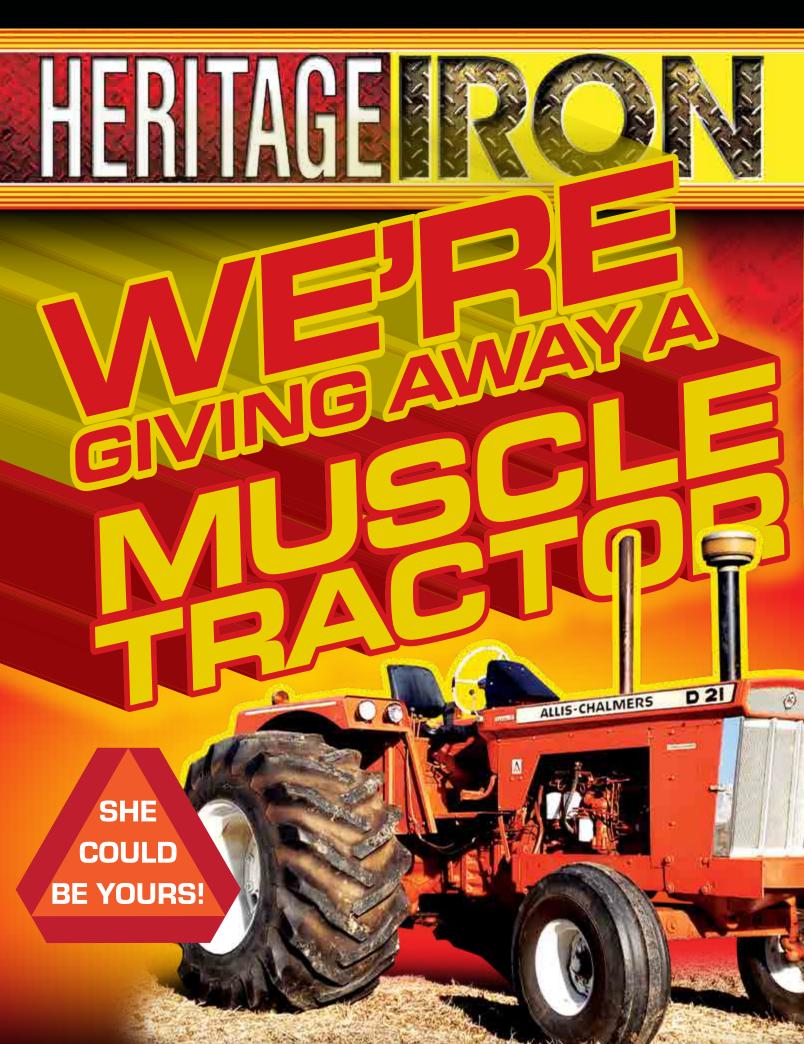
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WHITE 2-155 owned by: LEFFELMAN FARMS SUBLETTE, IL

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Have you ever had one of those weeks where nothing seems to go right, everyone is counting on you, and you just can't catch a break? It's "go time". The combine is broke down. Parts were overnighted to the dealer and guess what... they're the wrong parts. It will be raining in 24 hours and you need to get back in the field ASAP. The grain dryer is going at full force and you're about out of propane. Unfortunately, so are half the farmers in the county and the delivery truck can't keep up. The grain cart has a flat tire. Your truck driver just realized his medical card is expired so he needs to take off and get it renewed. With all the trips in and out of the truck playing manager, you drop your phone and break the glass.

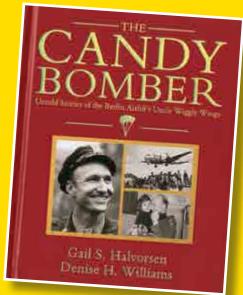
We've all had days like that. Sometimes you just have to walk away for an hour to regroup. Or sometimes another event takes place that makes you forget everything you were dealing with.

It was one of those days. A package arrived with my name on it. Trying to remember what I had purchased on Ebay as I opened it, I soon realized it was not the crowsfoot wrench set I was waiting for. Recognizing the return address was that of a long-time subscriber, I was intrigued.

In the package was a book: *The Candy* Bomber – Untold Stories of the Berlin Airlift's Uncle Wiggly Wings. I had heard of the Candy Bomber before but was not truly aware of the full story. (The Candy Bomber was an American pilot who dropped candy to the children over the Berlin Wall, using handkerchiefs as parachutes.) The book had an airplane on the cover so naturally I was hooked. As I skimmed through the pages reading quick excerpts here and there, I couldn't wait until the day was done so I could read more about this American hero's mission.

