

Owner's Report On Repowering Tractors

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John Timm, Utica, Minn.: John's early 1960's **Farmall** 806 tractor was burning a lot of oil by the time the engine had 6,000 hours on it four years ago. The original 301

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cu. in., 90 hp International engine was wearing out.

"If I had it overhauled, I would have spent half of what I did by repowering it. But this way, I got a 1-year warranty on the engine," notes John, who equipped the tractor with a 359 cu. in., 166 hp, turbo-charged Cummins diesel at Altura Truck & Tractor in Altura, Minn. The job, which cost about \$10,000, also involved replacing the original air filter with a larger one and relocating the filter to the top of the cab.

"We use it to power our pto-driven corn dryer and it uses a little less than 3 gals. of fuel per hour running at 3/4 throttle," he says. "That compares with 4 1/2 to 5 gals. per hour using our IH 4100, our Case 1370 or our Case 1175. It's now the most fuel efficient engine on our farm and it's easy starting in winter."

Dennis Clark, Sibley, Iowa: "After looking at our options, we decided repowering our tractors was the most economical way to go," says Dennis, who replaced the engines in his 1971 **Deere** 4000 and his 1982 **Deere** 4440. The Motor Works in Sibley, Iowa, did the work.

The Deere 6-cyl., 90 hp diesel in the 4000 had 10,000 to 12,000 hours on it and was basically worn out, Dennis says.

"We took the 130 hp engine out of the 4440 and put it in the 4000. Then we bought a like-new Deere 466 cu. in. engine, which had been run only about 250 hours on an irrigation pump, and installed it in the 4440.

"We've very pleased. Both engines have been good to us. The engine in the 4000, which we use for loader work and spraying, is definitely a better-starting and better-performing engine than the original. The 466 cu. in. engine in the 4440, which we use for cultivating, baling, manure hauling and planting, is practically new and has given us no trouble."

Rick Van Daele, Fairbank, Iowa: Rick bought three 4-WD **International** 4586's with blown International V-8 diesel engines and repowered one each winter, beginning several years ago. Costello Diesel Service supplied the kits and the work was done at their shop.

He used reconditioned 855 cu. in., 360 hp in-line 6-cyl. Cummins diesels (one out of a tractor and two out of semi's) in the tractors, which he uses for heavy tillage, anhydrous ammonia applications, field cultivating and putting in tile lines.

"We added about 16 in. to the front end of each tractor and installed tilt hoods," he says. "Getting the engine perfectly level and re-wiring it were the most time-consuming parts of the job. I understand that the original V-8's in these tractors used to run at 2,900 rpm's. The Cummins runs at 2,000 or 2,200 rpm's so we're able to run everything up a gear when working. They use about one-fourth

less fuel than the V-8's and they have a lot more low end torque. We're real happy."

Don Knasel, Maplewood, Ohio: A Ford tractor collector, Don is in the process of repowering a 1950 **Ford** 8N just for show.

"It had a 4-cyl. engine that had been rebuilt many years ago," he says. "When we got it, the engine was seized up."

So Don bought an \$850 repower kit from R.L. Stauffer Inc. that includes a bell housing adapter and brackets that let him install a rebuilt 85 hp, flathead V-8 out of a 1950 Ford truck with 3,400 miles on it.

Curt Haler, Vermillion, Minn.: As one of the managers at Ger-Bes Farms, Curt oversees mechanical work on the farm's equipment, including two **White** 2-155 tractors (1977 and '78) which were originally powered by Hercules 6-cyl., 478 cu. in. diesels. Each was repowered at around 4,000 hours with new Cummins 5.9-liter in-line 6-cyl. diesels set at 170 hp. Engines were purchased from Cummins North Central.

"It was simple economics," explains Curt. "When you have to install new crankshafts, as we would have had to do on both these tractors, it costs only a couple thousand dollars more to completely repower."

Curt and associates did all the work themselves, including remanufacturing the exhaust and air duct systems on the tractors. The work on each took 35 hours and cost about \$10,000.

"Before the repower we burned around 8 gals. of fuel per hour plowing and hauling grain," he says. "Now we burn just 4 1/2 to 5 gals. per hour. Performance and power is exceptional and they start great. They have a lot of low end torque. We expect to get between 6,500 and 10,000 hours from them, as long as they're well-maintained which, to us, means changing oil every 150 hours or sooner if oil analysis indicates it's necessary.

"If you're thinking of repowering a White tractor with a Cummins there is one thing you should do. Put a thin coat of Never-Seize on the clutch splines because tolerances are so close you could burn the clutch out if you don't."

John Tholen, Tipton, Iowa: When the 250 hp, 504 cu. in. Case diesel in John's 1982 **Case** 4690 spun a rod bearing at 2,660 hours, he decided to repower it with a Cummins diesel. The \$15,000 project was done at Cummins Great Plains in Cedar Rapids, Iowa. He installed a Cummins 8.3-liter, in-line 6-cyl., 240 hp diesel.

