The McCormick Deering W Series Standards. (1931-1940)

The McCormick Deering W-12. (1934-38)
The McCormick Deering W-30. (1931-39)
The McCormick Deering W-40. (1935-40)

The Second McCormick Deering Standard Series.

In the early 1930s, IH introduced a trio of new Standard tractors.

They were the W-12, a Standard version of the F-12, the W-30 a Standard version of the F-30 and the W-40 a huge Standard tractor.

The tractors of this series are a big step up from the first Standard series, but they are not yet fully modern.

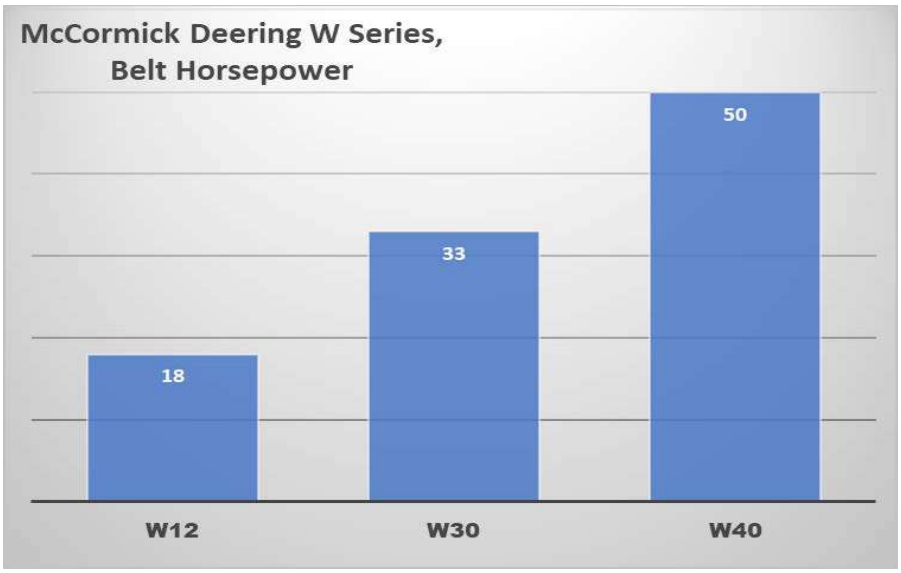
They were still started with a crank, no starter, no lights, no hydraulics.

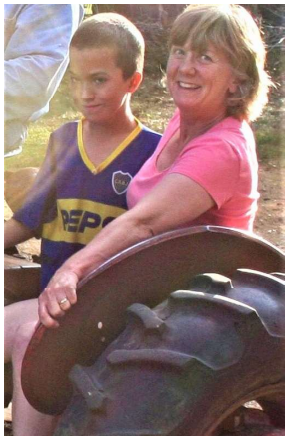
They were stiff, cumbersome and clumsy, but they did the job and they were exceptionally reliable.

Although this new line replaced the 15-30 and 22-36, IH continued to sell the highly regarded 10-20 until 1941. The 10-20 was simple, cheap and reliable. Farmers and dealers would not let IH discontinue that handy tractor.

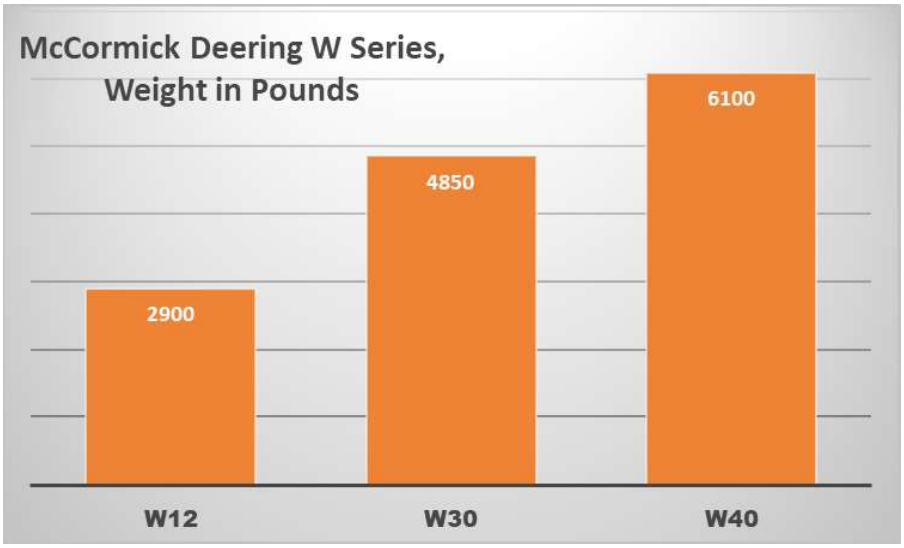
ABOVE: This W-40 photo is from the Internet. A W-40 is one tractor that I was not able to purchase for this book. I will find a suitable one eventually.