As I was setting the book down, I noticed a handwritten message inside. The book had been

SHERRY'S SHOP



signed by the 97-year old author, Colonel Gail S. Halvorsen, who happens to be a friend of one of our loyal subscribers. Not only did he sign it, but he wrote a special message that clearly indicated that he knew what I did, stopping me dead in my tracks. I am a feather in the wind compared to this man, but I read his message over and over, imagining that somehow I was connected to him because of a few little words and the fact that we are both pilots.

I started reading the book and am in awe of its author and his accomplishments in his fulfilled life. The things that men of that era did cannot be replicated in this day. We have completely lost sight of what a true hero is. They aren't athletes or movie stars who are paid more money in a year than most of us will ever see in a lifetime. Heroes are men and women who selflessly put their lives on the line to serve, protect, and sacrifice. They aren't out there for the money or to make a political statement. They're out there to make a difference in someone's life. Colonel Halvorsen did just that... for his entire life. And he is STILL giving. HE is an American hero and I am honored beyond words to have his signed autobiography. Once a hero, always a hero.

"Follow your dreams!"

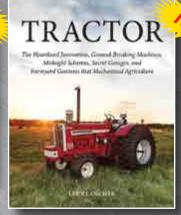
- Gail S. Halvorsen

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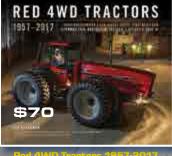


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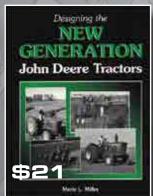
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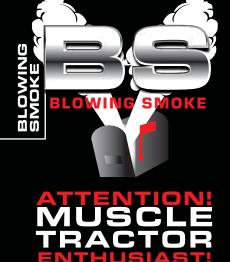
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Sherry and crew,

Enclosed are pictures of my Tractor Girl - my granddaughter, Rena Nichole Reitz. She wanted some of her senior pictures taken with some of our tractors. She has been a Tractor Girl since she was a baby. I would take her out for rides and have to hold her in my arms. When she got older, she would steer until she got tired then put my hand on the wheel to say she was done. Rena was Salutatorian of her class and loves scholastics, sports, music, and drama. But she has never outgrown her love of tractors. When one of the tractors starts, she is right there to ride or drive it.

The Oliver 1950 GM is a 1966 with 3,028 hours on it. It is a three-owner tractor and had not been off the original owner's farm until I bought it and hauled it to Adrian, MO from Council Grove, KS.

I enjoy both magazines. Keep up the good work.

> Bill and Pam Reitz Adrian, MO



Bill and Pam,

Looks to me like you've got a Tractor Girl with attitude. I think it's safe to say that she's going far. Thanks for sharing the picture with us. - Sherry

Ms. Sherry,

I was wondering how many concerned remarks you have received from your readers and subscribers from the Sept/Oct 2018 Sherry's Shop. Well, please add another one! All I know is that for myself, I am not afraid to die, but I'm not going to push it!"

I went to Esbenshade's Gold Harvest this year in Oklahoma. Landon was there. You are right. He is a pretty cool young many. His brother, Logan, was part of the plow on a Ford 9000.

The Super Cub is from that area. It was flown in from about 40 miles away. The John Deere that has the row-crop cultivators is an MT. The farmer that bought it new passed away and now his daughter owns it.

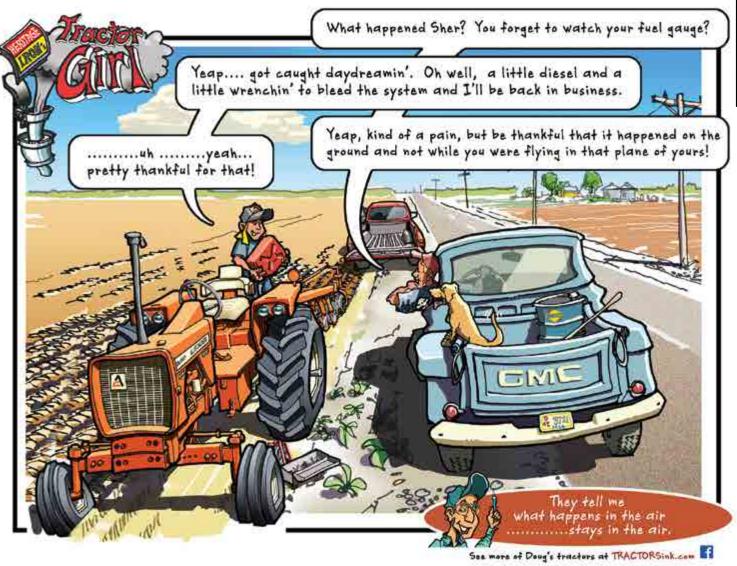
The sawmill was cutting cedar into planks for the woodwork of the museum - Big

Building. The floor was poured and the main metal frame was up.

