

Device Solves Hydraulic Pressure Lock Problem

Dale Maney's Hose End Chamber (H.E.C.) makes hydraulic pressure buildup in hoses a thing of the past. The chamber relieves pressure when rising temperatures cause hydraulic oil to expand. Maney explains that people often don't know what the problem is, only that sometimes it's hard to reconnect hoses.

"Everyone I talk to who has hydraulics generally has a piece or two they have trouble with," says Maney. "If they haven't, it's probably because their hose coupler bleeds it off. I'll ask if they have a problem with thermal expansion, and they'll tell me no, but add that they have a bad coupler."

Left connected to a tractor reservoir, there is no buildup. It is when hoses are disconnected that the increasing pressure has nowhere to go. Maney finds that the flat base couplers found on newer equipment may be making the problem even more common.

"They stay cleaner and don't leak, but that increases potential expansion," he says.

The H.E.C. solves the problem. When inactive hoses are coupled to it, the chamber acts like a tractor reservoir, providing a place for the excess pressure to go.

While developing the H.E.C., Maney found that as little as 400 psi of additional pressure can lock up a traditional Pioneer-

style coupler. A flat coupler takes only 300 psi before it can no longer be reconnected. At the same time, thermal expansion can increase hydraulic pressure in a cylinder and hoses sitting in the sun from 1600 psi to 2400 psi when the temperature only goes from 45 to 50 degrees.

"Black cylinders absorb even more heat," says Maney.

He points out that pressure increases tend to be much less when equipment is parked inside or in the shade. Pressure differential decreases as temperatures cool.

It is bad enough when the male coupler locks up. However, with the thermal expansion, cylinders can activate on their own or damage seals and develop leaks.

"Thermal expansion can be a real problem when a wing that was stored in near vertical position lands on other equipment," says Maney. "I had problems with my pod trailer blowing seals while it was standing unused.

"Over time you will get a slight build-up of hydraulic fluid in the chamber, but that is better than having it run out on the ground or on a customer's drive," he points out.

Maney makes three H.E.C.'s. The H.E.C. L-12 large chamber is priced at \$75 and designed for full-size and multi-cylinder attachments. The H.E.C. S-12 is designed for



When inactive hoses are coupled to the Hose End Chamber, it relieves hydraulic pressure buildup in the hoses.

compact tractor attachments, and the H.E.C. S-38 accepts 3/8-in. couplers. Both the S-12 and the S-38 are priced at \$45.

"There is no drama or anything exciting about the H.E.C.," says Maney. "It just works. Some of my customers, like myself, have

them on every piece of hydraulic equipment."

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Amish Farmer Builds Stainless Steel Manure Spreaders

Several years ago, when Levi Miller was a young 24-year-old farmer, he started rebuilding old manure spreaders for friends and neighbors. Miller says he tackled the tough work because every bearing and pivot point on used spreaders eventually wears out, and not every owner wants to fix the problems. A local Deere dealership where he acquired parts suggested that instead of repairing old models that maybe he should start building new ones. Taking that advice, Miller built 2 brand new ground-driven 95-bu. models in 2012.

"The top rails, top beater, wings, back wings, shields, beater bars, apron bars, widespread paddles and links on my spreaders are 100 percent stainless steel. We put all 2060 chains on the beaters and the web has

a 5-speed ratchet drive. We use high quality 3/4-in. plywood for the sides and bottom, and install a 1/8-in. plastic liner. I asked the farmers we made them for if they wouldn't rather have a stainless steel floor, and they said they preferred a plastic liner."

Miller's design has held up so well that 5 years later the original owners say the spreaders "are as good as new". Miller has also built a 95-bu. spreader with all stainless sides and polyboard bottom using the same mechanisms and selling at the same price.

Miller says his brother-in-law helped him change the pivot point on the ratchet arm to alleviate the "bam-bam-bam" noise common to many commercially made spreaders. His design replaces that action with a smooth ratcheting mechanism that hardly makes a

sound and greatly reduces stress on the drive. Another improvement is lining up the grease zerks on the outside of the shields rather than having them located on pulleys behind shields.

For the front of his spreaders, Miller uses new axles and channels similar to those on a wagon. "I put the pulling point 3 ft. behind the front end and installed wagon springs so when the spreader encounters a bump the whole front axle can give, which reduces a lot of stress and provides a smoother ride for the farmer," Miller says.

In addition to pull-type 4-wheel spreaders they also build 2-wheel tractor spreaders and single-beater endgate spreaders. Deere roller pin bearings are used on all the beaters and main axle. Miller says roller bearings hold

up better for wear.

Miller adds, "Our goal is to build a tough, hard-working and low-maintenance spreader that will last a long time. They work extremely well for manure, and we also have an attachment available to convert them into lime spreaders."

Prices are \$6,675 for a 2-wheel 75-bu. spreader up to \$7,450 for a 95-bu. 4-wheel model. Stainless, polyboard or plywood are specified at the time of order. A stainless steel spring-loaded endgate is also available.

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He Says New Tillage Methods Improve Plant Growth

In 2011 Curt Forde invented a modification called Flow-Shields for row crop cultivators to improve cultivating performance. He's also experimented with solid-seeded corn and has modified a 20-ft. wide Deere corn head to harvest in any direction.

Now he's blending 2 tillage concepts, a primary method he calls "Reverse Tillage" and a secondary method called "Track Tillage". "Reverse Tillage" blends old crop residue into the soil using a disk rather than just burying it. Track Tillage deep-tills wide spaced trenches below the depth commonly run by a field cultivator. Forde says the trenches provide a place for heavy rainfall to soak into the soil, which helps establish a deep plant root system.

Forde says he modified a Bush Hog chisel plow to create his "Track Tillage" implement. "I started by mounting 9 chisel plow shanks on the back beam exactly 20 in. apart. Then I added 2 rows of CIH field cultivator shanks on beams in front so they lined up exactly with those on the rear. The implement gives me 9 rows with 3 shovels each, digging progressively deeper from front to back."

Forde says as the implement goes through the field, soil is loosened and lifted into 12-in. high ridges between the shanks. The soil in the ridges warms up quickly and allows seed

to be placed in a warm and moist environment for quick germination after just one pass with the field cultivator right ahead of the planter. Says Forde, "It's a method that allows both organic and conventional farmers to work and plant their ground sooner in the spring. The planter row units easily press down the soil in the row area into an ideal seedbed, leaving the soil in between the rows course, porous and fluffy in miniature ridges about 4 in. tall. The loose soil also discourages early weed growth. The ridges act like miniature terraces to absorb moisture, even heavy rainfall, and allow it to soak into the subsoil rather than quickly running off."

Forde says using the Track Tillage method in conjunction with Reverse Tillage helps eliminate runoff to control water loss and erosion. Rotary hoeing or tine weeding further levels the soil, helping cover up any weeds attempting to grow in the row area.

In addition to farming, Forde sells Flow-Shields, bolt-on metal plates that mount on shanks of row crop cultivators. Soil dug up by the cultivator shanks hits the shields, which break up clumps and divert the soil directly into the rows near the base of the growing crops, knocking down and covering up smaller stemmed weeds and grasses growing between crops. "Flow-Shields let you drive



"Track Tillage" implement has 9 chisel plow shanks on back and 2 rows of field cultivator shanks on front that line up exactly with those on back. Shanks dig progressively deeper from front to back.

faster while cultivating and do a much better job," says Forde.

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As implement goes through field, soil is loosened and lifted into 12-in. high ridges which warm up quickly.