BELOW: W30 on the left. Blake is driving the O-12. This O-12 was long ago stripped of the shields that made it an Orchard tractor. It is functionally and mechanically identical to a W-12.





Grandson Michael and Gail, riding on the axle of the Farmall B.



Russ driving the Farmall B.
Russ can tell you stories about taking this tractor where no tractor has gone before.

Gail and Daughter Amy

The W-12. (1934-38)
A standard version of the F-12.

(AKA: W-14, O-12, O-14, I-12, I-14)

The W-12 employed the same engine and drive train as the F-12.

It is surprisingly petite for a Standard tractor.

It is difficult to appreciate relative size from photos, but this tractor is small.

Typical adjectives I have heard are, “cute”, “darling” and “adorable”.

It did not sell well in the corn belt.

It was not a row crop tractor.

At the same time, it was too small for wheat farms.

A good machine but not a big seller. A total of 12,000, including all versions, were sold.

Like many other Standards to come, it was available in an “Orchard” version (O-12) and an “Industrial” version (I-12). The O-12 sold about as well as the W-12, as did the I-12.

The W-12 was replaced in 1938 by the very similar W-14.

In 1939 the W-14 was replaced by the substantially larger W-4.

The W-4 sold much better.

ABOVE: The O-12/W-12 has a very tight operator’s space. It is difficult to get into. Like the cockpit of a rocket. I suppose that was intentional to facilitate crouching out of the reach of branches. As an Orchard tractor, the O-12 was designed to be driven under fruit trees and through vineyards. The front wheels on this tractor were originally steel. The rear wheels are factory issued, rubber tire wheels. The tractor may have been sold with rear-rubber or it may have been upgraded after market.

W-12 family Specifications

18 Horsepower on the Belt
14 Drawbar Horsepower
In Production from 1934 to 1938
Total Manufactured, 12,000 (total, all versions)
This O-12 was Manufactured in 1936
113 CID Engine
Engine RPM, 1,700
Fuel Tank Capacity, 11 Gallons
Standard Rear Tire, 8 X 42
Speeds, 2.3, 2.8, 3.8, Rev. 2.3 MPH
Standard Weight, 2,900 pounds
Price, $730.

RIGHT: This shows the right side of the O-12 engine. The air cleaning canister is in the upper right. The engine oil filter is in the left center.
Between the two filters is the gray/black magneto. A magneto is used to generate a combustion spark on engines that do not have a battery or electrical generator. A very similar device was used to generate the ring tone in the old wall-hung phones of 70 years ago.

LEFT: The left side of the O-12 engine is essentially identical to the F-12.
The spark plug wires cross over from the magneto on the right side of the engine and pass under the exhaust manifold to the spark plugs. Messy for servicing.
The fuel pump is in the lower left of the photo.
The carburetor is inconveniently atop the engine.

The tractor to the right is an O-12 orchard model.
Photo from the Internet.
Notice the sweeping fenders. Orchard models always had a clean top-line with no upstanding exhaust pipes or air intakes to catch on trees.
IH made orchard versions of many tractors. Most have been stripped of the extra sheet metal guards and effectively converted to the Standard version.
My "W-12" is actually a stripped-back O-12.