In Sherry's Shop you have written of important people and the concerns we need to have about our young people (4 to 20 year olds) on their work ethic. I had responsibilities when I was 4-years-old with no allowance. That's just the way it was.

When I was old enough, Dad put me on a Farmall Cub. My first job was with a dump rake. He explained how it worked. He had me drive it out to the field, said make the rows as straight as possible, let me go and then he left.

When I was done, he was there. He motioned to shut off the tractor. He told me to look at what I had done. I didn't have anything to say. He told me "good job" and patted me on the back. Guess what another one of my jobs was.



I would like to influence our young people the way my brother, sister and I were. It wasn't always peaches and cream, I'll tell you that.

Anything is possible. I would like to teach this age of youngsters to do everything from drafting, cutting torch and welding, all the way through harvesting crops to getting hands greasy to aching muscles to changing a worn out bearing on a combine. The only thing that worries me is being sued.

I am so blessed by God and Jesus Christ by everything. I just want to do for someone what someone else once did for me.

> Jim Lundeen Naples, TX













Jim,

The Esbenshades put on a great show every year. There is so much to see there that is static display, and there is also a lot of equipment seen in the fields that isn't typically seen at a show. The year I was there, they had the Chisholm Ryder green bean picker going and the JD hay cuber. Throw an airstrip in the middle of it and it's even better!

Had it not been for that show, I wouldn't know Landon and Logan Martin. Both of those young men are amazing examples of what we can only wish that our youngsters would grow up to be. I'm glad you got to meet them. Landon keeps reminding me that I need to make a trip to TX... and soon!

Lawsuits worry me, too. That is one of the reasons that I don't have many technical, how-to articles in the magazines. Without the right publisher's insurance, I could be putting myself at risk. If I tell someone to split a tractor to remove the clutch and it falls on them, they could come back on me because I told them to do it. Unfortunately, we live in a world full of liability. If we would let kids today do the things that we did when we were kids, we would probably be turned into child protective services. But I wouldn't have wanted to be raised any different!

Thanks for sharing your pictures and comments. Oh, you're the only person that's showed any concern over my last Sherry's Shop. Wonder what that means? ;) - Sherry

Sherry,

You all do a great job. I have every single copy and that's quite a pile. I enjoy every magazine even though I am a diehard IH man. I'll be 90 next Spring and have gotten rid of my collection - I'm down to four. Keep going.

> **Riley Hemingway** Freeville, NY



Riley,

If you've still got four tractors, you're still doing good. It's a lot of work keeping them all running if you're not using them regularly: dead batteries, stale fuel, flat tires. I'm thinking about downsizing myself. Happy 90th in the Spring! - Sherry

Sherry,

This is a picture of my 1972 International 1468. It has been repainted, new Firestones all the way around, new chrome pipes, new chrome stainless heat shields, chrome plated valve covers, and a new chrome grill. It sounds awesome!

> **Greg Erickson** Evansville, MN



Greg, It LOOKS awesome too! Good job! - Sherry

Hi Sherry,

I just got my Heritage Iron magazine this week. It had an interesting tractor on the front cover. The square weight on the front end of that tractor is the same as a couple of weights I bought without seeing them. The guy I bought them from thought they were John Deere since they are green, so being a John Deere guy, I bought them over the phone. Turns out they are Oliver weights, part number 105 250A. Are they kind of rare? I would like to find a good home for them.

> **Arlen Foster** Fulton, SD

Arlen,

That would be a "stack" weight used on the 50 and 55 series Olivers. I don't think I would classify it as "rare" but they are desirable. The "base" weights are harder to find. There's definitely someone out there that would like to have it once they know it's available. - Sherry



Join the Conversation! Talk to **Muscle Tractor Owners!**

Hello Sherry,

As you can see, my brothers and nieces and nephew love your magazine!

This was last Christmas Eve, and they were sitting around looking at Heritage Iron. Keep up the great work!

Miss Swarev

Miss Swarey, That's what I call good wholesome, quality family time! No cell phones needed. Thanks for sharing! - Sherry



Hi Sherry,

Here are a couple pictures of my John Deeres. First is a 1966 3020 powershift. I bought it last fall for \$2000 new, tires all around and new injection pump included in that price. I was told it had a bad engine. Turns out it was just way out of spec on valve lash and the injection pump timing was way off . The second is my grandpa's 1967 4020 diesel snychro. I rebuilt the engine on this while attending Utah State University's Ag Tech Program. I also replaced the hydraulic pump and gave it a paint job. Grandpa gave me that tractor while I was at Utah State. The third picture is of my uncle's 1979 John Deere 7700 combine I bought this one from my cousin and I had to do a fair bit of work to make it operational again, but it does an excellent job now as you can see by the sample in the grain tank. I love your magazine and pick up a copy every time I go to Tractor Supply.







