The ultimate two cylinder

830

When Deere brought into the world its model "R" tractor, a new high bar was set for tractor power and efficiency. The "R," Deere and Company's first foray into the world of diesel-powered tractors, was an immediate success and farmers across the world snapped them up—especially those in areas where small grains were the predominant crop.

Of course, as time progressed, farmers needed more power to pull larger implements, and more and improved features were derived for tractors, bringing the need to replace the "R." The model 80 came about in 1955, putting down 37 percent more power and improving the efficiency of Deere's flagship standard tread tractor. Two years later, Deere introduced the 820 and increased the power in the engine by another 12 percent a year after that. The result of this was a tractor harnessing 75 horsepower with a ton of lugging power and class-leading efficiency in a package that had Deere's "hell-for-stout" mentality throughout.

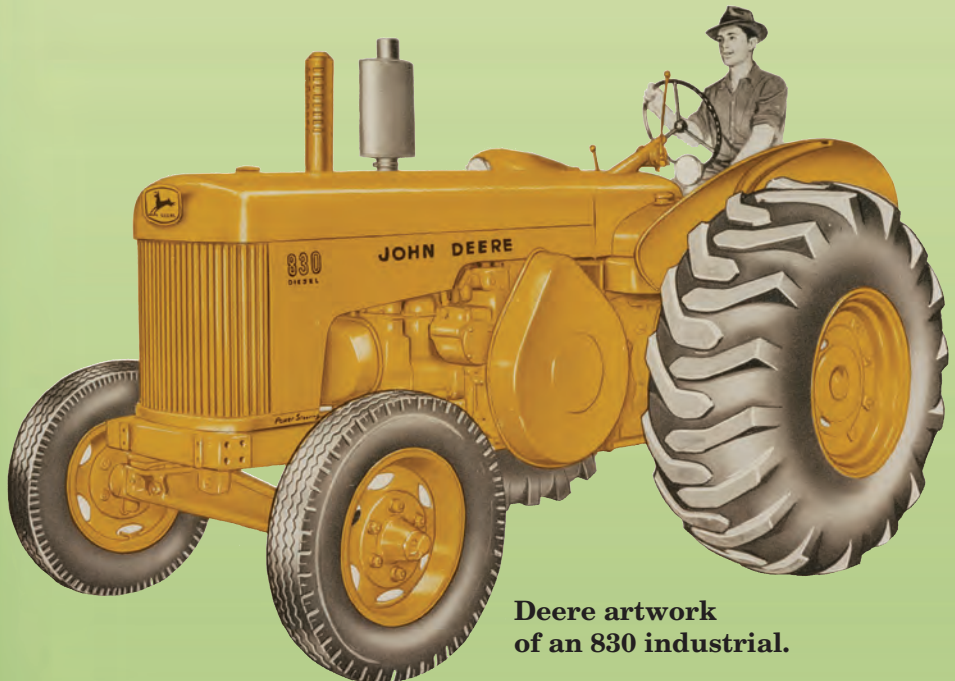
By this point in time, Deere's engineers were working through the end of the long process that would eventually bear the New Generation tractors. In an effort to camouflage the company's intentions while simultaneously getting some real world testing done on a few of the upcoming features, Deere updated its tractor lineup, introducing the 30 series machines.

Interesting photo of an 830 Rice Special from an old postcard.

Released in 1958, the 830 was the latest top-of-the-line machine from Deere. It utilized the same 75 horsepower diesel engine that was put together for the 820 and was, in every mechanical respect, identical to its 820 predecessor. What was new for the 830 was its styling, which took on a much rounder, smoother, more streamlined effect when compared to the 820, and the expanded list of options available to the tractor. The styling was a result of Deere's strong relationship with Dreyfuss and Associates, the design firm tasked with keeping Deere's tractors looking good and making them just as comfortable to use as was possible.

