"Made It Myself" Engine Conversions

By Bill Gergen, Associate Editor

Farmers all over the U.S. and Canada are repowering gas-powered pickups and tractors with diesel engines to reduce fuel consumption, boost power and reliability, and minimize maintenance. In some cases they're also replacing older diesel engines with more modern turbo-charged diesels that increase power while at the same time lowering fuel consumption. Have you got a repowering story to tell? If so, we'd like to hear about it. Send to: Repower Ideas, FARM SHOW, P.O. Box 1029, Lakeville, Minn. 55044.

IH Diesel, Chrysler Gas Engines Installed In Old IH Tractors

For years Thomas Carroll, Beloit, Wis., and his five sons have repowered older International tractors with International V-8 diesel engines or Chrysler V-8 gas engines. He also repowered his International 1456 diesel tractor with a 170 hp Cummins V-8 diesel engine.

Carroll has converted 59 different International tractors since he repowered his first tractor in 1965 by mounting a 117 hp, 318 cu. in. Chrysler gas engine into a 1950 International Farmall M gas tractor that originally had 50 hp. He's retired now, but his sons Jim, Tom, Bill, Steve, and Ed still repower one or two tractors a year.

"I've repowered lots of International 856, 806, 706, 656, and 506 tractors as well as some 1066 and 1056 tractors," says Carroll. "The 806 and 706 were factory equipped with either gas or diesel engines and were built heavy so you could really power them up. Many farmers who owned old IH gas tractors wanted more power for pulling tillage tools, and a bigger pto. The IH diesel engines I used for repowering were the same ones used in the company's combines. They offered more power and more favorable fuel economy, but until 1965 the biggest diesel engine available had only 95 hp so the big Chrysler gas engines were a good alternative. Also, some farmers didn't want to switch to a diesel engine because they didn't like the smell of diesel fuel.

"I used Chrysler because it's an in-line balanced engine that runs smooth. I used three different engine models - a 135 hp 440 cu. in. model, a 117 hp 383 cu. in. model, and a 90 hp 318 cu. in. model. The 135 hp engine went into 756, 706, 806, and 856 models. The other two engines went into smaller M, 400, and 560 models. Repowering often doubled the horsepower. For example, a Farmall M repowered with a 383 cu. in. Chrysler gas engine boosted horsepower from 50 to 117 while increasing fuel efficiency slightly. A 706 factory equipped with a 6-cylinder engine originally had 70 hp, but repowering it with a Chrysler 440 engine boosted it to 130 hp. It costs about $4,000 to repower an 856 tractor and the customer gets a tractor that's almost as good as new. Installation of the Chrysler engines requires mounting the tractor flywheel on the engine and rebalancing it. We use the same transmission, bell housing, flywheel, starter, and clutch. There are still a lot of 706 tractors in good shape that could be repowered with bigger diesel engines or Chrysler gas engines."

Carroll repowered this IH 806 tractor with a 504 Cummins engine.

Carroll installed a Chrysler 318 cu. in. gas engine in his own M tractor because he needed more pto hp and couldn't justify the cost of a diesel engine at the time. He also replaced the 90 hp diesel engine in his 806 with a 170 hp Cummins V-8 diesel engine and later transferred it to his International 1456 after its 130 hp, 6-cylinder diesel engine was ruined by a fire. He rebuilt the original engine and remounted it in the 806 model.

Contact: FARM SHOW Followup, Thomas Carroll, RR 2, St. Lawrence Road, Beloit, Wis. 53511 (ph 608 362-3669).

IH Diesel Replaces Gas Engine In Chevy Pickup

"It gets 20 mpg and the engine will last three times as long as the rest of the pickup," says Dean Duke, Chrysler, Ontario, who replaced the 120 hp V-8 gas engine in his 1978 Chevrolet 4-WD 3/4-ton pickup with a new 135 hp IH 6-cylinder diesel engine.

Duke bought the 350 cu. in. engine for $3,500 and sold the old 414 cu. in. engine. He uses his repowered pickup to tow farm implements from an International dealership, where he works as a mechanic, to customers' farms.

"The dealer had been towing farm implements with small 1/2-ton Chevrolet pickups equipped with 350 cu. in. gas engines, but they were underpowered and got only 6 to 7 mpg," says Duke. "My repowered pickup has much more power and gets 20 mpg without a load and will cruise down the highway at 75 mph. The dealer was so impressed he hired me to tow implements for him. The same engine is found in the International 915 combine and International 1086 tractor. I installed new fenders, doors, and rocker panels on the pickup and repainted it to look brand new."

Duke fitted the pickup with a clutch and 5-speed transmission with overdrive from a 1980 5-ton Chevrolet truck and made a new bell housing and transfer case for it. The pickup's original clutch and transmission couldn't handle the extra horsepower. To boost highway speed he replaced the 7.00 by 16 tires with big 8.25 by 20 tires and remade the wheels. He used a torch to cut out a circle of 1/2-in. thick steel plate and lathed it perfectly round with smooth edges, then cut a disc out of the center of the rim and tach welded the steel plate to the rim. He raised the cab 2 in. to make room for the bigger tires and for the engine's turbocharger by installing blocks under the rubber mounts between frame and cab.

To make room for the longer engine, the transfer case had to be moved back so Duke lengthened the front portion of the driveshaft by 10 in. and shortened the rear portion by the same amount. He cut through the firewall and made a small "doghouse" for the rear part of the engine, and also raised the floor a little to make room for the new transmission.

Contact: FARM SHOW Followup, Dean Duke, Box 247, Morewood, Ontario, Canada K0A 2R0 (ph 613 448-3816).

