table," notes Burrington.

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Matthew McKinzie uses a single skid steer pallet fork to dig narrow trenches. "I just slide the fork into the ground at an angle and rotate it up," he says.

"Pallet Fork" Doubles As A Ripper

"I use my skid steer pallet fork as a ripper to dig narrow trenches," says Matthew McKinzie, California, Mo.

"I remove one of the forks and just slide the single fork into the ground at an angle and rotate up. Besides digging narrow slit trenches, I also use this idea to loosen rocks, roots and dirt so I can get in with a bucket afterwards and scoop out. This method also works good for digging out small trees. Sometimes I'll use both forks pushed close together. It's much easier to push forks into the ground than a wide bucket. I just work my way around a tree, sticking it in under the roots and loosening everything up before pushing the tree over.

"By mounting a single fork to one side of the frame, I can dig a trench right up next to a building or loosen dirt from under a footing or pipe to make it easier to dig out."

To clean loose dirt out of a narrow trench, McKinzie cut a piece of channel iron to fit over a fork. Flat bars across the bottom create a slot for the fork to slip into. He chains the channel iron to the frame of the forklift to hold it in place.

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McKinzie cut a piece of channel iron to fit over the fork and uses it to clean loose dirt out of trenches made by fork.



He uses the same idea to loosen rocks, roots and dirt so he can get in with a bucket later to scoop out the material.