"It now burns 7 to 8 gals. of fuel per hour instead of 12," John says. "And it's got much more torque - 750 ft. lbs. compared with 640 - which means a lot to us since we use the tractor to pull a 13-ft., 9-in. field cultivator and a 34-ft. chisel plow. It starts well but the old engine did, too."

Gary Ziehl, Raymond, Minn.: "They're simply better designed engines than the originals," says Gary about the 6BT 5.9 liter in-line 6-cyl. turbocharged 152 hp Cummins diesels he used to repower his 1969 **Oliver** 1850 and his 1970 **Oliver** 1950T. Altura Truck & Tractor did the work on the 1950T in November of 1995 and on the 1850 last November.

Purchased with less than 1,000 hours on it, the 1850 was originally powered by a 354 cu. in., 90 hp Perkins diesel; the 1950T, also purchased with less than 1,000 hours on it, was originally powered with a 310 cu. in., 105 hp Waukesha diesel.

"By 6,900 hours, the 1850 needed a \$3,500 to \$4,000 overhaul," Gary says. "By 4,000

hours, I'd already gone through three crankshafts in the 1950T.

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"I use the 1950T for feed-grinding, typically 400 hours a year, and the 1850 for general farm use. I've noticed a 30 percent increase in fuel efficiency since I repowered. The engines run a lot smoother with virtually no smoke emissions. They start easily all the way down to zero degrees.

"The 1850 looks very close to what it did originally but the 1950T looks like it just came from the factory. It's immaculate."

Cost of repowering was \$10,000 for the 1950T and \$11,500 for the 1850.



Farmall Cub Repowered With Chevy V-6 Gas Engine

"It's a real crowd pleaser at parades but is also a work horse on my farm," says Stephen Berger, West, Texas, who repowered his 1945 Farmall Cub tractor by replacing the original 4-cyl. gas engine with a 2.8-liter V-6 gas engine out of a 1982 Chevy car. He also connected the car's 4-speed transmission to the tractor's original 3-speed transmission, giving him a total of 12 forward speeds and two reverse.

"It turned a 14 hp pto tractor into a 100 hp model," says Berger.

He bought the tractor with a bad engine for \$247. For more than 20 years the tractor had been equipped with a liquid rat tank and was used by the city to seal cracks in paved streets. The engine was cracked beyond repair where it bolts to the front axle housing. He used 6-in. channel iron to make a new subframe that's 2 ft. longer than the original, then bolted the original front axle housing to the subframe and bolted the new engine on as well as the tractor's original radiator. An electric fan was installed to help cool the engine. The car's power steering pump is used to drive a pump that operates the tractor's belly-mount lift arms.

He made a new hood, grille, gas tank, and drive shaft guard. The car engine's air cleaner is mounted under the hood instead of to the side as on the original tractor. Exhaust exits the engine through factory-made

Jeff Schanbacher, Atkins, Iowa: Jeff had three tractors repowered with Cummins diesels at Cummins Great Plains. The first, in 1993, was a 1981 **White** 2-135 that scored a piston in its Hercules engine at about 4,000 hours. The second, a year later, was a 1977 **White** 2-135 with a Hercules engine. The third, in 1996, was a 1969 **Oliver** 1850.

He installed B series 459 cu. in., 179 hp, in-line 6-cyl., turbocharged diesels in the Whites and a B series non-turbo 115 hp. Cummins in the Oliver. Cost was \$9,000 to \$10,000 apiece and the engines were covered by a 5-year, 5,000 hour warranty.

"We've seen a 33 percent savings in fuel in the Whites," Jeff says. "We're using 7 to 7 1/2 gals. of fuel per hour doing field prep and forage harvesting, compared with 10 gals. per hour before. They're excellent cold weather starters, which is a big plus when you've got dairy cows.

"The Oliver, which we use as a chore tractor, has more power and starts easier than ever. Before repowering it in 1996, we had

V-6 manifolds to a custom built header that includes a 5-in. dia. chrome stack designed for a diesel truck.

He used a short homemade drive shaft and two sets of universal joints to join the two transmissions.

The last step was to disassemble the tractor and prepare it for painting. The job wasn't easy because the rear portion of the tractor, including the tires, wheels, weights, fenders, and floor board, was completely covered with a 1/4-in. thick layer of tar. He had to sand blast all the parts to remove the tar. New Farmall decals and chrome "V-6" emblems were installed on both sides of the hood.

"People come by often to look at it," says Berger. "I use it to move trailers and to operate a pto-powered cement mixer whenever I build fence on our farm. I spent less than \$2,000. Because the engine is cooled by both the car radiator and the electric fan it can run all day in 100-degree heat without overheating. The diesel truck exhaust stack gives the tractor a very unique sound.

"I made the hood so that it tilts forward which makes it easy to work on. A proper rod holds the hood up."

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