Tires and Wheels, From Steel to Rubber

Rubber tires for tractors did not exist in the 1920s. IH introduced its first McCormick Deering and Farmall models with steel wheels, front and back.

Firestone introduced the first successful pneumatic rubber tires in 1932.

Those new tires were first used on Allis-Chalmers tractors.

Pneumatic rubber tires are a substantial improvement over steel wheels in numerous ways.

They improved tractive force and fuel economy up to 20%.

Steel wheels were very hard on roads and sod surfaces. They were so destructive that they were prohibited from paved or hard-packed public roads.

Rubber tires eliminated the surface damage issues and provided a much less jarring ride for the farmer and the machine itself.

The new tires caught on quickly and within five years, by the late 1930s, half of all tractors sold came with pneumatic tires.

With rubber tires and "Road Gear", farmers could haul wagons of grain to town elevators.

That switch from steel to rubber was slowed somewhat by the shortage of rubber during World War II.

The word tire is derived from "attire", as in dressed. In the 1800s a tire was any sort of material wrapped on the exterior of a wheel. That was done normally to increase wheel life or soften a ride.

Pneumatic is based on a Greek word and it means air in this context.

Rubber is actually not rubber, but it was rubber in 1932.

Originally, rubber is a natural substance that comes primarily from rubber trees. Those trees grow in abundance in Southeast Asia. Natural rubber has great elastomeric characteristics. It is terrific rubber. But natural rubber is expensive and its production is limited.

Scientists began developing usable synthetic rubbers in the early 1900s. Usable, but not great, and not cheap. Work continued and there was a huge need for rubber during WW II. Good synthetic rubbers of various formulations were developed. All synthetic rubbers are made from petroleum.

By 1950, synthetic rubbers replaced natural rubber in all but the highest value applications.

I can personally attest to the superior quality of natural rubber, at least it was superior to the synthetic rubbers of the 1950s.

I was a boy then. We made slingshots. The quality and capability of a boy's slingshot was a matter of pride. It was a well know fact that natural rubber tubes, which were red, made the best slingshots.

Red inner tubes from old tires were a closely held trade good.

Any tractor produced before 1933 came with steel wheels.

Tractors produced between 1933 and 1940 may have been shipped with either steel or rubber.

Tractors produced between 1940 and 1945 probably came out on rubber.

If a tractor was sold with steel wheels, the fifth gear, Road Gear, was blocked out.

After 1945, all tractors were sold on rubber.

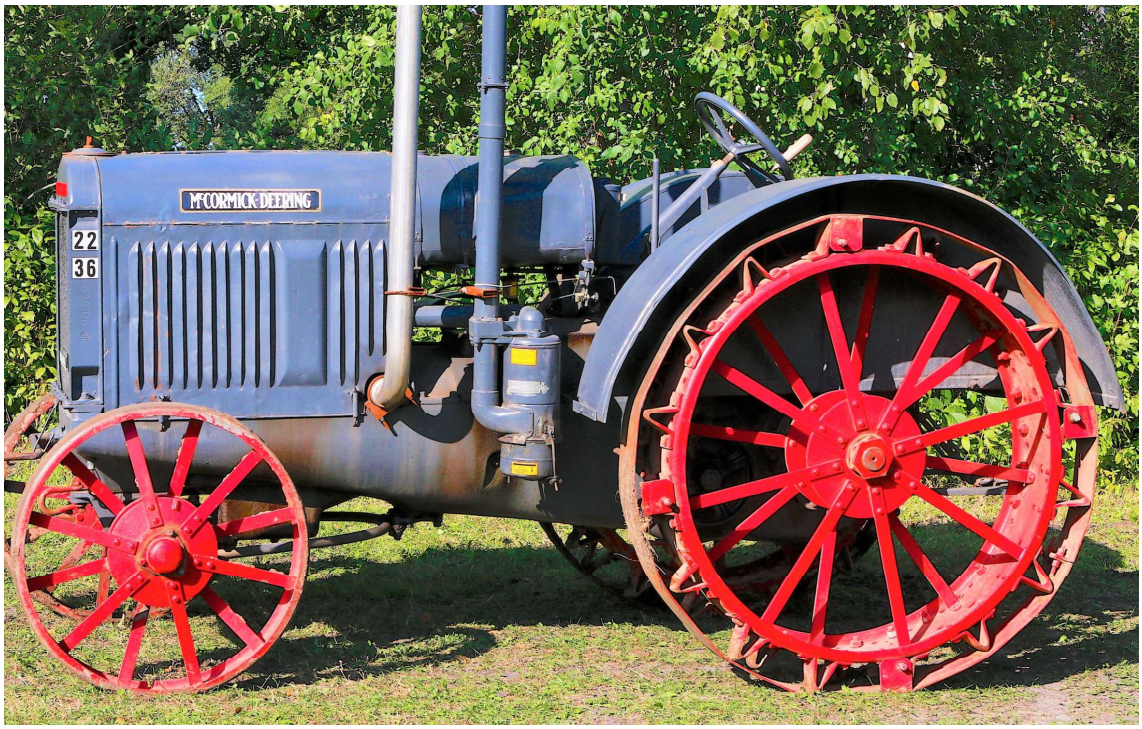
Several hundred thousand tractors that had been made with steel wheels were still running. The great majority of those tractors were converted to rubber.