The 830 was the first of its direct line to gain the option of electric starting. The V-4 starting engine did a very fine job of bringing the big diesel to life, particularly on cold days when it paid to warm the engine a bit before attempting to start it. However, for those who rarely experienced temperatures cold enough to necessitate such a practice, the starting engine was a slow and cumbersome means of getting the tractor fired up. A 24 volt starting system was installed on the 830, as 12 volt starters were still not powerful enough to reliably start the 830's big 471.5 cubic inch two cylinder engine. While the electric starting system worked well, those who lived in colder climates were urged to purchase their tractor equipped with the starting engine, as electric start was still unreliable when the engine was subjected to low ambient temperatures.

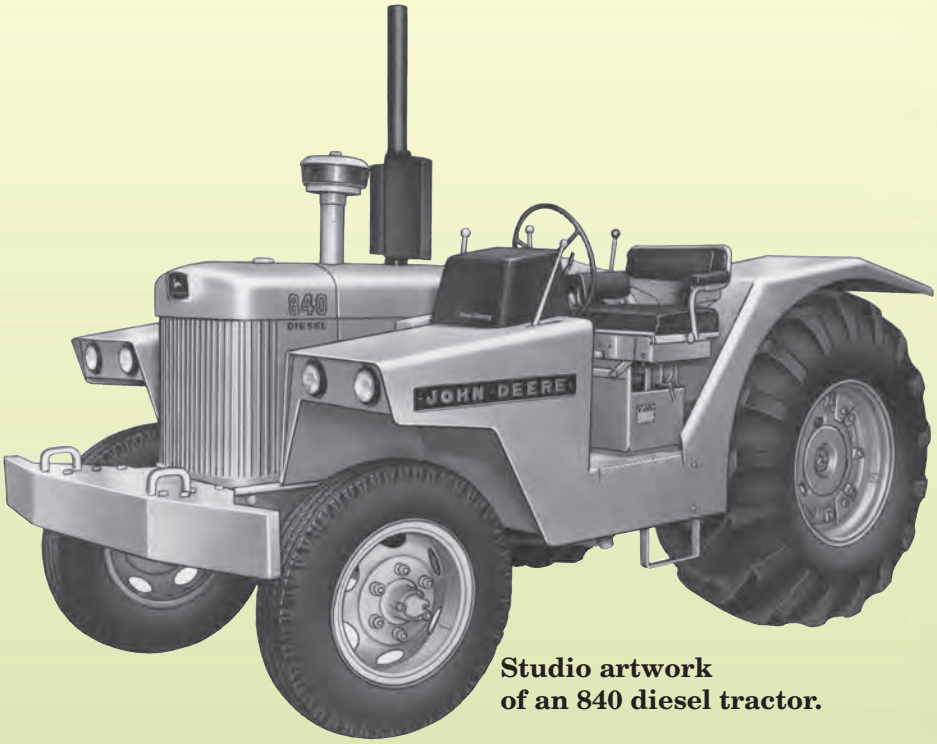
Of course, a tractor is only as good as the operator who drives it



Deere artwork of an 830 industrial.

and the operator can not be at his best if he is fatigued and aching after a stint in the tractor's seat. To assure that a man could do a full day's work without wearing out by lunch time, Deere offered the Float-Ride seat in either yellow or black to save his back; advanced power steering to lighten the load on his arms; an all-steel cab, Weather-Brake cab or canvas Weather-Brake to keep him warm; a foot-operated throttle and a cigarette lighter. Deere liked to claim that driving an 830 was as comfortable as the easy chair in your living room. While I am certain that many would beg to differ regarding that statement, Deere had certainly come a long way over the last few years when it came to operator comfort.

