

# Amazing 1/10th-Scale 4-WD Tractor Purrs Like A Kitten

As a high school student in the early 1970's, Gerald Wells became enamored with a miniature V-8 engine that worked just like the real thing. One idea led to another, and after more than 22,000 hrs. spent building intricate parts, Wells completed his incredible miniature V-8-powered, 4-WD model tractor in 2009.

Wells says "I had no idea it would require 37 years to build, and if I did in the beginning, I probably wouldn't have started." Wells learned machining after high school that helped him design and build nearly 900 parts for the tractor, about 494 of them for the engine alone. The finished machine is 28 in. long, 17 in. wide and 17 in. tall, and it runs like a real tractor, with several remote controlled operations.

"There was plenty of trial and error along the way," Wells says with a smile. "A lot of machining requires modifications before everything really works." Over the years, working mostly during winter months, averaging about 700 to 800 hrs. a year, Wells hand-crafted parts ranging from the engine block, pistons and crankshaft to the transmission, distributor, gaskets, working LED lights and the cab. He wasn't able to make the gauges and alternator, but after trial and error he fashioned a custom distributor. His first attempt was using a fiberglass resin and a metal mould, which he machined out and then installed the electrode ends. That

didn't work to his liking, so he eventually built a larger one that handles the 12-volt electrical system with ease.

Acquiring 8 tires for his 1/10<sup>th</sup> scale tractor involved more than a trip to tire retailers or scanning the internet. Not a single manufacturer made tires the size he needed, but Wells remembered a local retailer who used to sell glass ashtrays encircled with automobile or tractor tires. Those tractor tires were about the right size, so he made rims and wheels to fit the tires. When the tires turned out too soft to support the tractor, he filled each tire with insulation to support the vehicle's 172 lbs.

The 2.65 cu. in. V-8 engine, which is rated at 1/4 to 1/3 horsepower, has a 3,200 rpm governor. Spark plugs were acquired from a retailer in the U.S. who said they were designed for igniters in the oil field and sometimes used on model engines. Wells installed them and they worked fine. The tractor has an electric start that fires up the engine just like a smooth-running automobile. The tiny gas tank holds just 1 cup of premium gas.

The power train consists of a 3-speed transmission with a 2-speed power shift and reverse. It uses 5-30W motor oil in an open-center hydraulic system that raises and lowers the hitch and has one auxiliary remote.

Displaying the tractor at shows and events garners Wells a lot of attention, especially



Gerald Wells displays his 1/10th scale, 4-WD model tractor and field cultivator at shows, using a handheld remote to control various operations. Tractor is powered by a 2.65 cu. in. V-8 engine rated at 1/3 hp.

when he uses a hand-held remote to control the throttle, the clutch, 2<sup>nd</sup> gear, reverse, the power shift, steering hydraulics and the horn. "People just find it hard to believe this wasn't made in a factory," says Wells.

After taking a break for a year, Wells next built a functional 43-shovel field cultivator to pull behind his custom tractor. It has the framing, wheels, shanks and shovels that match a life-size machine, including a cable lift system that raises the wings. Behind the cultivator are 3 ranks of tine harrows that also look like the real thing. After that project, Wells completed a 48-in. pto-driven grain auger which the tractor operates. He plans

on building a few grain bins and a machine shed to round out his farming collection.

Wells says building the equipment has been a labor of love and really not any different than someone who builds furniture, works on metal, or paints in their spare time. "I've enjoyed this every step of the way and never once thought it was a challenge or work. The joy has been in doing all phases of design, building and then seeing it all work in the end."

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## Deere 3020 Restored In Israel

All States Ag Parts (ASAP) ships agricultural equipment parts all over North America and, increasingly, beyond. When Chuck Burket with ASAP got an email from Israel, he responded quickly.

"The email said he was trying to restore a 3020 Deere, but couldn't get parts," recalls Burket. "I find that a lot of foreign customers either can't find parts in their country or don't get a response when contacting foreign companies."

Burket responded with a quote for a hood, side panels, grille screens, front and side fenders, seat and suspension. Other parts included rod assemblies, wheel bearing kits, front hubs and a lower dash panel. The Israeli customer also wanted a cowl cover, decals, steering wheel, rockshaft covers, fuel tank, gauges, fan shroud, muffler and a few small parts.

