

Hardman's lift has a 37 ft. working height and is rated for 350 lbs. with the boom extended.



## Custom-Built Man Lift Trailer

Cole Hardman custom-built his own man lift using parts from a surplus military trailer, a lift from a junkyard bucket truck, and lots of steel from his scrap pile. The result is a versatile man lift he is confident will fit multiple needs.

"I needed it for building a farm shop," says Hardman. "I'm also a beekeeper and figure it will be handy for swarm removal."

The military trailer cost him \$450 at a military surplus auction. Equipped with air brakes, it had carried a big generator and was built to be pulled behind a 5-ton truck.

"I stripped the air brakes off as it would be towed behind a 1-ton truck without air brakes," says Hardman. "It also had a mechanical parking brake that I set when using the man lift."

The bucket truck was scheduled to be scrapped. However, the lift with its 37 ft. working height, was still in good shape and equipped with auxiliary hydraulics. Hardman spent about \$1,000 on it. The only repair needed was to rewire the boom unit.

"I used a piece of 1-in. steel from a bridge that was being torn down to fabricate a mounting plate," says Hardman. "With it

bolted to the trailer bed, I set the lift in place."

Hardman came up with simple and easy-to-set outriggers. He welded 2 1/2-sq. in. receiver hitches on all four corners. The outriggers are 8,000-lb. trailer jacks mounted to 2-in. sq. tubing.

"I just slide the outriggers into the receiver hitches and adjust their heights," says Hardman. "I have less than \$3,000 in the whole thing. About half of that is the steel tubing and trailer jacks."

The hydraulic pump on the lift was powered by a pto while on the truck. Hardman plans to replace the pto drive with a small engine to power the pump. In the meantime, he's using the lift's backup 12-volt pump.

"It runs great," he says. "I have two deep cycle batteries mounted on the trailer, plus a plug with 2-gauge wire so it can run off the truck's electrical system as well," says Hardman. "The lift is rated for 350 lbs. with the boom extended or 500 if not extended. I plan to use it to set trusses in place."

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Waa fabricated a gear plate so his made-it-myself snowblower chute would operate smoothly.



## Simple Gear Plate Rotates Snowblower Chute

Evan Waa built a snowblower for his Kubota tractor, fabricating most of the parts with his shop-built plasma cutter.

Waa says that initially he used a wrapped cable linkage to turn the spout because the tractor didn't have auxiliary hydraulics to operate a spout control. "The cable system pulled hard to one side, especially when the machine was in heavier snow," Waa says, "so I came up with a better idea."

Waa fixed the problem with clever do-it-yourself engineering. First, he bored out the inside of a flexplate from an automobile engine and cut a slightly larger plate from sheet steel. Both plates fit securely over the outside of the chute with four v-rollers sandwiched between them, riding in a groove so the chute turns without binding. The flexplate and solid lower plate are bolted to the top of the blower's intake chamber.

"The outside radius of the flexplate had exposed gear teeth, so I centered the plate between three drive pinions that I bolted to the bottom plate," Waa says. "The pinions are from an old starter and matched the flexplate perfectly."

To rotate the chute, Waa connected one of the pinions through a gearbox to the shaft of a semi-trailer tarp roller motor. The other two are idlers that contain the thrust. "The motor has a 60:1 ratio gearbox, so when I activate the switch to operate it, I can turn the chute 180 degrees in about 12 sec."

Waa says the blower and electric chute control work very well in all types of snow and that he's gotten a lot of use from it in the winter.

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## Spraybot Keeps Lawns Weed Free

The Dandy Lawn Care Robot from Dandy Technology could be the answer to weed-free lawns using up to 90 percent less herbicide. The Dandy DT-01 with its half-liter reservoir is intended for lawns of 1/4 acre or less. The DT-01XL with its 1.2-liter reservoir is meant for lawns up to an acre in size.

"Our goal is to minimize the amount of herbicide applied," says Doug Petro, Dandy Technology. "Our lawn care robots deliver a quick burst based on the size of the weed or the number of weeds in a bunch."

Petro notes that a single burst contains as little as half a milliliter or about 1/10 teaspoon of herbicide. The herbicide is delivered by the robot, which uses GPS-based routing to travel the entire lawn in crop row fashion. If it gets stuck in one place, it automatically reverses itself.

The robot's bumper detects fences, walls and other obstructions. The onboard camera helps it avoid mulched areas, gravel and sidewalks. The camera, combined with artificial intelligence and image recognition software, identifies problem weeds for the targeted burst. Recognition of heat patterns in the lawn aid the software in preventing overlap.

"We're getting 90 percent accuracy of broadleaf weeds and crabgrass," says Jim Carlton, Dandy Technology. "It should eliminate nearly every weed in two to four sessions a week apart."

The Dandy works with an app that can be downloaded from Apple or Google. It provides a Google map of the lawn that can



Lawn care robot can carry 1.2 liters of herbicide and cover up to 1 acre.

be used to map out where you want the Dandy to treat as well as areas to avoid.

The app provides the operator with a heat map of mushrooms, weeds and areas of poor grass growth. It can locate the robot in case of theft and perform over-the-air updates.

The robot travels at up to 50 ft. per min. and can traverse slopes of up to 15 degrees. Batteries offer a 5-hour runtime. The Dandy connects to the home Wi-Fi for app control.

The Dandy Lawn Care Robots are in limited production for home lawns. The DT-01 is priced at \$699.99. The DT01XL is priced at \$799.99.

A commercial version, designed for larger lawns, golf courses and turf situations, is expected to be available in mid-2023.

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Metal firewood box rides on caster wheels that rides on steel tubing track down stairs using a winch.

## No Mess Firewood Transfer

Getting firewood from the woodshed to cellar storage can be messy if you don't have a transfer system like Paul Zawalick. He loads a box behind his compact tractor, drives to the exterior cellar door, and slides the box down the stairs. Once unloaded to a storage rack in the basement, he winches the box back up the stairs and drives away.

"I've burned wood for years and tried getting wood into the cellar through a window and down the steps," says Zawalick. "The cellar was a mess. I came up with this system 30 years ago, and it works great. There's no mess at all."

The 25 by 32-in. 3-sided box has a 1/2-in. angle iron frame and rides on caster wheels. Two sides of the box are plywood with a tin side in between to hold the sides together.

"The caster wheels make it easy to roll the box of firewood over to the storage rack in the cellar," says Zawalick. "When I'm not using it, I can push it into the shed for storage."

The box rides on a framework of mostly 1 1/2-in. square steel tubing that mounts to the

tractor's 3-pt. hitch. Two 32-in. lengths of 1 1/4 by 1/2-in. by 1/8-in. thick channel iron are mounted to the frame as cross members and for the caster wheels to ride in.

A 12-volt winch is mounted to a 40-in. vertical leg on the left side of the framework. It lets Zawalick control the box as it travels down the steps, as well as pull it back up.

When it's time to unload, Zawalick uses two 10-ft. channel iron rails down the cellar steps. The rails have tabs on one end that lock into the angle iron framework. He rolls the firewood-filled box across and down the channel iron to the cellar floor. Once there, Zawalick unhooks the winch and rolls it over to unload in the storage rack.

"It takes about three loads of firewood to fill the rack," says Zawalick. "I strap bungee cords over the top to help hold the wood in place."

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