

"Owner's Report" On Repowering Tractors

You've got two choices when the engine in a tractor wears out: 1) Overhaul the existing engine; or 2) Repower it with a different engine.

An overhaul generally costs less but repowering can give you a better engine that's got more power and uses less fuel. What's more, new engines generally come with better warranties.

We contacted farmers across North America who made the decision to throw away their old engines and start fresh with new ones. In most cases, the engines they used were not originally designed to fit their tractors. To successfully install them requires some ingenuity and creativity.

Here's what we found out:

Daniel Chapman, Florence, Ky.: As track manager for a horse racing park, Daniel and his 23-man crew put plenty of hours on their six tractors during each racing season. Most of the use is for track conditioning with 20-ft. harrows pulled at 8 to 10 mph. They've learned the hard way that when tractors are used hard, sooner or later something's bound to give. That's what happened recently to their 1991 and 1992 **Deutz-Allis 9150's**.

"They each had about 27,000 hours on them and were starting to lose power," says Daniel. "We would have preferred to repower them with the same 6-cyl., 150 hp air-cooled diesels that they were originally equipped with. However, EPA emission restrictions wouldn't permit that."

So last summer the race track hired Hunley Sales & Service, Austin, Ind., to install Cummins 6-cyl., 504 cu. in., 180 hp water-cooled diesels for about \$20,000 apiece. And Daniel couldn't be more pleased.

"Cosmetically, you can't tell they did anything to them. But when you crack the throttle, they're gone," he says. "Besides having a lot more power, they also seem to be a little easier on fuel than the air-cooled engines. We haven't had a minute's trouble with them and we don't expect to."

Scott Heinz, Charles City, Iowa: "They run super," says Scott about two 1979 **Case-IH 4586 4-WD** tractors he had repowered at Costello Diesel Service Inc. of Fairbanks, Iowa. Both the 4586's were originally pow-

ered with Case-IH 800 cu. in. V-8 diesels. Both engines failed at about 3,300 hours.

The company repowered the tractors with 855 cu. in. straight 6-cyl. Cummins diesels, which required lengthening the frame 18 in. to accommodate the longer engine block and installing an entirely new flip-up hood instead of the original bolt-down hood. Cost of repowering the first tractor four years ago was \$12,000 because the engine was on sale at the time. Cost of repowering the second tractor last winter was \$18,000.

"Each of the engines has 60 more hp than the original, which is important since we use

"Each of the engines has 60 more horsepower than the original."

them for heavy tillage," says Scott. "Even with the extra power, we save about 5 gals. of fuel per hour. The original engine used approximately 17 gals. per hour, while the Cummins uses 12 gals. The original V-8's may have started a little easier in cold weather, but that's not a big issue since we just plug them in when it gets cold."

Arvid Boyum, Kenyon, Minn.: "Cummins has enough confidence in this engine to warranty it for 1,200 hours and that played a big part in my decision to repower,"

says Arvid, who had his 1980 **Ford FW 20 4-WD** repowered with a Cummins LTA10 350 hp in-line 6-cyl. engine last spring. But that wasn't the first time he had repowered the tractor.

The tractor, which was built for Ford by Steiger, was originally powered with a 180 hp 555 V-8 diesel. Arvid repowered it the first time at 2,000 hours with a rebuilt 903 cu. in., 330 hp Cummins diesel that ran for about 1,500 hours before badly leaking valve guides convinced him a third engine was needed.

He had the work done at Larson Tractor in Zumbrota, Minn.

"We replaced everything from the transmission forward with new parts and moved the radiator ahead 3 in., which you don't even notice," he says. "I've only used it in the field for about 15 hours but it seems to perform beautifully. It's a very fuel efficient engine and it's amazing how well it starts."

Cost of the project was somewhat over \$20,000.

Tom Wagner, Primghar, Iowa: Tom and his brother Jim's 1968 **Deere 4020** began developing engine problems a couple of years ago, just shy of 9,000 hours. Finally, the original 404 cu. in. 95 hp diesel simply froze up.

"We considered having it overhauled, but decided to repower it instead," says Tom. "We would have spent roughly the same money overhauling it, but we got a two-year warranty on the engine by repowering it."

The Wagners got a rebuilt 466 cu. in. diesel out of a 7720 Deere combine from the Motor Works. The Sibley, Iowa, company specializes in repowering Deere 4000's, 4010's, and 4020's with newer-style Deere diesels without changing the appearance of the tractors. The Wagners had the work done at their local implement dealer where the tractor was hauled after the engine froze. Cost for the repower job was about \$9,000.