This was done by cutting the steel wheel off such that the steel spokes which remained were exactly the right diameter for a new rim. That rim, of course was the correct size to take the desired rubber tire.

Both dealers and local blacksmiths made these conversions.

Dealers and after-market suppliers sold the tire/rim sets.

That was done for both rear and front wheels. The conversion is easy to spot on these old tractors.



ABOVE and BELOW. These two tractors were both manufactured in the late 1920. They were both built with steel wheels. Rubber tires were widely available by 1937. Sometime after 1937, and probably soon after, the tractor below was converted from steel wheels to rubber tires. That may have been done by the hometown International Harvester dealer or by a local blacksmith.

The tractor above has been modified on all four wheels for parade driving. A "highway" band has been added over the rear wheel lugs. The front wheels originally had an added ridge that dug into the soil to improve turning. Both the rear wheel lugs and the front wheel ridge damaged roads.

The W-30. (1931-1939)
A standard tread version of the F-30.

The W-30 was produced as an improved version of the 10-20. It did not replace the 10-20, however. The 10-20 was so beloved by IH dealers and farmers that it continued to be produced until the early 1940s.

The W-30, a Standard version of the F-30, was introduced in 1932, one year after the introduction of the F-30.

The tractors used the same roller bearing engine.

The W-30 retained a three-speed transmission. The F-30 advanced to four forward speeds. The W-30 was a great workhorse for the huge wheat fields of the western US and Canada.

Like almost all tractors of the era, these machines were originally equipped with steel wheels but were later converted to rubber tires.

Both the flat spokes on the front wheels and the rod spokes on the rear wheels tell us that the wheels were converted from steel to rubber, after market.

I bought this W-30 from an excellent machinery restorer near Superior Wisconsin.

He took good care of it and was proud of the tractor.

He insisted on crank starting it for me the day Gail and I picked it up.

The W-30 was replaced in 1939 by the fully modern W-6.

IH produced an I-30 simultaneously with the W-30. This Industrial version was somewhat specialized, substantially lighter with lower horsepower.

ABOVE: This W-30 was clearly sold with steel wheels, both front and back. After-market rubber rims and wheels were installed sometime during the tractor's active life. This is a fine example of rod spokes in the rear and flat spokes in the front.

***LEFT:** This left side view of the W-30 engine is very similar to the same view of the F-30 engine. The one significant difference is that the W-30's air cleaning system is relatively low. Both the air-cleaning canister and the air intake are on the right side of the photo. Eventually all air intakes were located higher, above the engine, to minimize the intake of dusty air.*

***BELOW:** The W-30 sold well. The W-30 and the F-30 were offered contemporaneously. The W-30 was a Standard, open field version of the F-30, a row-crop tractor. Both models had total sales around 30,000. The W-30 has a comfortable working platform with good visibility. It has both a belt pulley and a PTO.*

W-30 Specifications.

