Heavy-Duty Landscape Rake

A system of hydraulic cylinders, combined with tractor's 3-pt. and hydraulic top link, let Gerken lift, lower, angle the rake left and right and change the pitch.

After multiple modifications to his commercial landscape rake, Jim Gerken knew he needed to build his own. His modified rake still didn't have the control or features he wanted for building and maintaining snowmobile and ATV trails.

"I sold the rake and started from scratch," says Gerken.

"This one works like a charm. It is offset, so I can work close to the edge of the trail without the tractor being at the edge, and it is completely adjustable."

Gerken designed his rake with heavy-duty components and a system of hydraulic cylinders. The cylinders, combined with his tractor's 3-pt. and its hydraulic top link, let him lift, lower, angle the rake left and right and change the pitch as well. In addition, he can move the position of the rake to offset it up to 18 in. left or right without affecting the angle or pitch.

"I used a combination of ball-end and trunnion type cylinders to give the rake five axis capability," explains Gerken. "I had to do a lot of geometry to get the angles right so I would have the maximum side-to-side movement."

The swing frame pivots from the center of the main frame and supports the rake tool bar at its other end. Swing frame uprights fabricated from pipe within pipe allow the rake to be angled up to 120 degrees from perpendicular to tractor movement and make possible the 18-in. offset. Grease zerks keep them well lubricated.

"When you put two pieces of pipe together, they never fit, so I wrapped pieces of galvanized tin around the smaller pipe," says Gerken. "I wrapped as much as I could and still slide it into the larger pipe. Once under weight, and as grease got in there from a zerk, it became an extreme pressure bushing."

To change the angle of the rake, Gerken mounted a ball-end cylinder on the lower cross bar of the main frame and on the rake toolbar. By mounting it parallel to the swing frame's lower bar, the angle stays the same whether the rake is directly behind the tractor or offset to either side.

The offset is controlled by the trunnion cylinder. "I had looked at a number of different ways to swing the rake to the side," explains Gerken. "When I saw the trunnion cylinder at the Farm Surplus Center, it dawned on me that by mounting the trunnion inside the swing arm at its midpoint, the force would be exerted evenly against both the top and bottom bar instead of twisting."

The tine bar is 76 in. long with tines spaced at 2 1/2-in. intervals. Holes drilled through the top side of the square tube accommodate socket wrenches for tightening the two bolts that hold each tine. Gerken admits the entire landscape rake is probably over engineered. However, he notes that when fully engaged with rocks and dirt, adjusting it left or right can cause the entire tractor to slide instead.

"It is heavy duty enough that when I tilt the angled rake, it can cut into the side of a hill," he says. "If I angle it extremely and offset it, I can pull dirt up from a ditch into the trail. It also works great for pushing material back off the trail. When it's offset at an angle, rocks and brush just windrow to the side, leaving the soil and small stones on the trail."

The 6 gpm flow on his 26 hp compact tractor was sufficient for the rake and the tractor loader. However, more hydraulic remotes were needed. Gerken added three sets of valves to the two it had.

Gerken says he would be willing to produce a set of plans for sale and a supplier list for components.

Contact: FARM SHOW Followup, Jim Gerken, 39476 590th St., Zumbro Falls, Minn. 55991 (ph 507 253-2454; gerken @us.ibm.com).

Ganged Mowers Flex On Uneven Terrain

Don Kuntz ganged five push mowers together in such a way that they flex over ditches and other uneven terrain.

To mow his yard fast at a low cost and with flexibility over rough ground, Don Kuntz ganged five push mowers together and hooked them to his ATV.

"I started out with three mowers in a rigid gang, but it wasn't big enough, and it didn't flex," says Kuntz. "When I went to five mowers, I made some changes. Now they flex on uneven terrain and come apart easily, if needed."

The gang of mowers consists of two mowers in the front row with a mower following on each side and in the center. The gang structure is designed so each mower is connected independently of the other mowers. The gang pushes the front two mowers while the rear mowers are towed.

The key to the gang's flexibility is a short length of channel iron that's positioned between the two front mowers and rigidly attached to the center rear mower. Two 33-in. lengths of 1 1/4-in. steel tube are bolted to the rear decks of each front mower with about 11 in. overhanging each deck toward the center and bolted to the ends of the channel iron. The single bolt hinges the tubes to the channel iron and allows the front mowers to flex separately from the center rear mower.

Each outside rear mower is connected to the gang by 2-in. wide steel straps. The straps form a V with their open ends bolted to the mowers and the point bolted to the end of a short length of 1-in. steel tube. The other end slides into the free ends of the 1 1/4-in. tubes. The combination of steel strap and a single bolt connecting them to the tubing allows them to flex individually. In order to back the gang mower up, Kuntz ran a third strap from the front bar to one side of the V straps on each of the mowers. This acts like a stabilizer, keeping it in line with the other mowers without affecting flexing action.

"If I want to drop the outside mowers, all I have to do is pull a pin and slide the 1-in. tube out," says Kuntz. "For the other mowers, I just have to pull a couple of bolts."

The tow bar or tongue of the gang is a 1 1/2-in. steel tube. It's pinned to the front of the channel iron.

"When I built my first three mower gangs, I bolted the connectors between the mowers directly to the decks," says Kuntz. "The deck material is too soft and can't take the flexing. On these mowers, I bolted steel tubing to the decks and then bolted the straps or other connectors to the tubing. That reduces wear."

Contact: FARM SHOW Followup, Don Kuntz, 19328 State Highway 104, Glenwood, Minn. 56334 (ph 320 634-3212; dmkuntz @usfamily.net).

New Way To Protect Pickup Boxes

After a farmer had an irrigation pump just about punch through the cab due to an emergency stop, he figured he needed more protection in the box. His solution was a combination of a rubber floor and hard plastic side plates.

"He looked around and didn't see anything that would work," says Bryndon O'Hara, general manager, DualLiner. "Spray-in systems looked good, but wouldn't give the protection he wanted. And drop-in liners tend to fit too loose."

DualLiner's zero-skid rubber floor keeps objects from sliding. The snap-together hard plastic panels for the sides, front and back protect the rest of the truck bed. Because the liner fits so tightly, it doesn't interfere with shells, campers, covers or fifth wheel hitches.

Installation typically takes just 20 minutes. O'Hara says GM trucks do require a few drilled holes.

The rubber bed pad fastens into channels on the side plates, which keeps the wind from getting under the pad and flipping it up. It also gives the box a more finished look. The pad can be popped out in 30 seconds for a quick hose down or replacement if needed. Knobs on the underside help ensure that moisture drains out and the bed is able to dry off.

The liners currently are only available for full size American-made pickups. The suggested retail price is $400, and that is standard whether the bed is 5 1/2 ft. long or 8 ft. long.

The DualLiner is available through dealers. If there isn't a local dealer in your area, the liner components can be shipped out by UPS.

Contact: FARM SHOW Followup, DualLiner, P.O. Box 423, Kewaskum, Wis. 53040 (ph 262 626-1034 or 800 992-1949; fax 262 626-2735; www.dualliner.com).

DualLiner combines a rubber floor with hard plastic side plates to protect truck bed.