"Once we worked out shipping, the order went through, without a hitch," says Burket. "When he finished, he sent a photo with a big thumbs up."

Burket says he works with quite a few international customers. Many are not restoring, but simply need a part for their machine. He is often surprised what they order. One of the most unusual was a request from Cyprus for a transmission for an International 1460 combine.

"I have a customer in Hungary who is working on restoring an International 3588," says Burket. "He has gone through it completely and has ordered engine and transmission parts, as well as minor parts like the clutch and stuff, as well as 143 line items of SAE nuts and bolts, more than 500 lbs. of them."

SAE nuts and bolts simply aren't available in Hungary. Burket has learned that even if parts are available, they are often more expensive than ASAP's price and shipping combined. He says he is amazed how much more expensive they can be.

"A recent customer in Australia ordered a



All States Ag Parts helped an Israeli man find parts for a Deere 3020 tractor he wanted to restore. When he finished, he sent them a photo with a big "thumbs up".



shaft," says Burket. "Even though shipping doubled the price, it was still \$100 less than that same part in Australia."

Burket enjoys responding to email orders, whether international or closer to home. He tries to get back to customers immediately.

"Many of them say, you're the only one who responds to my emails," says Burket. "I answer them, and I get the sales."

To read a story about the 3020 restoration project, go to: <https://re3020.wordpress.com>.

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## Dry Hydrants Help Fight Rural Fires

By installing "dry fire hydrants" in area ponds, rural fire departments don't have to rely solely on tanker trucks. Area homes may even qualify for fire insurance discounts.

"Over the past 22 years, our local Lions Club has installed 9 dry fire hydrants in the area," says Scott Marbach, Decatur, Ind. "They were located so the local fire department would never be more than 2 miles from a dry hydrant."

Dry fire hydrants refer to a non-pressurized pipe system with one end in water and the other extending to dry land, where a pumper truck can access it. Marbach shared plans for dry fire hydrants with FARM SHOW and encourages readers to install them in their communities.

Any pond equipped with the system will serve as a back-up water source. It will eliminate having to shuttle water from more distant sources.

While dry fire hydrants can be installed in existing ponds, Marbach explains that they are easier to install in a new pond before it has been filled.

The dry fire hydrant consists of sections of 6-in. dia. schedule 40, pvc pipe. A 36-in. long strainer section capped on one end is suspended at least 3 ft. above the pond bottom and at least 3 ft. below the pond surface. Water flows through the holes in the strainer to sections of pvc pipe laid in a trench in the bank of the pond at a depth below local frost depths. Once beyond the pond edge, a right angle elbow directs the water up and through an insulated double pipe to a second elbow. It is equipped with a reducer sized to match the local fire department's fire hoses.

"The upright 6-in. section is inside a 10-in. dia. section with 2 in. of spray foam in between," says Marbach. "Our fire department has pumped water from these dry hydrants when the temperature has been a negative 10 degrees with no problem."

While Marbach is willing to advise people wanting to install a dry fire hydrant,



A dry fire hydrant is a non-pressurized pipe system with one end in water and the other on dry land, where a pumper truck can access it.

he suggests doing an internet search for the term and consulting with your local fire department. A wide variety of detailed instructions are available on the internet from county, state and national sources and the USDA and NRCS. One internet source is "A Guide to Planning and Installing Dry Fire Hydrants," published by the Wisconsin Department of Natural Resources ([www.dnr.wi.gov/topic/forestmanagement/documents/pub/fr-044.pdf](http://www.dnr.wi.gov/topic/forestmanagement/documents/pub/fr-044.pdf)).

"Our local fire department can pump 700 to 800 gpm from our dry fire hydrants to refill their tanker truck," says Marbach.

He suggests contacting local insurance agents to help fund installation, as well as to obtain discounts for customers where a dry fire hydrant has been installed. Excavators and others may donate time and equipment.

While it was a local Lions Club that supported the effort in his area, Marbach suggests working with any local service group, such as 4-H, FFA, Farm Bureau or others.

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