33 Horsepower on the Belt
24 Drawbar Horsepower
In Production from 1931 to 1939
Total Manufactured, 32,500
284 CID Engine
Engine RPM, 1,150
Fuel Tank Capacity, 24 Gallons
Standard Rear Wheels, steel, 12 X 36
Speeds, 2.5, 3.3, 3.8, Rev. 2.8 MPH
Standard Weight, 4,850 pounds
Price, $875.

The W-40. (1935-1940)
A huge standard tread tractor.
(AKA: WA-40, WK-40, WD-40)

The W-40 was the replacement for the 22-36.

The W-40 was simultaneously produced in several engine versions.

A 279 Cubic inch gasoline engine, a 298 cubic inch distillate engine and an enormous 471 cubic inch diesel engine.

The diesel version, the WD-40, was the first successful diesel tractor.

Diesel engines operate at much higher compression than gasoline, kerosene, or distillate engines.

Because of that the WD-40 engine was impossible to crank start directly. The engine was first started on gasoline, then switched to diesel when it was warmed and running.

Several model names were used. The original gasoline version was the WA-40. The kerosene version was named the WK-40. The diesel model was the WD-40.

The W-40s were great pulling machines for wide open spaces.

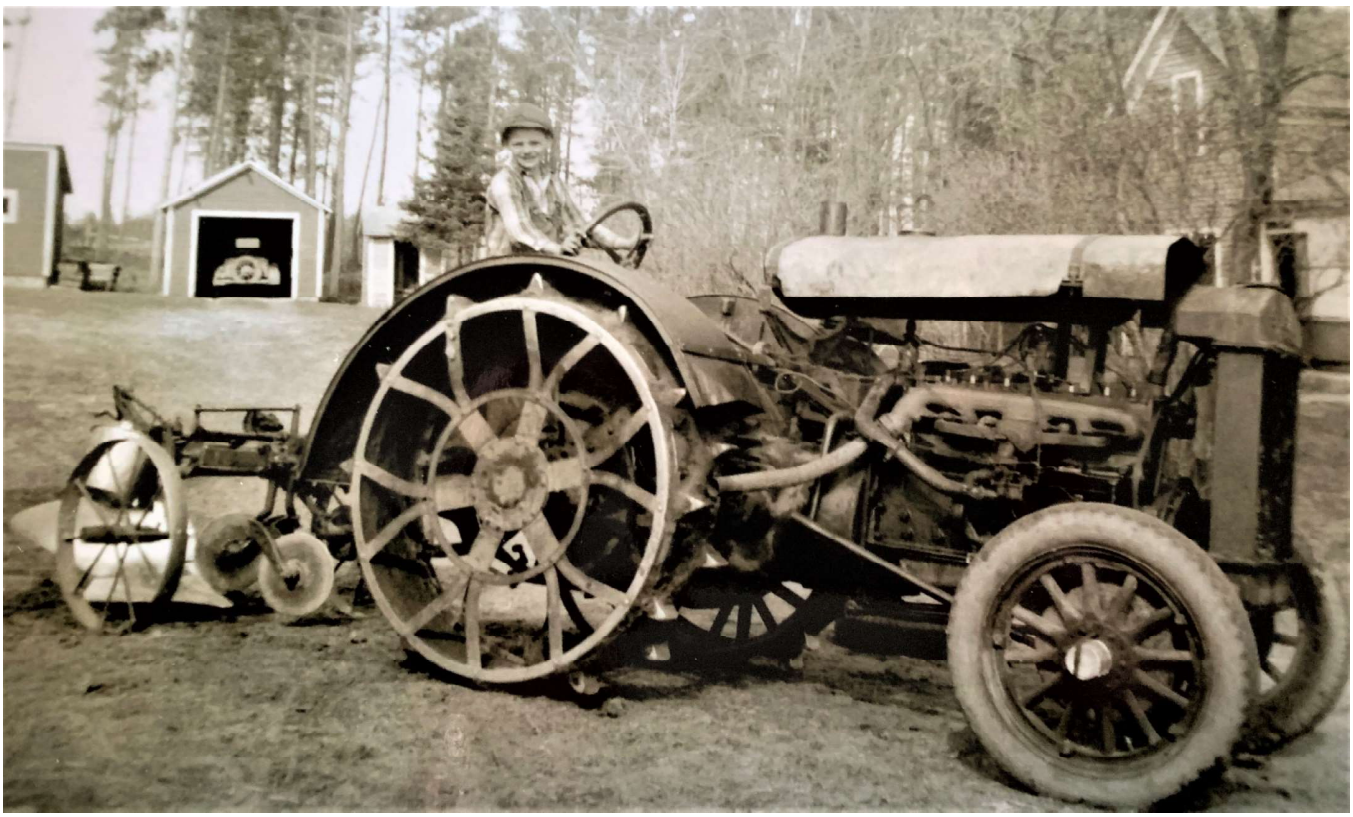
It has three forward gears and a reverse. The highest speed was 3.6 mph. A slow-moving monster.