He Repowers Ford Pickups

Brian Yokimas, East Selkirk, Manitoba, replaced the 180 hp Ford 360 V-8 gas engine in his 1974 Ford F-350 1-ton pickup with a 140 hp, 354 cu. in., 6-cylinder turbocharged Perkins diesel engine.

Yokimas bought the new engine for $1,000 from a farmer and junked the old engine.

"The new engine gets 18 to 21 mpg compared to only 8 mpg for the old one and has much more torque which boosts pulling power," says Yokimas. "There's virtually no difference in fuel mileage whether I'm pulling my 24-ft. fifth wheel trailer or not."

Yokimas replaced the pickup's original 4-speed transmission with another 4-speed transmission, this one equipped with overdrive, removed from a 1979 Ford 1/2-ton pickup. "The overdrive slows the engine down for better mileage," notes Yokimas, who modified the oil pan to make the engine fit and beefed up the front end of the pickup to support the engine's weight by installing 1/2-in. thick steel spacers between the springs and frame.

Yokimas also replaced the 351 cu. in. V-8 gas engine in his 1979 Ford 1/2-ton pickup with an 85 hp 242 cu. in. 6-cylinder diesel engine removed from a Ford 6000 tractor. "The gas engine got 16 mpg in summer and only 6 or 8 mpg in winter, but the diesel engine gets 37 mpg year around," says Yokimas. "The pickup was originally equipped with an automatic transmission, but I replaced it with a 4-speed standard transmission equipped with overdrive and changed the rear end ratio from 2.73 to 3.80 for more pulling power. Because of the overdrive it still has good cruising speed."

Contact: FARM SHOW Followup, Brian Yokimas, Rt. 1, East Selkirk, Manitoba, Canada R0E 0M0 (ph 204 482-7252).

White 4-WD Repowered With IH Diesel

"So far we've been well-pleased with it," says Don Welch, Helena, Okla., who removed the 180 hp Caterpillar 3208 diesel engine in his 1977 White 4-180 tractor and replaced it with a 210 hp 6-cyl. International DT 466 turbocharged diesel engine.

Welch bought the engine from a wholesaler for $5,200.

"White factory-equipped the 4-180 tractor with Caterpillar engines, but as far as I'm concerned the engines are worthless," says Duke, who installed the new engine two years ago. "I had two engines blow up within 500 hours of each other. The new 466 cu. in. International engine is 20% more fuel efficient and is much quieter. The engine was difficult to install. Norman's Welding Service, Helena, Okla., did the work for $5,200. They lengthened the frame 10 in. to make room for the engine, used the flywheel and starter ring gear off the Caterpillar engine, and reworked the exhaust system. They used the original transmission and clutch."

Contact: FARM SHOW Followup, Don Welch, 3758 E. 85th St., Tulsa, Okla. 74137 (405 852-3260).

IH Diesel Installed In Ford 4-WD Pickup

"It should last at least 250,000 miles. The conversion was easy to do," says Matt Miller, Eunice, La., about the 175 hp International 6.9-liter diesel engine he installed in his 1983 Ford F-150 4-WD pickup.

The 400 cu. in. engine, which Miller removed from a wrecked 2-WD 3/4-ton Ford F-250 pickup, replaced a 140 hp, 300 cu. in., 6-cylinder gas engine.

"When I bought the F-150 I was told that the 300 cu. in. engine had adequate power, but it wasn't enough for pulling my equipment trailers and got only 13 mpg. It also gave me constant trouble," says Miller. "My new engine has more power and gets 17 mpg. It had 94,000 miles on it when I bought it and I've put on about 55,000 miles since then. It should outlast the pickup."

Miller installed a new bell housing, hydraulic clutch, flywheel, and pressure plate. He drilled new holes for the engine mounts and installed the old engine's radiator. He removed the original coil springs from the pickup and replaced them with heavy duty springs taken from the wrecked pickup. Other modifications included some minor electrical work.

Miller bought the wrecked pickup for $2,000, removed the engine, and sold the body for $500. He sold the old engine from his pickup for another $500.

Contact: FARM SHOW Followup, Matt Miller, 1451 W. Gum, Eunice, La. 70535 (ph 318 457-8975).

Cummins Powers This Allis-Chalmers 4-WD

When the 305 hp diesel engine in his 1979 Allis-Chalmers 8550 4-WD tractor blew up last fall, Barry Mosby, Tofield, Alberta, replaced it with a 350 hp turbocharged Cummins in-line 6-cylinder diesel truck engine.

Mosby bought the 855 cu. in. engine from an engine rebuilding shop and junked the old engine.

"The original 731 cu. in., in-line 6-cylinder engine used about 14 gallons of fuel per hour and ran at 2,750 rpms at high idle which I think caused it to blow up," says Mosby. "A complete new engine from the company would have cost much more than the new Cummins engine. It runs at 2,000 rpm's and uses only 10 gallons of fuel per hour so I can run the tractor until 10 p.m. at night on one tank of fuel where before I could only go until 4 p.m. It also has more lugging power so the tractor doesn't 'pull down' like it did with the Allis-Chalmers engine. I'm happy with the way it turned out."

The biggest modification was to build from scratch a new bell housing between the engine and the 20-speed high-low range transmission, which Mosby rebuilt. He also installed a hinged door behind the engine and in front of the cab to make it easier to reach the engine's electrical components.

Contact: FARM SHOW Followup, Barry Mosby, RR 1, Tofield, Alberta, Canada T0B 4J0 (ph 403 662-2614).