

"USED TO BE A 4 HOUR JOB"

Takes 5 Minutes To Switch Heads On Modified Combine

"With the modifications I've made on my combine, I can pull out of a soybean field and without using any wrenches, switch heads and have the machine ready to harvest corn—with a little help from my son—in 5 minutes. It takes 10 minutes if I do it myself. Without the modifications it would be a 4 hour job," says Floyd Knewton, Madelia, Minn., farmer and inventor. Knewton made the modifications on a New Holland TR-70. Some of his "shortcuts" could be applied to other makes and models.

"I really like my New Holland TR-70 and these changes help make it better. Hopefully, our next combine will have some of these ideas incorporated."

Pictured are the modifications Knewton made to make changing the combine from one crop to another a quick job. He also made other modifications to speed adjustment and improve performance of his combine. They include:

- Installed spring-loaded belt tightener adjustment on 2-speed straw chopper drive belt. Eliminates having to completely disassemble the tightener and change pulleys.
- Replaced steering cylinder with one with a 2-in. longer stroke and cut off part of the cylinder stop so the combine turns sharper. This modification cuts the combine's turning radius in half. (Knewton says New Holland improved the steering on later models).
- Installed an electric motor (1 1/4 hp.) to control rotor speed. Controlled by a toggle switch in the cab, it replaces the old hand

crank system of changing rotor speed. Motor allows rotor speed to be increased immediately "on the go" to get through heavy spots, or weed patches, without plugging.

- On the bean head Knewton practically eliminated reel wrapping by simply welding an extension to the end of the feed-in auger flighting. He discovered that the blunt edge at the end of the flighting caused most of the wrapping problems. He simply welded a section to the end that tapers down to the auger tube.

- Modified the Love bar so up and down movement is now 12 in. instead of 8 in.

- Painted the reel black so it's easier on the eyes during night time harvest.

- Installed electrically powered switches—one under the header drive control lever, the other under the unloading auger drive control. Alarm sounds and warning light goes on when both levers are pressed down. Alerts operator if he's unloading as he's harvesting.

- Hydraulic lines leak and drip on the belts causing them to wear. To solve the problem, Knewton installed a drip pan over the drive belts. It collects oil and drains it down a tube to the ground.

- Mounted the steering wheel on a pedestal attached to floor and lowered it 4-in. Original mounting on a pipe that ran across the front of the cab obstructed the operator's view.

For more information, contact: FARM SHOW Followup, Floyd Knewton, Madelia, Minn. 56062 (ph 507 642-8775).



This prototype 12-ft. wide "stripper combine" is about the size and weight of a conventional grain head.

SPINNING DISCS STRIP GRAIN FROM STALKS

This "Stripper Combine" Mounts On A Tractor

"Stripper combining is the harvest system of the future for all small grains, including soybeans," says Cordell Lundahl, who's worked for years on a stripper combine that removes only the grain heads and pods from plants, leaving stalks standing in the field.

What makes Lundahl's stripper different from the new British stripper combine (see cover story) is that Lundahl's stripper head is a totally self-contained harvester that mounts on a tractor, unlike the British stripper head which mounts in place of a grain platform on a conventional combine.

Lundahl, who's best-known invention is the Hesston Stakhand, collaborated with Deere engineer Neil West to build his stripper combine. When Deere decided several years ago not to go ahead with commercial production of the head, rights to the invention reverted to Lundahl. "No one can believe how well it works. We can travel at speeds up to 14 mph and thrash 99% of the grain in the head. There's only about half the loss of a conventional combine and it cracks less than half as much grain. The machine is simple, with only a few moving parts, and it mounts on a tractor. We figure it could be built to sell for around \$20,000, which is why it's not on the market. Companies have too much money tied up in full-size combines to switch to an inexpensive machine like this," Lundahl told FARM SHOW, noting that Deere has a new version of the stripper combine that it's still working on.

Lundahl's stripper combine is about the size of a grain head on a conventional combine. An up-front brush, fitted with heavy nylon bristles, bends the grain stalks backward into a row of round metal discs that strip heads off the stalks. The discs, spinning at 2,000 rpm's, throw the grain and

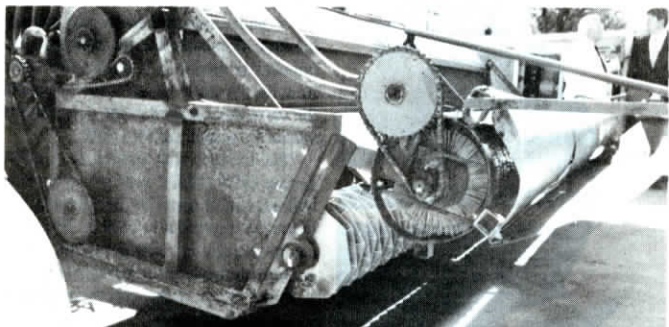
chaff backwards into a rotating separator screen. The screen allows grain to fall into a feed-out auger and carries chaff, and bits of stripped-off straw, out onto the ground. If any grain heads remain unthreshed by the initial stripping action of the discs, they're threshed by a pair of feed-out brushes positioned where the feederhouse would normally be. All grain goes through the two closely mounted brushes on its way to a load-out auger, which carries it to a trailing wagon.

Critical to success of Lundahl's stripper combine is maintaining correct height so stalks feed evenly into the stripper mechanism. To make it easy for the operator, Lundahl invented robotic header height controls. The controls worked so well, Lundahl licensed them to other manufacturers for use on their combines.

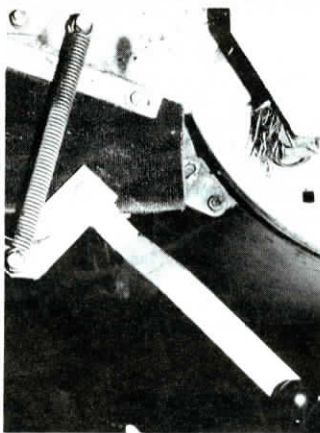
The Lundahl stripper separates about 97% of grain from the heads as it's stripped off the stalks, according to Lundahl, who notes that in a moist crop most of the hulls are left on the stalks so that from a distance it looks like the crop hasn't even been harvested. The rest of the grain is threshed as it's augered past separating screens on its way to a load-out auger. All chaff is deposited back on the ground.

"It's an extremely efficient and inexpensive way to harvest grain. That's why we feel there's no question it's the system of the future," says Lundahl, noting that he's still negotiating with major manufacturers interested in the stripper harvester.

For more information, contact: FARM SHOW Followup, Cordell Lundahl, Lundahl International, 710 North Sixth West, P.O. Box 268, Logan, Utah 84321 (ph 801 753-4700).



Nylon bristled brush on front edge of combine bends stalks backward into a row of metal stripping discs.



Over-center lever allows concave teeth on straw chopper to be moved in or out with a flip of the lever. Factory system involves removing 4 bolts to move the teeth.



Quick-release handles with spring loaded locks speed up head removal and installation. They replace the original pin and locking clip system.



Quick-adjust cranks raise or lower the rock trap. Auxiliary handle releases rock trap without removing any guards. Spring-loaded chain tightener on rock trap drive chain and header drive chain maintains proper tension.



Hand-crank set height of feeder house's front roller eliminating having to adjust 6 bolts.