Only 9,800 were sold. Not a bad number for such a large field tractor.

W-40s, like the W-12 are hard to find.

In 1939, the W-40 was replaced by the W-9.

BELOW : The photo below is from the Internet. I was not able to acquire a W-40 in time to include it in this book. Maybe in the next edition. Most W-40s have been converted to rubber wheels. This gas engine version, missed that conversion, somehow.



This is Cindy's Dad driving a Samson tractor. He is on his way to the field with a two bottom plow. The year was probably 1940, Arnie was probably eight.
Arnie, who died last fall, kept this photo in his office. I can understand that.
The Samson Tractor Company was founded in the early 1900s in Stockton, California. General Motors, the automobile company purchased Samson in 1917. GM moved Samson to Janesville, Wisconsin. GM named the operation, The "Samson Tractor Company, Division of General Motors". The obvious intention was to compete with Ford. At that time, Ford had the best selling farm tractor in the world, the Fordson. The tractor in the photo appears to be a Model M. The Samsons were good tractors for the time. GM produced the M from 1919 until 1923 when they ceased operations. GM could not compete with Ford on price. Ford was probably selling the Fordson at a loss. GM lost 33 million dollars on its tractor dalliance. Big money in 1920.

W-40 Specifications

50 Horsepower on the Belt
35 Drawbar Horsepower
In Production from 1935 to 1940
Total Manufactured, 9,800
298 CID Engine
Engine RPM, 1,750
Fuel Tank Capacity, 31 Gallons
Standard Rear Tire, 12 X 50
Speeds, 2.4, 3.1, 3.6, Rev. 2.2 MPH
Standard Weight, 6,100 pounds
Price, $1,340.

Chances are that the tractor had seen 20 years of hard use by the time this photo was taken. It looks it.
I do not know why the hood is raised. Perhaps for quick access. Perhaps for better cooling.
The Samson M has a six-cylinder engine. Probably a good one. The front wheels look like truck wheels of the time. The spokes are wooden with a pneumatic rubber tire.
Firestone had not yet developed pneumatic tires for tractor rears when this tractor was sold.

Tractor engines, roughly explained.

An engine is a machine that converts one type of energy or potential energy into a useful force.

Stationary engines can be powered by the energy in moving water or air.

Moving engines need to use a portable fuel. For almost all engines, that means a combustible material like coal or petroleum.

All modern farm tractors use petroleum powered, internal combustion engines.

Before 1900, virtually all farm tractors were steam engines. Steam engines are external combustion engines. They use bulky, high volume fuels like coal or wood. Steam tractors also need a large, heavy, but portable furnace to heat water into steam. And a relatively large and inefficient engine to convert that steam into useful energy.