Shaun,

Great job keeping the old iron running. You got a GOOD deal on that 3020 with the new tires and pump. They gave you the rest of the tractor. Thanks for reading Heritage Iron and for sharing your pictures. - Sherry



NOSherry,

My 105s are both in the field now.

Steven Johnston Shelbyville, IL

Steven,

Looking good! To think that at one time, if you had two combines like that, you were a BTO (big-time operator). Nice fleet and great picture. - Sherry





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2014 CASE IH MAGNUM 340 1399 Hours, PS, 5 Hyd



1983 ALLIS-CHALMERS 8050 4035 Orig Hours, Pwr Director



2004 JOHN DEERE 6220 1310 Hours, PQ, 2 Hyd



2009 CHALLENGER MT645C 1892 Hours, CVT, Duals



1969 JOHN DEERE 4020 PFWD, Synchro



2012 DEERE 200 DLC 4395 Hours, Hyd Thumb



1999 NEW HOLLAND 8870 3390 Hours, Guidance



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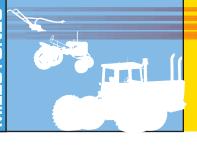
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Larry Gay

n a late 1968 article, Forbes magazine said Ford Tractor Operations was known for producing small tractors for small farms in the South and overseas. Recently Ford began to recognize there was a growing demand for larger tractors, so it had jumped from 63 to 105 PTO horsepower for its largest tractor and started importing self-propelled combines from Germany. However, the article said Ford was still two years behind, because other manufacturers had tractors up to 140 PTO horsepower.

ec1968-Jan1969

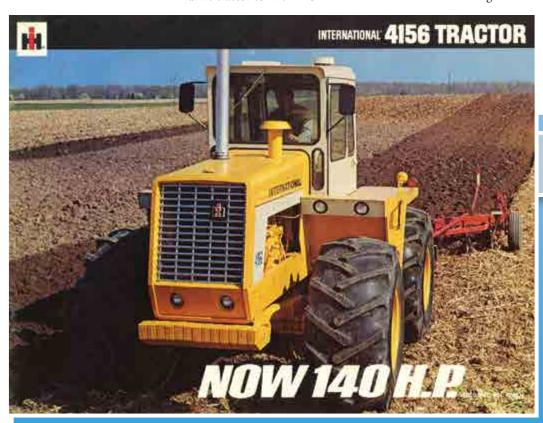
Language John Deere had recently upgraded its 5020 two-wheel drive tractor to 140 PTO

horsepower and was joined by International and Case fourwheel drive tractors with initial ratings of 140 PTO horsepower. The International 4156 with an initial rating of 125 drawbar horsepower replaced the Model 4100 with 116 drawbar horsepower. The 4156 was a rigid frame tractor with front wheel steering or coordinated steering with the front wheels one way and the rear wheels the other for a tighter turning radius. Two-wheel drive was available for highway travel. H The power source did not change from the 4100 as the 4156 continued to be powered by a six-cylinder, 429-cubicinch International turbocharged diesel engine. The eight-speed

transmission with four gears

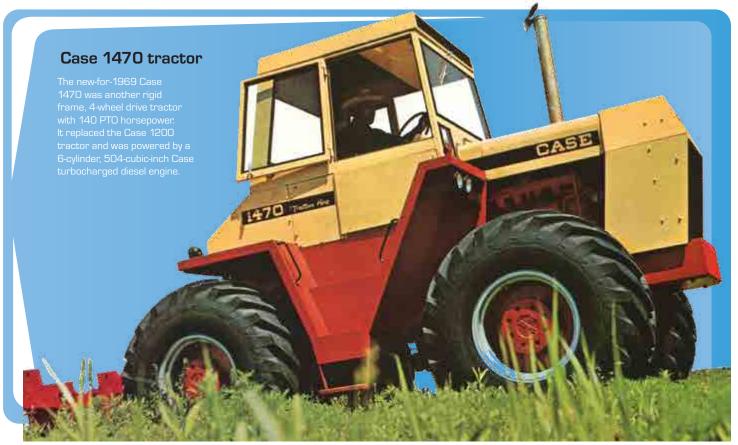
in two ranges provided speeds of two to 20.2 mph with an engine speed of 2,400 rpm and 18.4-30 tires. Fuel tank capacity was 100 gallons. A manual vertically-adjusted swinging drawbar was standard. Optional equipment included a new independent 1,000-rpm PTO, a hydraulically-adjusted swinging drawbar, a new Category 3 size of 3-point hitch, a cab with optional heater and air conditioning, and a variety of tire sizes.

