Front Lift Powered By Rear 3-Pt. Hitch

Mike Wingler uses the 3-pt. hitch on his tractor to lift front-mounted implements, with help from a subframe, scissors lift, and boom arms.

Mike Wingler lifts his front-mount implements with his rear mount 3-pt. hitch. He does it with a combination of a subframe, scissors lift, and boom arms. The mechanical lift works with a dirt blade, forklift forks and a trailer hitch.

"Initially, I had a small hydraulic pump on a jack on front to lift and lower the blade," explains Wingler. "The jack burned up, and I thought there had to be a way to do it with the 3-pt."

Wingler is a retired electrician and mechanic who spent his career in West Virginia mines. "I was mostly a fabricator," he says. "If something didn't work or had been damaged, I had to modify it to work."

Wingler put his fabrication experience to work designing and installing a 3 by 3-in. steel tubing subframe. It begins at the rear axle fender mount and travels forward. C-channel iron crossbars bolted to existing holes in the engine block and gear casing are welded to the tubing.

A 3-in. wide, 3/8-in. flat bar connected to the drawbar on the 3-pt. hitch travels forward to the engine subframe crossbar, where it connects to two 3-in. wide pieces of channel iron that run forward to the scissors lift at the front of the tractor. Along the way from front to back, the flat bar passes through 4 by 5-in. chain link retainers. They are welded to short lengths of 4-in. pipe that are welded to the open channel iron.

"The flat bar only moves 4 to 5 in. back and forth as the 3-pt. raises and lowers," says Wingler. "It moves back (up) under power and forward (down) under gravity."

The scissors lift is connected to the boom arms. The arms pivot at the front end of the subframe in a clevis hitch bolted to square tubing, which is bolted in turn to the crossbar under the engine. When the channel irons move forward against the scissors lift, it forces the boom arms up.

The 3 by 3-in. boom arms have pinned 2 by 2-in. telescoping tubes at their front end. These make it easy for Wingler to change the angle of the blade.

The 3-in. wide channel irons that trigger the scissors lift have an added use. Because they are supported by the subframe, they can be used to support the boom when it is not being used or when Wingler wants to use the 3-pt. hitch on other implements.

"I raise the blade boom arms up and slide a 1-in. steel rod into brackets on a crosspiece on the channel iron and under the boom arms," says Wingler. "Once I lower the arms onto the rod, I can unhook the flat bar from the drawbar."

Wingler made a few other alterations to the tractor utilizing the subframe. These included uprights ahead of and behind the operator's area. These allowed him to mount a golf cart canopy over the seat. In the winter, he puts a zippered cover over it to box in the area.

"I also expanded the footstand area by adding 12-in. wide catwalk material," says Wingler.

He recognizes there might have been quicker ways to provide front end lift. Doing it mechanically was largely for the challenge.

"I set the tractor up just to play with it," says Wingler. "The lift is built solid. I've dug solid ground with it."

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Makita says its new 40V XGT product line retains an 18-volt battery footprint, while providing tools with more power and faster charging.

Makita Boosts Cordless Tools With Better, Same-Size Batteries

Makita tools just launched its new 40V XGT product line with a brushless motor and battery redesign to do more without bulking up batteries. The new system (80V with 2 batteries) is a significant power upgrade from the company's 18V LXT line with its 275 tools. The availability of 40V batteries and the ability to pair them opens the door to more powerful, construction grade tools in the XGT line.

In late March, FARM SHOW was invited to a virtual launch of the new system in the U.S. New XGT tools faced off against corded AC tools breaking concrete, driving large fasteners, cutting wood, and working metal. The demos were impressive, as the XGT finished the same jobs, often in considerably less time.

Competitors in cordless tools have long recognized the need for more powerful tools for farmers, construction workers, and tradesmen. Often the tradeoff is more weight and a larger battery size.

Makita opted for a redesign of tool and battery that retains the 18V battery footprint with more power and faster charging. A 2.5Ah, 40V XGT battery will be the same physical size and weigh about the same as their current 1-lb., 6-oz., 5Ah 18V battery.

"We are providing more power without forcing users to buy big, heavy, slow-charging batteries for use on a limited number of tools," says Mario Lopez, director of product management.

To achieve the desired outcome, the company increased the volume of copper windings and the quality of the rare earth magnets in the brushless motors. Combined with smart electronics, the new tools deliver up to twice the application speed compared to similar corded counterparts.

The new Rapid Optimum Chargers (1 and 2 battery models) get the job done faster than ever with the new batteries. The 2.5Ah XGT reaches 80 percent charge in 19 minutes and full charge in just 28 minutes.

A welcome accessory for current LXT tool users is an adapter for the new single battery charger. It lets users charge their 18V LXT batteries in the new charger.

The XGT batteries also feature improved durability with impact-absorbing structural changes and enhanced protection against water and dust.

New tools being introduced include 1/2-in. hammer driver-drills; 4-speed, high torque, 3/4-in. drive impact wrenches; 1/2-in. impact drivers; 4 1/2 to 9-in. paddle switch grinders with electric brakes; a 1 9/16-in. rotary hammer; a 15-lb. demolition hammer; and a 10 1/4-in. rear handle saw. Special features include active feedback sensing if rotation of blades or bits is forced to stop, and wireless dust extraction when tools are used with the Makita dust extraction systems.

"We will continue expanding the LXT tool line," said Lopez. "We have introduced 50 new tools in the XGT line, with more on the way. We believe these tools fill the gap between our 18V tools and air/gas or AC tools."

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Crop Dryer For Hemp Producers

Specially designed fans and conveyors allow Grain Handler to remove about 600 lbs. of water per hour from chopped hemp biomass.

"We heard from hemp producers that they wanted to dry their chopped biomass without using a hang shack, but didn't want to damage the crop in any way during the process," says Joe Hynes, chemical engineer at Grain Handler in Lakeville, Minn.

Hynes says the Grain Handler hemp dryer has fans and conveyors on Variable Frequency Drives (VFD's) that allow them to operate at different temperatures, different airflow rates, and different residence rates. The dryer also has two cyclones attached to the ducting system at the back end of the machine to collect any small particles that would otherwise be blown into the atmosphere by a regular grain dryer.

"These features are ideal because they allow the operator to preserve trichomes, which are some of the smallest and most valuable portions of the plant, containing the highest percentage of oil by weight," Hynes says. "Our dryer can also be used with any other botanical that needs to be dried for storage or extraction."

The Grain Handler hemp dryer is about the size of a semi-trailer. Propane or natural gas can be used to power the 1,000,000 BTU burner. Conveyors and fans run on 60hz ,3-phase, 230-volt power.

Wet material is taken into the machine on a ramped conveyor with a heavy-duty, variable-speed chain. A leveler keeps the biomass evenly dispersed before it enters the machine. The body of the unit is one large chamber with 5 internal conveyors. They move material back and forth as material is dried by air dispersed through the conveyor chains from the plenum in the bottom of the machine. Dried material continuously moves out the back end of the unit and is deposited in super sacks for easy handling.

"We've tested the dryer during two seasons, and our calculations show that we can remove about 600 lbs. of water per hour from chopped hemp biomass. Drying capacity is about 1,000 lbs. of wet material per hour," Hynes says. "The machine is fully insulated with 6 insulated doors that have access ports to the internal conveyors for sampling and cleanout. With a trailer-type or stationary model available, we feel the dryer fits many applications for farmers or processors." The stationary unit is priced at $78,800 and the trailered machine is $96,000.

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