Steam engines of the time were terribly big, clumsy and costly.

Internal combustion engines are much smaller than steam engines. They also consume a much lower volume of fuel.

Internal combustion engines were rapidly developed during the second half of the 19th century and the first decades of the 20th century.

Practical tractors using good internal combustion engines started to appear around 1915.

Those early engines were designed to run on a variety of petroleum products including gasoline, benzene, ethanol, kerosene, distillate and more.

This variety of fuel existed for several reasons.

No one knew what the best fuel choice would be.

Engine designs were improving rapidly and the choice of fuel could make a big difference.

Fuel availability varied from region to region.

From 1915 until almost 1940, all farm tractors were spark-initiated, air-breathing, internal combustion engines.

Diesel engines are also air breathing internal combustion engines but they are compression initiated.

Diesel engines have some advantages, and disadvantages compared to gasoline engines. The greatest advantage for many years was the lower cost of diesel fuel. When I started farming here in 1970, the oil company delivered diesel fuel to my bulk tank for 9 cents per gallon. There are no road taxes on diesel fuel for off road use. The same was true for gasoline but it was 25 cents per gallon.

Spark initiated engines were produced to operate on a variety of fuels to meet local supply situations and economy.

Gasoline is the most volatile of the fuels. That makes it the easiest to ignite and hence the easiest to start a cold engine on. Early IH tractors started on gasoline and then were switched over to a less volatile fuel such as kerosene or distillate.

Kerosene, diesel and distillate are closely related products, all recognized as "oils". Kerosene was commonly available from 1900 on as home heating fuel. Farmers had access to it.

Starting on one fuel and running on another required two fuel tanks. A small gasoline tank and a large kerosene or distillate tank.

Eventually gasoline, which was the clear choice for cars became the common fuel for farm tractors.

Over the years, virtually all early tractors have been setup to run exclusively on gasoline. The small tank is unused and the larger tank was switched to gasoline.

IH introduced the first successful diesel tractor in the mid-1930s. The McCormick Deering WD-40.

That engine started on gasoline and was switched over to diesel. The switch was done when the engine was hot enough to combust the diesel fuel. Of course, that required operating fuel valves, changing engine compression and disabling the spark mechanisms.

That system of starting on gasoline and switching to diesel was used on subsequent models right up to the International 650 in 1957.

Diesel engines operate at a much higher compression than gas engines. That means it is virtually impossible to directly crank start a sizable diesel. That also means that starters and

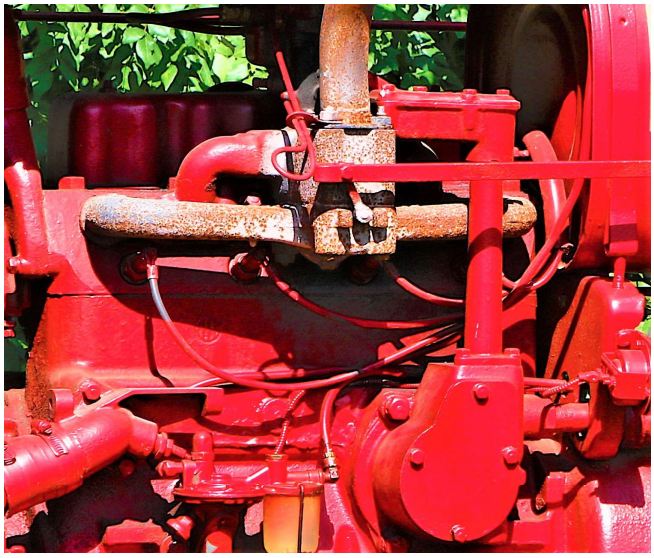
batteries for diesel engines need to be much more capable.

By the late 1950s, engines were available that could start directly on diesel. The first such diesels used electrically powered cylinder heaters called glow plugs.