"They tuned the engine to 100 hp," says

Tom. "It has a lot more torque and power than the original which makes it ideal for grinding feed, its primary use around our farm. We never pull the engine rpm's down grinding feed anymore."

Russell Felsch, Minnesota City, Minn.: Russell had two gasoline-powered **Oliver** tractors repowered with Cummins diesels. Altura Truck and Tractor in Altura, Minn., did the work on the 1967 model 1650, which had about 8,000 hours on it, and the 1965 model 1850, which had about 7,000 hours on it.

"We had already replaced the rod bearings and cam shaft bearings in the 1850 and had rebuilt the engine in the 1650 three times," Russell says. "Both engines were just plain worn out."

Both tractors were repowered with Cummins 6B in-line 6-cyl. engines, with the one in the 1850 set to 105 hp and the one in the 1650 set to 75 hp. Part of the frame on the 1850 had to be cut away to accept the new engine's oil pan. Part of another tractor frame was added to the 1650 to support the engine and a 12-blade fan was installed to cool the tractor.

"They're working out great," says Russell. "During cold weather, we don't need to use the engine heater on the 1850 until it gets down to 20 degrees or more below zero. It's an excellent cold-starter. We have to plug in the 1650 when it gets below 0 degrees because it was powered down slightly from its original rating. They're real stingy on fuel, too. The 1850 uses only about 2 1/2 gals. per hour in heavy use while the 1650 uses only about 1 1/2 gals. per hour. And they've got much more steady, dependable power."

"The only problem we had was a cracked exhaust manifold on the 1850. But that was covered by Cummins North Central's five-year warranty so it was fixed immediately for nothing."

IH 4-WD Tractor Repowered With Cummins M11 Diesel Engine

Soon after he bought a used 1981 International 4786 4-WD tractor, Ray Jensen started noticing that the IH 800 diesel engine was using a lot of oil. "Supposedly the engine had been overhauled shortly before I bought the tractor, but I wasn't happy at all with its performance," says Jensen.

It wasn't long before he had to make a decision on whether to rebuild or replace the engine. He decided to replace it with a new Cummins M11 6-cyl. turbocharged diesel engine with about 350 hp.

"I couldn't be happier with it," says Jensen, who made the conversion last winter. "This engine is used in some over-the-road semi trucks as well as in some new tractor models. I spent about \$20,000 but it was worth it. I use the tractor to pull a 32-ft. disk, 34-ft. field cultivator, and subsoiler.

"Midwest Diesel of Beemer, Neb., did the work. Most companies that repower this tractor model install a bigger Cummins 855 6-cyl. diesel engine. It requires lengthening the tractor frame and I didn't want to do that. I got a new engine for about the same cost as installing a used 855. I think installing the new engine is a more economi-

cal way to go because it will have a longer life and will probably outlast the tractor. The engine runs very well and has excellent torque.

"The tractor's original hydraulic pump bolts onto the side of the engine just like it did on the old engine.

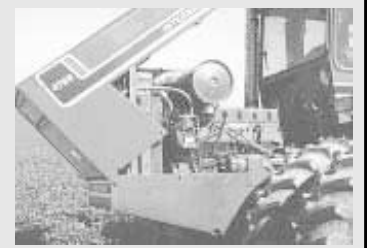
"The new engine was longer than the original one so the radiator had to be moved ahead, and a new tilt-forward hood was made to replace the original bolt-on hood. The exhaust muffler on the original hood ran up through a hole in the hood, partially blocking the driver's view. The problem was solved by mounting a new muffler on the side of the tractor just like on newer tractor models."

To further update the tractor, Jensen installed a new cab interior using a pre-cut, pre-sewn liner kit sold by Fehr Cab Interiors, Fairbury, Ill. ph 815 692-3355 (see FARM SHOW'S Vol. 18, No. 1).

A spokesman for Midwest Diesel says they've repowered another IH 4786 tractor with the same Cummins engine for another farmer. "We've also repowered a number of Allis-Chalmers tractors and Allis and Case payloaders with Cummins engines," he notes.



Photo above shows turbocharger intake and short section of flexible tubing used on exhaust system. Photo at right shows air cleaner on top of engine as well as the hydraulic oil filter.



Contact: FARM SHOW Followup, Ray Jensen, 86368 579 Ave., Wakefield, Neb. 68784 (ph 402 528-2555) or Midwest Diesel, Box 307, Beemer, Neb. 68716 (ph 402 528-3201; fax 3202).