CASE The Case 1470 Traction King with 140 PTO horsepower replaced the Case 1200 Traction King with 120 PTO horsepower. The 1470 continued to be a rigid frame, four-wheel drive tractor with four modes of steering. There was front wheel steering for regular field work, crab steering for work on hillsides, coordinated steering for short turns, and rear wheel steering for hitching to implements.



International 4156 tractor

Rated at 140 PTO horsepower, the International 4156 rigid frame, 4-wheel drive tractor replaced the Model 4100 for 1969 Its power source was a 6-cylinder, 429-cubicinch International turbocharged diesel engine.



The Case 1470 was powered by a six-cylinder, 504-cubic-inch Case turbocharged diesel engine. The eight-speed transmission provided speeds ranging from 2.5 to 14 mph with 2,000-rpm engine speed and 18.4-34 tires. The fuel tank capacity was 100 gallons. Optional equipment included an independent 1,000-rpm PTO, a Category 3 size of 3-point hitch, a cab with optional heater and air conditioning, and three other sizes of tires.

A On January 1, 1969, the CEO title at Allis-Chalmers passed from Chairman Robert Stevenson to President David Scott. Scott recently reorganized the company into 26 profit centers, which made the manager of each group responsible for making a profit. He had also reduced the headquarters staff from 1,510 people to 138, which he said was still 38 too many. Some of these people were assigned to the one

of the profit centers and others were dismissed. The next step was the announcement the sales branches at Charlotte, North Carolina and South Sioux City, Nebraska would be closed. Three 1968 fiscal years. Deere's sales tractor assembly lines at the West Allis, Wisconsin factory had been consolidated into one improved line, which was expected to turn out 25 percent more tractors at a lower unit

In early 1969, a small group of investors created Steiger Tractor Inc. and moved operations from the Steiger family farm near Red Lake Falls, Minnesota to Fargo, North Dakota.

Retail sales in 1968 of farm wheel tractors with 40 or more horsepower were 122,859 units, 11 percent below the 137,397 units sold in 1967. The decline in 1968 sales was reflected in reduced sales by most of the farm equipment companies in the Corn Belt due to depressed crop prices.

Deere & Company and International Harvester continued to lead the industry in the sales of farm and light industrial equipment in their were \$1,030 million (\$1.03) billion) and Harvester followed with \$883 million. Massey-Ferguson was in third place with \$805 million Canadian. An estimate of its sales in U.S. dollars would be in the \$725 million to \$765 million range. Ford Motor Company did not state its farm equipment sales for 1968, but told Forbes magazine Ford was in fourth place in industry sales. Forbes estimated Ford's sales to be between \$450 million and \$550 million. The J.I. Case Company

Allis-Chalmers did not list its farm equipment sales in its 1968 annual report, but had total corporate sales of \$767 million. In recent years, farm

reported record sales of \$357

million for its 1968 fiscal year.

and light industrial equipment sales represented about 33 percent of A-C's total sales, which would be about \$250 million for 1968. Allis-Chalmers reported a loss of \$54 million for its 1968 fiscal year, the only farm equipment company to report a loss in 1968.

NEWHOLLAND New Holland, with its line of combines and hay tools, joined the ranks of the full-line companies with sales of \$210 million for its fiscal year ending in March 1969. White Motor, with its three brands of Oliver, Minneapolis-Moline, and Cockshutt, reported farm and light industrial equipment sales of \$197 million for its 1968 fiscal year. Hesston had sales of almost \$27 million for its 1968 fiscal year, a slight increase over 1967. Versatile reported sales of \$22 million for its 1968 fiscal year. Its annual report said it built 983 tractors in this period and was currently building eight per day.

H International Harvester introduced two models of a unique tractor to its dealers in January 1979. They were articulated, four-wheel drive, row-crop tractors with the operator's station on the rear segment. The International 3588 with 150 PTO horsepower and the International 3388 with 130 PTO horsepower were additions to Harvester's line of tractors. They were advertised as 2 + 2tractors as they provided the performance and adaptability of a two-wheel drive tractor, plus two more drive wheels for extra traction. The front portion, ahead of the articulated joint, had the engine mounted ahead of the front axle to increase the weight on the front wheels and an enclosed engine compartment to reduce the sound level. The rear portion, behind the articulated joint, was basically the rear half of the 86 series of row-crop tractors.

Both models were powered by six-cylinder International turbocharged diesel engines. The 3588's engine displaced 466 cubic inches and the displacement of the 3388's engine was 436 cubic inches. combined with the two-speed, shift-on-the-go Torque Amplifier for a total of 16 forward speeds. Travel speeds ranged from 1.8 to 20.4 mph for the 3588 with 18.4-38 tires and an engine speed of 2,400 rpm. The 3388 with smaller 16.9-38 tires was slightly slower with speeds ranging from 1.7 to 19.7 mph. The bar axles permitted wheel tread settings from 60 to 104 inches.



