

Custom-Built Wheel Horse Attachments

When Jerry Carra hauls gravel or firewood or blades snow or dirt with his Wheel Horse garden tractor, it's with the aid of 12-volt power. An electric actuator makes lifting and dumping the 22 by 42 by 20-in. high wagon easy. A reversible 12-volt auto tarp motor adjusts Carra's front blades.

"I have a 2002 315 Wheel Horse that I built the attachments for," says Carra. "My dump cart can be controlled from the tractor seat. I have a long-handled safety lock that I control with a cord, and a remote wired into the power cord for the actuator."

Carra simplified the actuator wiring by using a cigarette plug connector. He wired the female end into the tractor and the male end back to the trailer. Disconnecting power is as easy as pulling the lock on the ball hitch.

"I mounted the actuator between the rear axle and the front of the box, just like a hydraulic cylinder is mounted under a gravel truck box," says Carra. "A knob on the front of the cart releases the tailgate."

In winter, Carra adds a top with a tarp to keep snow off his firewood.

"I can pull it right up to the house," he says. "In the summer, I just pull a couple of pins and remove the cover."

Carra also added a trailer tongue rest to the hitch just behind the ball. It's pinned to the hitch when not in use.

"I pull a pin, and it drops down 90 degrees



An electric actuator makes lifting and dumping the 22 by 42 by 20-in. high wagon easy.

when I unhitch the trailer," he adds.

When Carra modified an old Craftsman blade to mount it on his Wheel Horse, no drilling or modifications to the tractor were necessary, as he used the existing holes to mount it.

"I built push arms out of 2-in. channel iron and pinned them to existing holes in the frame, just forward of the rear wheels," says Carra. "At the front of the tractor, the blade frame rests against a block mounted to the original front deck mower mount. It keeps

the blade frame square."

He used a reversible auto tarp motor to raise and lower the blade. The motor sits on a steel plate, with legs bolted to the blade framework. One pulley is attached to the motor, and a second is at the base of the blade framework. A third pulley serves as an idler on the drive.

"I made the pulleys on my lathe from a block of TIVAR," says Carra. "It's very wear and corrosion-resistant, but it can be worked like wood. Instead of a drive belt, I used an ordinary tie-down strap."

To maintain tension on the strap, Carra attached a pipe to the base of the blade frame, forward of the motor. A strap runs from the drive pulley arm through a clevis and pulley at the top of the pipe, then down to a heavy spring mounted to the motor's base plate. This arrangement maintains tension on the lift-and-lower strap.

The pipe served an additional purpose. Carra mounted a 12-volt light at the pipe's upper end. Springs mounted on the blade activate the light when the blade is fully up or down, helping ensure Carra doesn't overpower the blade.

"I have to adjust the angle of the blade manually," says Carra. "However, vertical movement is controlled by a switch mounted to the side of the dash."

Carra also fabricated a simple canopy for



Carra modified a front blade from an older Craftsman garden tractor for use on the Wheel Horse.

the Wheel Horse. The round-and-square tubing frame mounts to the tractor's drawbar. It's an add-on he recommends to others.

"I spent a lot of time in the high desert of Nevada and have been diagnosed with skin cancer," says Carra. "The canopy is all I need to keep the sun off."

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Big Rig Improvements Made On Mini Excavator

Dale Gunn sees no reason his mini excavator can't be as comfortable as larger units with cabs. He designed a cab structure that's easy to enclose and just as easy to open when the weather is nice.

"The windscreen is laminated glass, but above that I used Plexiglas, curved to shape with a blowtorch," says Gunn. "Below the windscreen, I used 10 mm Plexiglas with shaped footwells to allow pedal movement."

The metal roof is made from the side panel of an old Fisher & Paykel washing machine. Gunn used 4 mm wall pipe for the rear of the frame because it's the most structurally critical part of the cab.

"I mounted two lifting points on the rear of the cab, with a third on the boom, should I need to lift it with a helicopter," says Gunn.

The pipes at the front of the cab, extending down to the base, are only 2.5 mm thick, as Gunn hoped to save weight. This was also intended to make the structure easier to lift by helicopter to a remote site.

Gunn used vinyl for the sides and back, with clips that let him fasten it in place or lift it out of the way, depending on the weather.

He added a windscreen wiper, a cooling fan and headlights, including one on the boom.

"I also added a couple of 12-volt heaters and a 2,500-watt inverter," says Gunn. "The heaters keep me toasty warm on a cold day, and the inverter will boil water no problem. I even have an FM CB in there and a speaker so I can stream music from my phone via Bluetooth."

Gunn also improved the mini's working end. He added hardened edges to the bucket and fabricated a thumb.

"I used flat bar that I curved and strengthened for the thumb," says Gunn. "At the tips, I used grouser bar to withstand rocks."



Mini excavator with weather enclosure frame before add-ons.

Gunn shaved some costs on the thumb by using a cylinder from AliExpress. Its \$60 price was more than offset by the cost of three new hydraulic hoses. Two were for the newly added cylinder, and the third was for the transmission.

"The hoses were locally made for \$940," says Gunn. "I later found the same hoses made in China for 95% less."

Another improvement Gunn made to the excavator was the addition of foot pedal controls for steering. He used flat steel for bell cranks, shafts from a surplus socket set extension, and bosses for them, made from drilled round bar.

"The crank rods were merely threaded rod with tie rod ends," says Gunn. "I connected them to the OEM hand levers. It's really handy when you have to lift the tracks to turn or travel a distance. You can just sit back and let your toes steer instead of hunching over the controls."

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Added foot-pedal control for steering.



Hard edges added around the bucket along with thumb.

FARM SHOW Word Search

K	R	H	F	F	A	Y	Z	L	V	A	I	S	T	P	R	I	E	T	V
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FARM	HYDRAULIC	PTO																	
CORN	TRACTOR	SHOP																	
HOLSTEIN	CROP	HARVEST																	
COMBINE	DAIRY	BUSHEL																	
ARTICULATED	SILO	BALER																	