Rear steering wheels are held off ground when traveling in a straight line but drop down automatically when operator touches steering wheel to make turn.

Caterpillar Tests New Prototype Track Kit

Eifling Farms, Hollendale, Miss., tested a prototype rubber track conversion kit, provided by Thompson Machinery, a Caterpillar dealer in Greenwood, Miss.

Instead of equipping the new tracks with a differential drive system that would slow down and speed up tracks separately in order to turn, Caterpillar designed a less expensive and less complicated new steering system that holds the rear steering wheels off the ground except when the steering wheel is turned. The only time the wheels touch the ground is while turning.

The innovative steering system includes a hydraulic cylinder mounted next to each rear wheel. When the driver turns the wheel, the cylinders automatically lower the wheels to turn. Accumulators keep constant tension on the tracks, which can be made in any width from 16 to 27 in.

The only disadvantage Boyd Eifling says he's found so far is that the ride is a little rough for the operator. "It will find the bumps. But an air seat could solve a lot of the problem."

For improved traction, the front drive wheel of the half track is larger than the idler wheel. That's different from the standard Caterpillar design, says Eifling. "The front wheel is the drive wheel. On the Caterpillar Challenger, there's just as much surface area on the drive wheel as on the idler wheel. If you get in a real slick situation, there's got to be a weight transfer somewhere and that's the reason for the bigger drive wheel. Until we went to this type of drive wheel, we were seeing some slippage inside the belt."

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Christianson tracks fit over standard tractor tires and are held in place by side plates fitted with rollers that ride against wheel rim. (Photo shows 16-in. wide tracks on one side of tractor and 30-in. wide tracks on the other.)

New Rubber Tracks Fit Over Rear Tires

A prototype "row crop capable" rubber track system that fits over a tractor or combine's existing drive wheels was shown for the first time at the recent Farm Progress Show in Iowa.

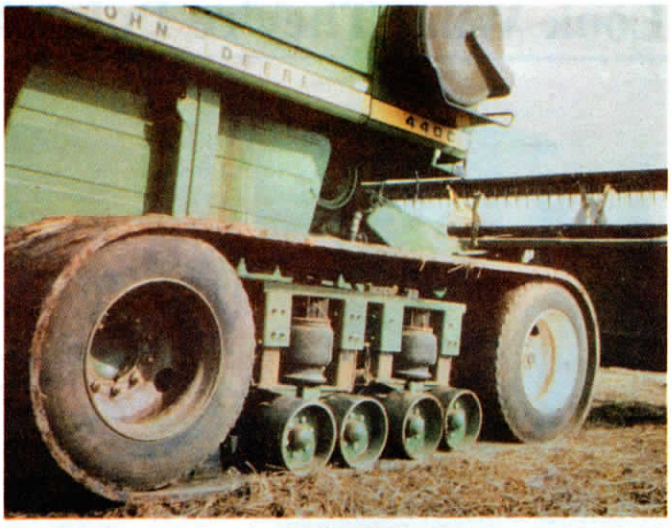
The add-on rubber track system, designed by Peter and Earl Christianson, Fargo, N. Dak., was shown on a Case-IH 7110 2-WD tractor. The track is held in place by a pair of steel rollers, one ahead and one behind the wheel, and a pair of side plates that fit over the inside and outside of the wheel rim. Four small rollers, mounted on each side plate, roll against the rim to keep the track undercarriage aligned.

"Our goal was to make rubber tracks system that are simple, adaptable, and affordable," says Peter. "This prototype system is relatively simple to build and mounts right on the tractor without modifications. It can be easily adjusted for different row crop spacings by simply adjusting the position of the wheels on the axle the way you would normally. Our tracks ride much more smoothly than other rubber tracks because they fit over air-filled rubber tires. Gives you the benefits of both tracks and tires and also runs at normal speeds.

"Each track has four contact points - the top and bottom of the tire and the two rollers, one located at each lower corner of the track. There are two friction or drive points - one on top of the tire and one at the bottom. The footprint of the track is 300% larger than a normal tire.

"Switching to a different track width is no more difficult than changing tires. You can use 16-in. wide tracks for row crop work and 30-in. wide tracks for tillage work or on a combine for harvest."

The Christiansons are still at a prototype stage in their design, but anticipate having the system on the market next year. No further information is available at this time.



Idler wheels mount on 4-in. sq. lengths of steel tubing that move up and down inside 6-in. sq. brackets that are lined with poly.

He Made Rubber Tracks To Fit His Deere Combine

"It helped me get through wet conditions last fall with no problems," says Mel Gerber, Versailles, Mo., who equipped his Deere 4400 combine with 9-ft. 10-in. long Caterpillar rubber tracks that he mounted on a home-built undercarriage.

Gerber paid $1,000 apiece for the used belts which he bought from another farmer who had been testing the 24 1/2-in. wide prototypes for Caterpillar. He mounted the belts over a pair of used semi-tractor tires that he bolted on in place of the combine's original wheels.

He then removed the combine's final drives and transmission, replacing them with a dual hydrostatic drive system. A hydraulic pump and motor are used to power the drive wheel on each track. He steers by varying oil flow to the pumps.

Between the two main wheels, Gerber built a flexible suspension system that allows the belts to "walk" over terraces without overcentering or tipping. A pair of truck air springs mount above the four idler wheels. The air springs absorb shocks as the idler wheels work their way over obstacles or uneven terrain.

Idler wheels mount on 4-in. sq. steel tubes that move up or down inside 6-in. sq. steel tubes as they flex up or down. The 6-in. sq. steel tubes are lined with poly so there's no metal-to-metal wear.

"I used the tracks for about 250 hours last fall. They worked great," says Gerber. "I also used them to harvest wheat last summer in wet ground. The suspension system lets me drive over terraces like a wheeled rig without tipping overcenter. It also applies more uniform pressure on the ground. The tracks apply only 4 1/2 psi. to the ground when fully loaded. Conventional tractor tires apply 12 to 13 psi.

"I cut off the lugs on the belts to make it easier to turn, but turning is still a problem because the tracks are so long that they scoop a lot of dirt when turning. However, this fall I plan to put more air pressure in the springs to try to solve the problem.

"I spent about $24,000 to mount the tracks on my 6-row combine. Eventually I'd like to adapt them to a bigger combine, but I wanted to try it first on a small model to see if it would work."

Gerber says he's willing to custom-build combine-mounted tracks for other farmers.

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