The operator, then, swaddled in the comfort provided by his 830, had a clear mind to drive the tractor and operate whatever machinery it was using. To run the machinery, the 830 could include any of a number of options. These included a "live" 540-RPM PTO, single or dual hydraulics, remote cylinders and a heavy-duty drawbar support with or without an extension. An air stack with a pre-cleaner brought only the cleanest air into the engine, helping it to run powerfully and efficiently. A 1-3/4 mile per hour "creeper gear" transmission gave those with a need for maximum lugging and no deadlines an extra low option. A heating element for the oil or water was available, as were radiator shutters and a waterproof paper cover could be purchased for the tractor to protect it from the elements while it sat, not being used. While the cover cost only a paltry $4.75 with the purchase of the tractor, it is unlikely that many of those are still around.



Studio artwork of an 840 diesel tractor.

A number of weight packages were obtainable for the 830. With 34 or 26 inch rear wheels, weights in packages of six or 12 helped to keep the 830 firmly rooted to the ground. Front wheel weights were also made for the 830 to help keep the front end down when the tractor was pulling hard. A muffler extension, rain cap, armrests, seat cover and air vent cushions were the rest of the accessories made for the 830.

As it was the most powerful tractor in Deere's lineup, many tire and wheel options were available for the 830. After all, what good is the power if you cannot transfer it to the ground? Regular rear wheel equipment for the 830 was 14-34 (16.9-34) inch tires. Larger sizes, both 15-34 (18.4-34) on 14 inch or 16 inch rims, and 18-26 (23.1-26) tires on 16 inch or 20 inch rims were also available to the customer. Both of the larger sized tires were available in either regular tread or rice and cane tread. Farmers who ordered rice and cane tires also got the Rice Special package. This tailor-made setup added mud guards for the rear axles and brakes as well as a single rib version of the 7.50-18 inch front tires, which were the standard size for the tractor.

Studio photo of an 830 with factory cab.

A few farmers still had not made the change to rubber tired farm equipment and Deere still had steel wheels for them. The JD1280R flat spoke steel wheel was the choice for the farmer who used steel wheels all of the time. If he thought he might like to switch between steel and rubber, the AR1470R wheel, which bolted onto the R1600R cast disk wheel, was his option. The 26 inch rear tires also bolted to the R1600R. Heavy-duty spade lugs, six inch spade lugs and A-shaped lugs were offered for attachment to the steel wheels.

The 830 was at home in small grain producing areas, though usually not in the field at this stage.

Extension rims for the JD1280R could be ordered, as well. Deere only offered the bolt-on JD1279R wheel at the front with a guide band and the option of extension rims. The Rice Special package was optional when the tractor was set up with steel wheels.

While the 820 had been built about as tough as a tractor could be, a few reports of cracked or broken front axles and main cases made their way back to Deere. Most of these accounts came from tractors that were being used in industrial applications, where the 820 was quite popular. All of the qualities that had made the 820 so popular in the agricultural arena—its economy, lugging power and reliability—were equally well regarded in the industrial scene. As such, the 820 was commonly used as a road building or earth moving machine. Industrial customers put the 820 up against loads and stresses that Deere's engineers had never accounted for and, while the tractor did a great job with them, a few eventually decided that they could not take anymore and broke down.

Deere was determined not to let this problem continue into the life of the 830 and so sought a way to eliminate it. Enter, then, the "heavy-duty" 830. On these tractors, the rear axles and wheel centers were made heavier and a straight and substantial front axle was attached. In the beginning, the heavy-duty package was available to all 830 tractors whether destined for agricultural or industrial use. Records are not clear, but it appears that a couple of dozen heavy-duty 830s were built in this first era and at least (and perhaps only) one of them was painted in green and yellow.

After an announcement in November of 1958, Deere created the 830-I tractor as a separate model for industrial customers and released that tractor on January 1, 1959. At that point, the heavy-duty options were removed from the agricultural tractor's order sheet. The first 830-I built was number 8301400 in early January of 1959. A total of 127 830-I tractors were built after that date.