The International 3588 and 3388 tractors were equipped with the Control Center cab, which featured a built-in ROPS. isolation mountings, a deluxe seat, heater, and air conditioning. There was a control console on each side of the seat with hydraulic levers on the right and transmission levers on the left. Other standard equipment included a Category 3 size of 3-point hitch, and an independent PTO, 1,000 rpm for the 3588 and 540/1,000 rpm for the 3388.

An eight-speed transmission was **MF** Massey Ferguson introduced three compact utility tractors for the 1979 model year. Built by Toyosha of Japan, the 220 was rated at 26 PTO horsepower, the for 1978 were 139,617 units, 210 at 21 PTO horsepower, and the 205 at 16 PTO horsepower. All three were powered by twocylinder Toyosha diesel engines. The 220 and 210 had 12-speed transmissions and the 205 had a six-speed transmission.

> WHITE White Motor Corporation also entered the

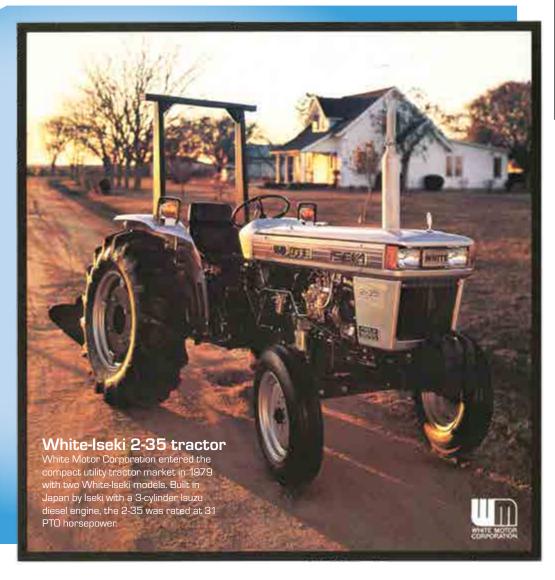
compact utility tractor market in 1979 with two models sourced from Iseki of Japan. Labeled White-Iseki, the 2-35 and 2-30 models were rated at 31 and 27 PTO horsepower, respectively. Both models were equipped with Isuzu three-cylinder diesel engines and a four-speed transmission combined with a high-low range selector for eight forward speeds.

The Farm and Industrial Equipment Institute (better known as FIEI), the trade association for the farm equipment industry, reported retail sales of farm wheel tractors with 40 or more horsepower a six percent increase over the 130,882 sold in 1977.

International Harvester included its sales of light industrial equipment with its construction equipment in 1978, so the sales comparisons for 1978 are only for farm equipment, if possible. Deere

& Company said its farm equipment sales for the 1978 fiscal year were \$3,297 million (\$3.2 billion), a 12 percent increase over 1977. International Harvester reported 1978 farm equipment sales of \$2,348 million (\$2.3 billion), which was less than a one percent increase over 1977. The percentage increases or decreases indicate which companies were gaining or losing market share.

Massey-Ferguson Ltd. reported its sales in U.S. dollars and stated its farm and light industrial equipment sales were \$2,216 million (\$2.2 billion) for its 1978 fiscal year. The company had total sales of \$2,925 million and reported a loss of \$256 million for the year. Much of its annual report was devoted to how the company planned to improve its profitability. Ford didn't report its farm equipment sales, but was considered to be in fourth place in the industry.



Sperry New Holland was now in fifth place in the industry with sales of \$876 million for its fiscal year ending March 1979, a seven percent increase over its previous fiscal year. J.I. Case followed with farm equipment sales of \$695 million in its 1978 fiscal year, a six percent increase over 1977. Next was Allis-Chalmers with farm equipment sales of \$580 million, a six percent increase over the \$545 million in 1977.

White Motor WHITE Corporation stated its farm equipment division had sales of \$307 million in 1978, down about two percent from \$314 million in 1977. Hesston reported sales of almost \$166

an increase of 17 percent over a poor 1977, but a decrease of 11 percent compared to 1976. The company still had a problem [14] John Deere introduced six with excess dealer inventory and had a loss of \$3.7 million in 1978, far less than the \$9.3 million loss it reported for 1977. **VERSATILE** The Versatile Manufacturing Company was now a division of the Versatile Cornat Corporation and said its sales of tractors and swathers for 1978 were almost \$126 million, a 23 percent increase over 1977. Steiger Tractor Inc. reported sales of \$84 million for its 1978 fiscal year, a decrease of 9.7 percent from 1977, and a loss of \$259,000 compared