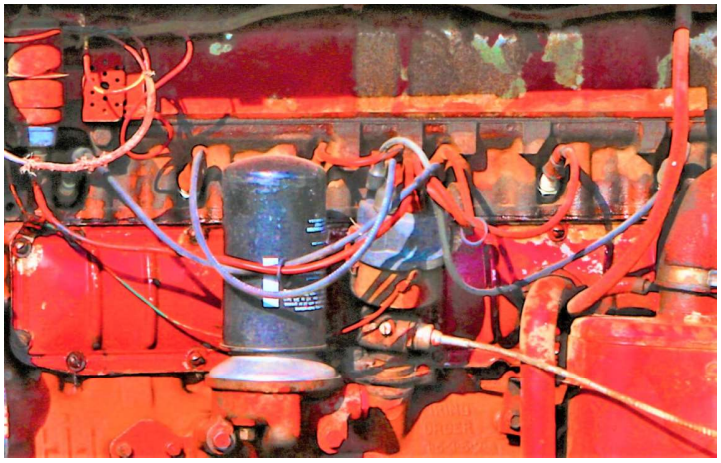
Diesel tractors of the 1960s used two large batteries. Even now, diesels use cylinder preheaters to help start ignition. My 2011 Farmall diesel tractor starts well using a coolant water heater.

From 1915 until 1960, tractor companies made almost yearly improvements in engine design.

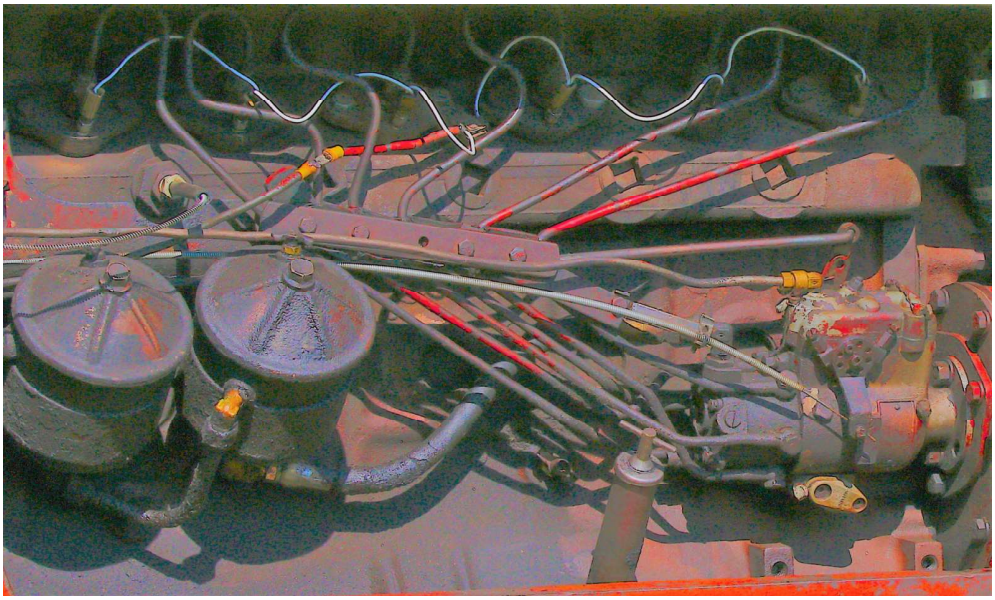
That resulted in continual reduction of size and mass to produce horsepower. The practical result was not smaller engines but more and more powerful engines in realistic sizes.



ABOVE. This tractor from the 1930s was designed to start on gasoline and then run on kerosene. The lever in the upper center was used to obstruct the exhaust manifold in order to heat the tractor faster. The carburetor needed to be hot in order to run well on kerosene.



LEFT. This photo shows a six cylinder, gas only engine of the 1950s. Starting on gasoline is easy.



LEFT. This direct start diesel engine was introduced in the later 1950s. It has a battery heated Glo-plug in cylinder. Before starting, the Glo-plugs are powered for about one minute. In most situations, that heated the cylinder sufficiently to enable direct ignition of the diesel fuel upon starting. The Glo-plug technique works well. This preheating technique, developed in the 1950s is still in common use today.