The 830-I came with the heavy-duty front and rear axles as well as a machined front-end support with bolt bosses for attaching equipment. A heavy-duty drawbar support was also attached to help hold up the heavy industrial equipment that the tractor would be encountering. Size 14-34 (16.9-34) rear tires and 8.25-20 10-ply truck tires at the front were standard equipment on the 830-I. Size 15-34 (18.4-34) tires on 14 inch or 16 inch rims, 18-26 (23.1-26) tires on 16 inch or 20 inch rims and 18-26 inch "road grader" tread tires on 20 inch rims were optional. If you did not like the 8.25-20 inch front tires, you could equip the tractor with 7.50-18 or 11.00-16 inch tires. Steel wheels were available by special request.

A few specialized options were available for the 830-I that were not offered for the agricultural tractor. An auxiliary hydraulic reservoir for tractors with dual hydraulics could be purchased. This helped those tractors that were going to be hitched to equipment, such as scrapers, with large hydraulic cylinders. A front bumper with weights provided ballast and protection for the front of the tractor, as well as one more benefit. If a tractor was equipped with this bumper, it also received a different drawbar support and truss rods that tied the front and rear ends of the tractor together. This setup helped to equalize the forces along the length of the tractor, strengthening it as a whole. The 830-I also had different rear wheel weight packages.

Almost every 830-I was painted industrial yellow. While other colors were available by special request, it is unknown whether any tractor was actually painted anything but yellow. With the first official 830-I, Deere replaced the "John Deere" decal on the side of the hood with the T10551T nameplate that was also used on the 440 and 840 tractors.

About as rare as the 830-I are the 130 model 830 tractors that were built

in Monterrey, Mexico. Four blocks of serial numbers were set aside and given to these machines. They are 8300800 to 8300829, 8301600 to 8301616, 8303700 to 8303727 and 8304900 to 8304943. There are no records that indicate exactly how these tractors were equipped, but based on other tractors built in Mexico, it is likely that these 830s had manual steering, single hydraulics, a PTO and electric start. At least one of these machines is real, as it was found in the sheet metal of an 820. I suppose the factory had one set of sheet metal for an 820 lying around and decided to use it up instead of leaving it to rust.

Deere only built the 830 for 19 months, from August of 1958 until February of 1960. During that time, demand for the tractor was very high, as it had all of the qualities that could be asked of a tractor—plus rugged good looks. When Waterloo shut the factory down early in 1960 to tool up for the upcoming New Generation tractor, they had already built up a backlog of 830s for sale during the downtime. The last 830 left the factory on July 14 of 1960—the same month that they began producing the 4010 standard tractor. The 4010 produced similar horsepower to the 830, but it was a step back when it came to torque and weight—but it was the best replacement that Deere had at the time. It would be a couple of years before another of Deere's big luggers, the 5010, would be produced. It is a curious exercise to wonder what the difference would have been if Deere had continued to build the 830 until the 5010 was ready. Would it have continued to sell well to those customers who really needed the deep-down power or would it have fallen back as farmers opted for the convenience and features of the smaller New Generation tractors?

One thing is certain, the 830 was never forgotten about by the collector. While the 30 series as a whole it one of the favorites, the 830, being the flagship of the line, is a standout among them. For those with the shed size to fit it and the pocketbook to buy it, an 830 is a trophy in any collection.

Many consider the 830 to be among their favorite tractors. Don Dufner of North Dakota must be one of those men. Don took the front axles off of two 830 tractors, fitted an articulating hitch between them and a Sound-Gard body on the rear one and created a machine that could pull a 42-foot field cultivator or 11-16 inch plow in third or fourth gear. Adding a third 830 to the back made the tractor even more powerful and he has often used it to wow crowds at tractor pulls. Starting off strong, the "830 Special" will begin to load down halfway down the track. Just at the point where you think he will not be able to get much farther, Don fires up the third engine and, to the cheers of the crowd, easily pulls through the rest of the course. Don has also added a 830 "pusher" tractor behind a 7520. These tractors, as well as many others in a vast collection of modified and unmodified classic Deeres, are used on Dufner's grain farm.

