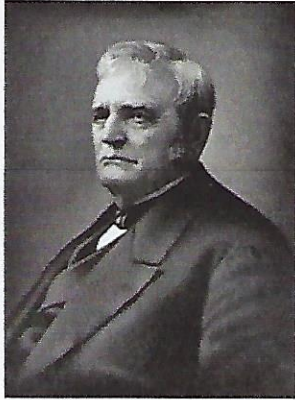


JOHN DEERE

John Deere was born in Rutland, Vermont on February 7, 1804. He began an apprenticeship with a successful blacksmith and entered the trade himself in 1826. He fathered nine children in the



years following. But he found blacksmiths to be in abundance and soon moved to Grand Detour, Illinois where he found work aplenty. He soon noted that the cast iron moldboards of the current plows did not work well in the local soils.

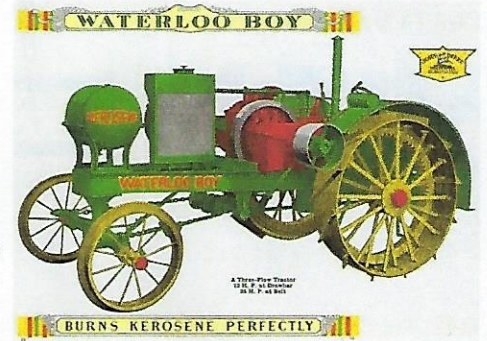
In studying the problem he recalled his experience as a boy polishing his tailor fathers needles by passing them in/out of a bag of sand. Starting there he developed a polished steel moldboard that worked. The steel moldboard scoured better in the sticky clay soils of the area...and it was less apt to break if it struck a rock or root. The business grew rapidly. In 1848 he moved to Moline, Illinois which was a transportation hub in order to facilitate the distribution of his plow. By 1855 he was building and selling 10,000 John Deere Plows per year. In 1857 he turned most of the plant operation over to his son Charles, spending most of his time on civil and political affairs. He died on May 17, 1886. John Deere was a successful entrepreneur with the ability to 'think outside the box'. Later versions of the steel plow used a case hardened moldboard which greatly increased the life and improved the polish that could be obtained. (The moldboard was heated and then quenched to form a thin coating of very hard metal on the surface with a softer high carbon steel center for strength.)

They also manufactured hand tools like pitch forks, shovels etc. as well as wagons and related implements. The Museum has an early buggy made by John Deere. (Shown here)



They also made bicycles in the 1890's.

By early 1900 the company was into tractors. The Dain All Wheel Drive was their first model. It was apparently a three wheel model with a single rear wheel. This model was eventually abandoned since it cost about twice as much to build as the Waterloo Boy. The Waterloo Boy (shown here)



was a two cylinder tractor with 12 drawbar horse power. It was started on gas and then operated on kerosene, as was the later JD "D". At first JD made it as a Waterloo Boy. About 1920 JD merged with Waterloo Boy and began production as a John Deere. The John Deere Model D followed in 1923.



The early models are known today as a "spoker" since the flywheel was spoked instead of a

solid disc. Note the spade lugs. These are stamped steel and bolted to the rim. They slope back a bit so that they exit the ground nearly straight out which disturbs the soil less. Also note the guide rim on the font wheels. It is about a 2X2 angle iron formed into a circle. In the dry months when the ground was hard it was replaced with an angle iron that only stuck out about 3/4". Also note the exhaust, unmuffled just behind the radiator. Bet that made an ear ringing bang! We had a 1928 "D". It was a two speed and looked much like the later models. It broke its crankshaft in 1938 and we bought another. This was a three speed, but otherwise much like the 1928 model. The Museum has a working Model D owned by Bob Biswell. It has been converted to 'rubber' and has endured a few other changes to make it more modern. But it is the basic model that JD produced for 30 years. In 1928 the "D" was ahead of its time...but by 1953 it was well behind

the competition. John Deere began production of more modern diesel tractors in 1949 with the two cylinder "R".



The Museum's "D"

The "D" was made from 1923 to 1953 with a total production run of about 160,000. At first it used a two cylinder 465 cubic inch engine (later models used a 501 cubic inch engine) that ran well on stove oil. To do that successfully required injecting water into the intake manifold. This damped the 'ping' and worked very well. On a hot day with a good load it would burn 5 gallons or more of water and about 20-25 gallons of stove oil. The water came from the radiator so it required fairly frequent re-filling. (We often used ditch water we would scoop up with a bucket!)

John Deere bragged a lot! They claimed that the "D" could be completely torn down and re-built with a good screwdriver, a 10" Crescent wrench and the lug cleaning tool that came with the tractor! The lug cleaner was a bar about 3' long with a spade end forged in and a right angle bend on the other end that included hex socket sized to fit the head bolts and lugs and a lot of other things!

