



One modification Kinzenbaw makes when repowering Deere 4-WD's is to move the exhaust and air cleaner stacks off to the side so the hood can be made to hinge.

KINZE MFG. REBUILD KIT REPLACES DEERE'S ENGINE WITH 855 CUMMINS

Repowered Deere 4-WD Runs "Better Than New"

By Mark Newhall, Editor

Farmers at the recent World Ag Expo near Amana, Iowa, crowded around a Deere 8630 4-WD tractor displayed in the Kinze Manufacturing exhibit. The first thing they all noticed was the tilt-up hood, made possible by side-mounted exhaust and air cleaner stacks. If they looked a bit closer they also noticed that this Deere tractor didn't have a Deere engine.

Jon Kinzenbaw, president of Kinze Mfg., with the help of employee Jim Spaid, repowered the Deere 8630 with a Cummins 855 engine. "The 619 engine in Deere's 4-WD tractors has been a disaster. Many of the engines in early model 8630 and 8640 lasted only 2,500 hrs. or less. Deere replaced them at a fraction of new cost but with the same engine. Most farmers who own one of these tractors have already faced - or will face in the future - a complete overhaul that can cost as much as \$11,000 or more. Our repowering kit makes the tractor better than new."

Kinzenbaw has been repowering Deere tractors since the late 1960's when he came up with a "kit" to repower Deere's 5020's. "It had a very heavy-duty transmission and rear end but the 535 cu. in. 125 hp. engine was under-powered. We converted 200 to 300 tractors with a Detroit diesel engine, including conversion kits we sold to farmers and machine shops around the country.

"When Deere introduced their new generation 4-WD's in the mid-1970's, it had the same basic engine used in the earlier 5020's but was rebored for more power. Many owners had trouble right away with the block, head, head gasket, cylinder sleeves, and so on. Deere tried to get more power out of the engine by installing turbochargers, coolers and other add-ons, but they weren't enough. If they had taken the time to design a new engine with about two more inches of length they could have solved many of the problems," says Kinzenbaw.

"I know one farmer who rebuilt the en-

gine in his 8630 last winter and then, less than 200 hrs. later during planting, it blew up and he had to buy a new engine for \$14,000. Two other local farmers blew up the engines in their 8630's this summer. They had no choice other than to install Deere engines and parts because the tractor is built so that the engine is an integral part of the frame. No other engine can be used without a major rebuilding job," says Kinzenbaw, adding that so far as he knows he's the first person to install a non-Deere engine in an 86 Series 4-WD. "It was a very complicated job that took us 4 months to complete."

The modified tractor looks almost like an unmodified 8630 except for the exhaust and air cleaner stacks which mount off to the side of the front hood. The side-mount positioning allowed Kinzenbaw to put a front hinge on the engine hood so it can be easily tilted up for service. "Taking the hood off this tractor was a big chore because if you couldn't unbolt the muffler you had to lift the hood up over the exhaust pipe."

To mount the Cummins engine (fitted with a variable speed governor) in the tractor, Kinzenbaw first built a 2-in. thick adapter plate on back of the Cummins engine to match up with the bellhousing on the Deere driveline. Because the tractor has an oil clutch, the plate had to be double-sealed to keep clutch oil out of the engine and engine oil out of the clutch housing. Kinzenbaw also had to adapt the Deere clutch to the back of the Cummins engine, which was one of the trickiest parts of the conversion because of tolerances as tight as 10,000ths of an inch.

A sub-frame runs around and beneath the engine from the 2-in. adaptor plate up to the front of the engine where it supports a front-mounted hydraulic pump and fastens to the front axle. Originally, the Deere engine functioned as part of the tractor frame, mounting directly to the front axle. That



The lower front end "floats" along the ground on a curved skid plate and the entire unit pivots up and down on the axle.

GREAT FOR FARMERS WITH LIMITED MANPOWER

Bale "Picker Upper" Saves Time, Labor

An Ohio farmer who can't always find enough manpower when his hay is ready to bale built a "picker upper" that reduces the time and labor required to go back into the field later to collect bales off the ground.

"There's nothing like it on the market. One man drives the tractor and one rides on the wagon. You don't need one or two people on the ground to pick up bales," says Charles Friend, who farms near Mansfield. He got the idea for the picker-upper 5 or 6 years ago when he had 1,000 bales to bring in and couldn't find a crew to load bales onto wagons directly out of the baler. "We only use the picker-upper when labor is short but it's great to know it's there when we need it."

Friend built the unit from the ground up out of 2 by 2-in. sq. tubing and bale elevator chain. It mounts on a two-wheel trailer that's offset to the side. A 2 1/2-hp. gas motor provides power, running at a constant fast idle. The engine is "double reduced", belt-driving a large pulley that chain-drives a sprocket which supplies power to the elevator chain. The lower front end of the

unit "floats" along the ground on a curved skid plate and the entire unit pivots up and down on the axle. Forward momentum of the unit forces bales up onto the chain. Three hold-down fingers at the lower end of the picker-upper keep the bale from bouncing as it rides up the unit. When it reaches the top the bale comes to rest on a platform, ready to be loaded onto the wagon.

"We've broken only one string on the last 500 to 600 bales we've picked up. It won't pick up a crosswise bale but 99% of bales are lined up in line with the windrow. Once you get started you almost never have to stop. We can load 100 bales in 15 to 30 min., depending on ground conditions and density of the bale row," says Friend, who'd like to find a manufacturer for the picker-upper. "Commercial bale retrieval wagons cost as much as \$35,000. This unit could be manufactured for around \$2,500 and would be great for farmers with limited manpower who make 2,000 to 3,000 bales annually."

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unusual design - along with the bell housing that's unique to Deere - is the main reason owners have not been able to install other engines in the tractor, notes Kinzenbaw.

One big advantage of using the Cummins engine is that it's so widely available. "It's much more reliable and inexpensive to service than the Deere engine because 3 out of 4 semis on the highway use basically the same engine. I recently had to rebuild the Cummins engine in our 1980 Kenworth that had about 400,000 miles on it. The cost of the job was just \$2,900 compared to anywhere from \$5,000 to \$11,000 for a similar rebuild job on a Deere 619 engine."

Kinze Mfg. plans to offer a complete repowering kit to farmers or machine shops interested in making the conversion. The company will also repower tractors at their Williamsburg, Iowa factory. Total cost of \$15,000 includes the engine and all required parts. "A new engine costs around \$14,000 and still doesn't solve the basic

problem with this tractor. Once you repower with a new Cummins engine, the tractor runs better than new and chances are you'll never have trouble with the engine again," says Kinzenbaw, noting that he expects Deere's prices for new engines and engine rebuilding to come down as a result of the new Kinze rebuild kit. "After we challenged Deere's patents on their Max-Emerge planter in court several years ago, prices for parts and row units dropped 50% or more. We think the same thing will happen with this engine."

Kinzenbaw says Deere's recently introduced new 4-WD series still uses a modified version of the 619 engine to power the two smaller 4-WD models, although the largest model - the 8960 - is fitted with a Cummins engine.

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