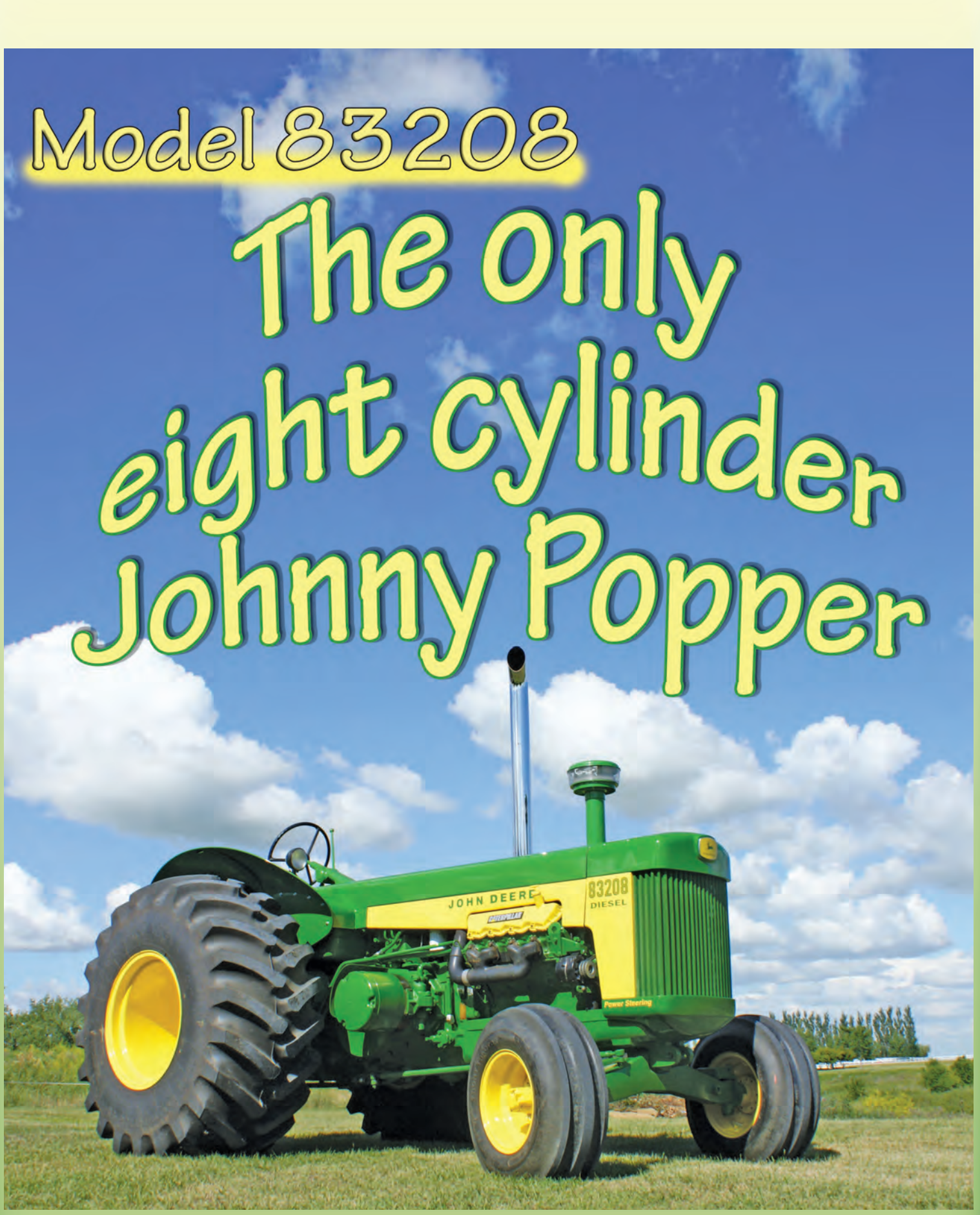
The 830 is the last two cylinder standard tread tractor that Deere built. As such, it is the end of a long, prestigious and downright legendary line that began with Deere's model "D." While the move to the New Generation tractors was a tremendous one and the right move by anyone's judgment, looking at an 830 and remembering that it was the last of an era of tractors that had such an impact on the world is saddening. Thankfully, many of those characteristics of the 830—its ruggedness and dependability, for instance—will keep it around for a long, long time to come.