The gear shift was at the rear of the transmission.



Gear shift lever

Having a 6.75 X 7 inch bore and stroke it was hard to turn over by hands on the flywheel. So a small valve was added that relieved the compression till it started. The valve had a small reservoir where one could squirt some gas to prime it

if needed. I don't remember using the primer

much...maybe in really cold weather.



Primer/Compression release valve

The seat was just a standard bucket attached to the end of a spring loaded channel iron. We used a sheep skin pad. The "D" used a hand operated clutch. One that you pushed ahead to engage.

Minneapolis Moline used the same thing but Case used one that you pulled back to engage. I never drove a Case but it seemed to me that the pull back was a good idea...If one got a bit too rambunctious and the front end raised up as he engaged the clutch it would tend to ease the clutch rather than engage it harder. See the operators station on the "D" at right. Clutch on the right with hand throttle beside it. Then compare it to a modern JD tractor



shown at here. Not much similarity! Of course the 1940 "D" would have cost about \$1000 and the

current JD somewhere 'north of \$100,000, depending on HP.

John Deere proclaimed loudly that big displacement slow speed engines were what you needed. Most of the rest of the industry was going to multi cylinder and relatively high speed engines. JD continued with their 'superior' design until 1961 when they brought out their new 4 and 6 cylinder engines...the highest speed of any manufacturer! The straw that broke the two cylinder back was a shift to more PTO driven implements. The PTO shafts and "U" Joints could not stand the shock loads of two cylinders! An interesting fact...the early "D's" did not have an oil pressure gauge. They used a pin that would pop up out of the top/left of the crankcase. It just indicated the presence of oil pressure.

Sometime in the 30's they added a true gauge. I think they always had a temperature gauge. It is hard to see in the pic but is under the center of the gas tank. Also shown here is the steering gear. The shaft goes down through the



transmission to a link to the front wheels. Another problem with the two cylinders was the first big 'bang' at start. Since the cooling fan was direct gear driven, it stressed the fan. So they added a slip clutch to the fan drive. The clutch is the disc right behind the fan. This allowed a bit of slippage until the engine got up to speed. But you didn't ever have to replace the fan belt! Just the clutch disc once in a while.



The belt pulley was mounted directly on the crankshaft with the main clutch housed inside. Note the brake on the pulley. This was the only brake on early models. It would slow the spinning pulley to allow the transmission gears to be changed. Later models had an addition foot brake. You can see it on the lower right of the picture of the operators platform. I don't remember what it worked on but I do remember that when used for belt work you needed to block the wheels.



Since the "D" did not have a water pump, it also did not have a thermostat. Water temperature was controlled manually with shutters in front of the radiator that were controlled by a lever mounted on the fender. When burning stove oil it was important to keep the temp above 180°. This was not hard to do when under good load but pretty hard when under a light load. Most of my experience driving our 1928 model was moving down the road from field to field. One drove (with steel wheels) along side of the road...half in the ditch...at about half throttle. This was probably less than 2 MPH.

A belt pulley on the end of the crankshaft was a problem. When used for belt work the pressure of the weight of the belt plus the load was to the front on the end of the crankshaft. And the pressure of the pistons was to the rear of the middle of the crankshaft. Thus doubling up the load in the

middle, and without a center bearing. The "R" was especially subject to crankshaft breakage.

The Museum has one more John Deere Tractor...a model "L". It is a really small tractor with only about 10 drawbar horse power. I guess it worked OK for light mowing and cultivating. It was also a two cylinder machine. It probably had less power



but more pulling capacity than the current 'garden tractor'. And was a good deal more robust than the current production. It was built from 1937 through 1946...and in 1946 it cost \$517.00! Compare that to current garden tractors! The "Inflation Factor" says that \$517.00 in 1946 would be equal to \$6778.19 in 2019!

The John Deere "D" was the first of a long line of mostly really good tractors. They have had a few that didn't measure up but the average has been good over the years. I find it interesting to review the evolution over the last 100 years. Now just regular farm tractors are 180 HP and up. They sport quiet cabs with A/C, stereo radio, everything power operated, self steering with GPS etc. They do more work on a gallon of fuel (diesel) and with little effort by the operator. But operating costs are high. The newer JD's have LOTS of electronics and JD says that for the owner to attempt electronic repairs is a violation of the "Digital Millennium Copyright Act". Thus you MUST go back to the JD dealer and those computers are expensive. Aftermarket repairs were once available at a considerable discount. But things are evolving! For better or for worse.

REMEMBER THE PAST...IMAGINE THE FUTURE...