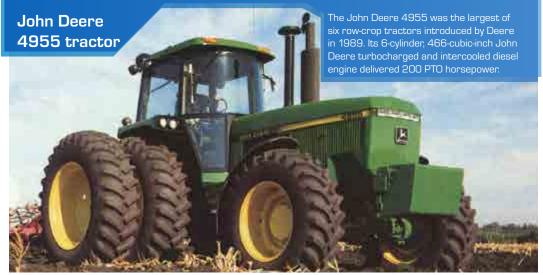
to a loss of \$438,000 for 1977.

million for its 1978 fiscal year,

[Dec1988-Jan1989]

models of row-crop tractors to its dealers at a meeting in Palm Springs, California in January 1989. The six new models and their PTO horsepower were the 4955 (200), 4755 (175), 4555 (155), 4455 (140), 4255 (120), and 4055 (105). The six new 55 series tractors replaced five corresponding models of 50 series tractors, with the 4555 being the new model and the 4755 and 4955 having ten more PTO horsepower than the replaced 4750 and 4950 models. All six of the 55 series models were powered by six-cylinder, 466-cubic-inch John Deere turbocharged diesel engines with the 4955 and 4755 being intercooled. Previously, the 4050 was equipped with a 359-cubic-inch engine.

Although the 466-cubic-inch engine had the same displacement, it had been redesigned with larger turbochargers, a higherpressure injection pump, and a reshaped piston bowl. The standard transmission for the 4755-4055 models continued to be the 16-speed Quad-Range transmission with a two-speed powershift between some speeds. A 15-speed full powershift transmission was standard for the 4955 and optional for the other five models. A Category 3 size of



3-point hitch was standard for the four larger models and Category 2 for the two smaller models. The independent PTO speed was 1,000 rpm for the three larger models and 540/1,000 rpm for the smaller three.

The optional front-wheel assist could now be set to automatically disengage at speeds above 9 mph or when making a tight turn with one brake applied and automatically engage when both brakes were applied. The Sound-Gard body had been improved with the new IntelliTrak monitor that provided performance information, a deluxe seat that swiveled, and more glass.

MF Massey-Ferguson added the third model to its 3600 series with the 3680 at 160 PTO horsepower. This was the first Massey-Ferguson two-wheel drive tractor with more than 130 PTO horsepower since the company dropped the 2775 and 2805 models at the end of 1983. The 3680 featured a six-cylinder, 449-cubic-inch Valmet turbocharged diesel engine and an eight-speed transmission with a two-speed powershift for 16 forward speeds. The 3680 was equipped with a Category 3 size of 3-point hitch and an independent 1,000-rpm PTO. The Silent Revolution cab provided the

Autotronic system to control the front-wheel assist and an optional Datatronic system provided information about forward speed, distance traveled, PTO speed, and acreage completed.

Two other new Massey-Ferguson tractors for the 1989 model year were the 253 and 231 utility tractors. The 253 was initially rated at 45 PTO horsepower with a three-cylinder, 153-cubic-inch Perkins turbocharged diesel engine. The 231 was introduced at 34 PTO horsepower with the naturally aspirated version of the 153-cubic-inch Perkins diesel

engine. Both models had eight forward speeds and a Category 1 size of 3-point hitch. The 253 could be equipped with a front-wheel assist and featured an independent 540-rpm PTO. The 231 was built with a live 540-rpm PTO which was controlled by a two-stage clutch pedal.

Deere & Company reported sales of \$5,365 million (\$5.3 billion) for its 1988 fiscal year, a 30 percent increase over 1987's \$4,135 million. It also said it had recorded a profit after two years of losses. Tenneco Inc. stated its Case IH division had

sales of \$4,309 million (\$4.3 billion) for its 1988 fiscal year, a 17 percent increase over \$3,676 million for 1987. However, the Case IH division continued to experience a loss for the year.

Massey-Ferguson was now a division of Varity Corporation and a much smaller company, but said it was still the leader in worldwide tractor sales in units. Massey's sales for 1988 increased 17 percent to \$1,323 million (\$1.3 billion) as compared to a restated \$1,129 million for 1987. Allied Products reported its farm equipment companies of White-New Idea, Kewanee, and Bush Hog had sales of \$277 million for 1988, up 13 percent from \$244 million in 1987.

FIEI reported retail sales of farm wheel tractors with 40 or more horsepower was 52,011 units in 1988, up eight percent from 48,249 units sold in 1987. Although the widespread drought of 1988 obviously limited sales for the year, one sign the farm economy was finally recovering was the 65 percent increase in sales of 4-wheel drive tractors in 1988.