830 PRODUCTION NUMBERS and SERIAL NUMBER BREAKS

Year	Beginning/Ending	830 SE	830 ES	830I SE	830I ES	Total
1959	8300000-8304223	2,240	1,785	19	52	4,096
1960	8304224-8306891	1,269	1,291	27	29	2,616
		3,509	3,076	46	81	
		Total				**6,712**

Model 83208

The only eight cylinder Johnny Popper



Comments like "I didn't know Deere ever made an eight cylinder model in the 1950s" put grins on the faces of friends Elmer and John Friesen at the show in Rollag, Minnesota last summer.

The two Canadians had a bit of a secret—their impressive, pristine, fully restored, extended body model "83208" is the only one ever built. In fact, they cooked it up themselves!

The tractor actually is a hybrid, built in John Friesen's shop. He started with a 1959 John Deere diesel model 830 two cylinder tractor. The original engine still is in his shop near Morris, Manitoba. However, the engine under the hybrid's hood is a Caterpillar 3208, salvaged from a 1984 New Holland TR85 combine.

The model 830 was introduced on Aug. 4, 1958. It weighed 8,150 pounds with the Powr-Trol option. It also was known as "Mr. Mighty" or "Big Daddy" and was the green-and-yellow tractor equivalent of the 1958 Cadillac—big, quiet, comfortable and powerful. It was rated for 75.6 horsepower on the PTO. When the two cylinder era ended in 1960, the Waterloo tractor factory had built 6,900 of the model 830 tractors. They went into history as the largest, most powerful tractors of the era.

Caterpillar began building the "3208" vehicular diesel engine in December 1973. The 10.4L (636 cubic inch) 3208 was one of several engine series built in the Caterpillar industrial engine facility at Mossville Illinois. In the New Holland TR85, it was rated for about 200 horsepower. The later TR95 had a turbo-charged Caterpillar 3208.

Elmer Friesen got hooked on vintage 30 series tractors about a decade ago, after he acquired a fully restored model 630 from Wainwright, Alberta collector, Gordon Gilchrist.

"Once I started, I decided to get the complete lineup from the 330 to the 830," he said.

By 2006, the semi-retired manufacturer had the entire series to enjoy. He takes them out for special occasions like parades and tractor shows. He also enjoys participating in competitions like tractor pulls and slow races.

With the hobby came a need for a restoration expert. Elmer Friesen found he could trust the work of John Friesen (not related), who had a shop and home-based business about five miles away. Elmer describes John as a friend who is self-taught in the talents designer, engineer and mechanic.

"He can figure out things that most people can't," Elmer said.

For instance, John has built for himself a 1949 John Deere model "A" equipped with a 1995 Ford Mustang 450 horsepower V-8 engine.

"I've used it quite a bit for tractor pulls," he said. "I wouldn't let anybody else drive it, but it pulls like a bugger. It's a beautiful tractor."

He's also done restorations on the full range of the John Deere 30 series tractors, plus a Spoker "D" and other letter series units. His current part time project is restoration of a 1952 model "G."

The two got into a conversation in spring 2006 about a diesel engine sitting on the floor at John's shop. It was a 200 horsepower V-8 Caterpillar 3208. John had salvaged it while wrecking a TR85 combine with just 3,000 engine hours.

He said to Elmer, "I wonder how an 830 would look with a V-8 Cat motor?" Elmer wondered, too,

and started looking for one of those tractors.

Early that fall, a tractor collector delivered a model 830 to the shop near Morris. The tractor came from Rainy River, Ontario, about 160 miles east.

Build and rebuild

The project that followed took two winters.

