

Powered Quick-Attach Saves Time, Is Safer

Dale McLaen uses an electric actuator to make his older skid steer's quick-attach system even quicker. With the help of a couple of custom-made brackets, the actuator attaches to the 2 release arms. With its remote, the actuator easily releases one attachment and locks in the next.

"Getting in and out of my 743 Bobcat in the winter to manually lock and unlock the quick-attach levers was a real pain," says McLaen.

He considered building a remote controlled release that is hydraulically operated like newer Bobcats have. "That requires knowledge and plumbing wizardry I don't have," he says. "Plus there is the risk of accidental hydraulic feedback. It could cause the quick-attach locking system to move by itself and allow the attachment to fall off."

McLaen decided to go with an electric actuator. He ordered a 500-lb. capacity, 12-volt linear actuator from The Surplus Center (www.surpluscenter.com; ph 800 488-3407). The 8-in. stroke cylinder was equipped with

a built-in clutch. It prevents jamming when the cylinder ends travel.

The actuator was about a foot short of the length needed to attach to the 2 levers. A local blacksmith machined a couple of 6-in. long brackets to fit on the ends of the actuator and attach to the locking levers. He added pivot pins to connect the brackets and the levers.

"I made a series of marks on the locking levers where I thought the pivot pins should go," says McLaen. "Once I found the sweet spots, I drilled holes and welded in 7/16-in. pivot pins."

McLaen also added a 30-amp, DC polarity, reversing toggle switch to control the actuator. "I mounted the toggle switch on the overhead dash in the cab along with a fuse holder," he says.

When a winter snowstorm hit, the locking system was put to the test. McLaen switched back and forth between multiple attachments over a 5-hr. period.

"It worked as good and fast as a factory-



Electric actuator eliminates the need to manually lock and unlock skid loader's quick-attach levers.

installed, hydraulically-operated unit," says McLaen. "It was great to be able to just push up and down on the toggle switch and watch the locking levers move up or down instead of getting in and out of the cab."

Cost for the actuator and the toggle switch was \$215. The fuse holder and wire ran another \$20.

"If the actuator were to get damaged, I can remove it by removing 2 pivot nuts and wire connectors," says McLaen. "That would let me use the locking levers as before."

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Sap Sensors Detect Plant Needs

Spectrum Technologies' plant sensors detect nutrient needs and more. Electronic sensors and sensing devices for everything from soil moisture to plant sap measure vital soil and plant conditions, the first step in knowing what's needed to maximize yield.

"High-value crop producers and consultants are the likely customers of our plant sap sensors for nutrient levels," says Declan Nicholson, Spectrum Technologies. "Row crop and broad acre crop producers are more likely to buy weather stations and soil moisture monitors."

That said, the company's broad array of sensors can reveal nitrate, potassium, sodium and calcium levels, pH and EC (electrical conductivity). A variety of chlorophyll monitoring devices can indirectly measure the amount of nitrogen in the plant, as well as relative plant health.

Prices vary widely, depending on the speed and accuracy of the readout. The SPAD 502 Plus chlorophyll meter produces a chlorophyll content reading in less than 2 sec. at a cost of nearly \$2,500. However, for about \$150, the Fieldscout GreenIndex app works with a smart phone and a dark green color index board to find recommended nitrogen



A variety of sap sensors detect plant nutrient levels, including an electrical conductivity meter (above). A hydraulic plant sap press is shown at left.

rates and compare crop health under different fertility, fungicide or foliar treatments.

Pocket-sized meters can provide detailed readouts of nitrate, potassium, sodium and calcium in solutions, water samples or tissue sap. They can help detect deficiencies, as well as prevent over application. They range in price from \$196 for pH and EC levels to \$495 for calcium. For plant tissue sap tests of large

Simple Brush-Cutting Teeth Attach To Skid Steer Forks

Cal Miner needed a better way to clear invasive buckthorn and other brush. He came up with a simple pair of V-shaped steel "cutting teeth" that slide onto the tips of his skid steer loader forks.

He ground teeth into the tapered edges of a couple sections of road grader blade, welding the sections together. The back edge of each triangular cutting attachment has a hook on each side for cutting brush when backing up. Miner also ground a notch into the front of each attachment to snag brush. A bolt at the center holds each set of cutting teeth in place.

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V-shaped steel "cutting teeth" slide onto tips of skid loader forks.

or less succulent samples, the company offers a hydraulic plant sap press. The custom-built press extracts sap into a collection vial. It is priced at \$550.

"Vegetable, fruit and nut growers are more likely to use the press," notes Nicholson. "They will often order the nitrate and pH meters with it."

He adds that cannabis growers (hemp and

marijuana) are showing increased interest in both chlorophyll and nutrient meters.

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Compact Grain Vac Goes Where Needed

The Handlair 404 packs big grain vac components into a package small enough to mount in a pickup. Nicknamed the Little Giant, it is easy to maneuver into hard-to-reach places when mounted on a small cart.

"We put one together at a customer's request and realized there was a need for a small, versatile grain vac," says Barb Gilberts, Christianson Systems. "It has proven popular with anyone needing grain, feed or seed transfer. Even with large grain leg systems, there is a need to clean up spills and clean out pits, and make short transfers or pulls from one place to another."

Christianson Systems is a longtime supplier of grain vac systems. Many of the components and concepts from larger systems were used for the Little Giant. It uses the same air infiltration system to filter out dust before it goes through the blower.

The self-contained hydraulic system

eliminates the need for a chain drive to run the airlock. This allows the airlock to move either forward or backward should something lodge in the blades.

Like larger systems, the airlock is self-cleaning, with adjustable tips and vented end plates. Worn airlock blades can be adjusted or the tips reversed rather than having to be replaced.

"Discharge options include a regular hose or 2 sizes of cyclones," says Gilberts. "We have a small one for use with totes or bags and a larger one for truck boxes or bins."

The Little Giant is available in either electric or gas-powered models. It has a base price of \$23,800.

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Compact grain vac is small enough to mount in a pickup with a skid loader. It's available in either electric or gas-powered models.