John said he reduced the model 830 to a set of unconnected castings, nuts, bolts, washers, seals, wires and miscellaneous pieces.

"It was completely taken apart," he said.

Every piece was stripped and cleaned. In fact, the original two cylinder engine now is reassembled and waiting for installation one day in a new project.

The V-8 was about the same width and height as the two cylinder, but longer. Friesen did some penciling and machine work. Out of it came a six-inch extension for the tractor frame. It bolts onto the original crankcase with the same bolt pattern.

On the front, he was able to keep the original radiator, fan and shroud without any changes in alignment. The rear end stayed mostly original, too. It got new bearings, new seals and new axles.

Elmer wanted wider tires and wheels for what would be a competition tractor. John said, "I machined those big 32 inch cast iron wheels down so this 28L25 combine wheel fits on the original hubs. Now it has mud tires."

To marry the Cat engine to the Deere tractor that winter, John used a crown gear and pinion from a Ford tractor. He built various components like shafts and bearings to make it all work.

"I put it all together, everything worked fine, but it wasn't driving fast enough. It had a 3:1 gear ratio."

Elmer's response was, "Somebody will have to make it."

John took it all apart and did new drawings for what they wanted. A nearby castings company, General Metal in Winkler, stepped in.

"They couldn't cut the gears, but they could do the rest. They sent the drawings to Ontario to get our differential gears cut," John said. "After I got those gears, I had to do a lot of changes to what I had built to fit them in, but now it has a 1.5:1 gear ratio and everything works good."

Making it "work good" actually required opening the power train a third time.

"When it was idling, it had a rattle, like gear lash," he said. "I took it apart again and built a connector for the engine to the rear end."

Details

There were other details in the hybridization process.

Friesen replaced the original crankshaft with a five-foot long, four-inch diameter straight shaft and a special flange for the crown gear. Rather than bushings, it has four beveled bearings; the rear end has four-inch bearings.

"The main bearings, and all that, I made out of shafting and sheet metal plates," he said. "Everything, except for the bearings, I manufactured in the shop."

He built an adapter plate that bolts to the rear of the Cat 3208 and to the crankcase. He also replaced the original cast iron flywheel with his own counterbalanced aluminum flywheel.

It was ready to photograph in August 2008.

On Aug. 30, the two Friesens took their hybrid tractors 225 miles south to the Western Minnesota Steam Threshers Reunion at Rollag, Minnesota and were joined by Ben Friesen. Ben brought along another tractor hybrid, an International McCormick Farmall "H" tractor that he had equipped with a V-8 Chevy 305 engine.

"We parked them on the grass. The third day, when we started moving them around, there was three circles where there was no grass left around our three tractors," John said.

People at the show, even tractor engineers, didn't figure out how Friesen had done the conversion.

He said, "Yeah, I built that piece by piece. It took me a while to machine it exactly how I wanted, but I did figure it out."

He did it as a self-trained farm mechanic, without formal school, without a computer.

Friend Elmer Friesen said, "You need a very smart mechanic to put that all together. An average guy would not be able to make that function the way this is running. You can't find guys like John Friesen."

The left side of the tractor, note sub frame.

The ultimate ULTIMATE two cylinder

Rear view of 830 Special, showing twin fuel tanks.

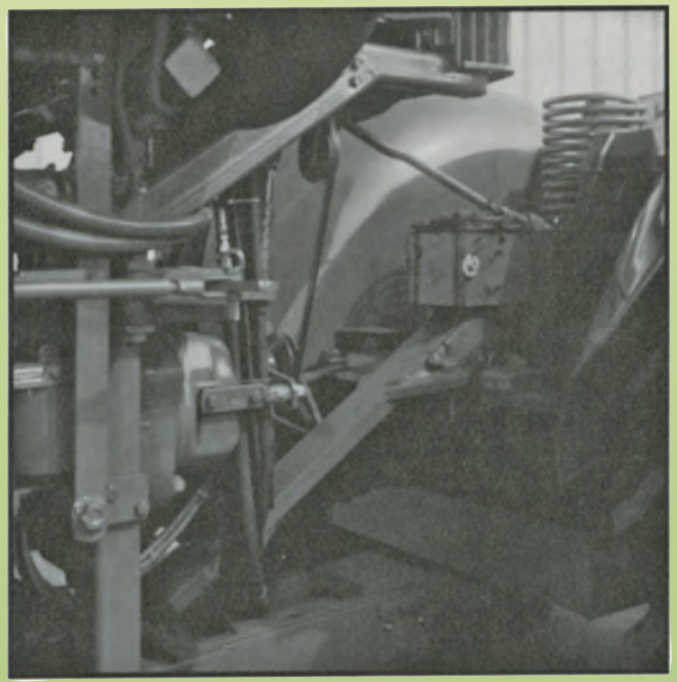
Don Dufner with sons, John and Joe.

Many times, it has been said that the John Deere model 830 was or is the ultimate two cylinder tractor. If that is true, then the 830 Special built by Don Dufner of Buxton, North Dakota must be the ultimate ultimate two cylinder.

Don Dufner has long been known for his conversions and modifications to old John Deeres so it's no surprise to see a magnificent piece of work like this come from his shop. It took Dufner, who was helped by his sons Joe and John, much of three winters to complete the project.

The first winter was spent getting the two tractors in like-new condition. They were overhauled, including new heads, radiators and bearings in the transmission. The second winter was spent building the frame articulation and mounting the cab. The third winter

Inside of the cab with dual gear shift levers on floor. The hand clutch is to the right of seat.



The middle of the tractor, showing the tractor's articulation point. The V belt runs the radiator in front of the cab. The coil, in upper right, cools hydraulic oil.

In 1999, Dufner and sons added a third 830.

was spent finishing the cab and hooking up the controls.

As you can imagine, the articulation proved to be the hardest part. Dufner also stated that getting the throttle, gear shift and clutch levers to all work across the articulation was "kind of a nightmare." It took a couple of weeks just to get both the clutches to work properly. Initially, a hydraulic cylinder system was tried to engage the clutches, but after about 10 days of experimentation, it was decided that it wouldn't be possible. Finally a large cable, like what is used to run a truck hoist, was installed to operate the clutches manually. That's the hand clutch lever you see in the cab photo, sitting just to the right of the seat.

On the floor of the cab, below the steering wheel and ahead of the seat, you'll see the two transmission shift levers. Dufner states that the front shift lever is usually operated by the operator's foot after they get used to it and that the rear one is often shifted into neutral on the ride home from the field. In such cases, however, the rear tractor remains idling to make sure all transmission parts are properly lubricated.

The front tractor's hydraulic pump is used in steering the tractor while the rear tractor's hydraulics operate the remote cylinders on drawn implements. The tractor can articulate at a 33 degree angle, which allows it to turn sharp enough to not leave a gap while bringing around a 42 foot field cultivator.

Besides pulling a 42 foot cultivator, the tractor also pulls an 11x16 inch plow in third or fourth gear. Sufficient power to do this comes from each engine, developing a close to stock 80 to 85 horsepower. When nearly empty, the tractor weighs 21,000 pounds with the 75 gallon fuel tanks, which are located between the rear wheels. The tractor burns, at the most, seven gallons of fuel an hour, so the 150 gallons of fuel on board would allow the Dufners to run the tractor almost around the clock without stopping for fuel.

And, of course, the cab has all the comforts you would expect in a SoundGard body, such as a radio and an air conditioner, which has its compressor run by the pulley of the front tractor. That's it behind the shield in the photos.

Don Dufner said that the 830 is probably his favorite two cylinder tractor. He also said that he built his twin version of the ultimate two cylinder John Deere with the thought in mind of possibly adding another 830 to push from the rear. I guess that would make it the ultimate, ultimate, ultimate two cylinder tractor.

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