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TIME TO CONSIGN







MORE THAN JUST TRACTOR RESTORATION

by Christina Staff

Commitment, *noun*: An agreement or pledge to do something in the future.

ou know the feeling of putting your heart and soul into a project? Whether as a farmer, a businessman or woman, or even a student, you pursue your passion and chase your dreams. Without complaint, you sacrifice time from other activities, dedicating the long hours required to garner success, and in the end, you feel capable and triumphant. We call these dedicated people accomplished. We call them hard workers. Entrepreneurs. Winners. We also call them.... finalists.

The Delo Tractor Restoration Competition (Delo TRC) is sponsored by Chevron and has been churning out the next generation of leaders since 1995. The competition's top-notch reputation demands excellence from its students in the form of getting their hands dirty. Students may think they're just restoring tractors when they're essentially being schooled in some of life's most valuable lessons. We first introduced you to this competition back in Issue #38 when we featured Grand Champion Cody Garrett and his Schafer Plow Tractor.

"There is a clear need for programs that support this

type of education and provide this experience," said Dan Holdmeyer, Industrial and Coolants Brand Manager, Chevron Products Company. "The Tractor Restoration Competition is a place where participants develop skills applicable to a career in agriculture, diesel mechanics, or any business actually. Regardless of where their life takes our participants, the Delo Tractor Restoration Competition experience helps to prepare them for success." In addition to the potential career opportunities and business-like experience the competition offers, Chevron provides monetary prizes

including \$10,000 for Grand Champion, \$5,000 for Reserve Champion, and \$3,000 for third place.

Cathy McCarty Hendrix, Delo TRC Coordinator, has been working closely with students of the competition, along with their families, for nearly a decade. "In nine years of coordinating this competition for Chevron, I have met so many students that any employer would love to hire. It is an outstanding accomplishment and one they achieve while balancing school, family, spiritual, and social activities. Each year I am moved by their projects."

Participants are of high school age and are accepted on an individual or team basis. To qualify, each entrant must complete a workbook detailing the entire tractor restoration from start to finish. Every stage of the restoration should be documented, including the original exterior condition of the tractor, condition of the engine, transmission, electrical systems, brakes, etc., with proper attention to safety, procedures, and expenses noted throughout.

Each participant/team's workbooks are submitted to a panel of judges for review, along with a video entry that shows the tractor running. After careful projects was contagious.



consideration and assessment, this panel of "pre-judges" shoulders the responsibility of selecting the top 12 finalists who then advance to the final

For the 2018 competition, the top 12 were announced on September 10 via the Delo TRC Facebook page. Every 15 minutes, the name of another finalist was released along with a photo of their tractor and the tagline "See you in Indy!" It's tradition for the Competition Finals and Awards Banquet to take place during the Annual FFA Convention, so this year, each finalist coordinated their travel to Indianapolis to proudly present their projects to a final panel of judges one last time.

During the course of this excitement, we had the opportunity to catch up with two of the finalists. Their enthusiasm for their finished

EVERETT HERRINGTON

Staying true to his roots, Everett Herrington, a member of the Idalou, Texas FFA, restored a 1968 Massey Ferguson 180. His grandfather was a Massey Ferguson dealer, owning and operating Herrington Equipment Co. in Quitaque, Texas for 18 years. The 180, originally sold from the family's dealership, was bought back by the Herringtons in the mid-'70s and hasn't left the farm since.

"When we bought it back, it was still pretty new and in good condition. We worked it pretty hard, but once it sat for a couple years. That's when the condition of it really faded," Everett told us. Like any antique tractor restoration, there was no such thing as a simple task. "The whole thing gave us trouble. Being 50 years old, there was just a bunch of stuff wrong with it, and it took us 11 days to get the diesel injectors out. It was not an easy process," he laughed.

Besides overhauling the engine in an older model Ford pickup the family had, Everett told us this was definitely the biggest project he's ever tackled. Tinkering, as he calls it, on old trucks is a favorite hobby of his, but his dad's familiarity with the 180 was an essential resource during the restoration. "My dad was in school during the time the dealership was open. In the summer, he'd work in the shop part of the dealership repairing equipment and working with the other mechanics, so he had a lot of knowledge of this tractor."





When we asked what plans he had for the 180 in the future, he said "I'll keep it as a show tractor. As much time as I've put it into it, I couldn't work it again. If something happened to it, I'd lose sleep over that," he laughed. "I'd like to thank my family. This was a family project, really. I want it as a family heirloom, so that's part of the reason I don't want to work it again."

All the after school, late night, and weekend hours totaled nearly 800 before the restoration was complete and the 180 was once again showroomready. Everett's meticulous work didn't go unnoticed by judges at the Houston Ag Mechanics Contest earlier in 2018 where he earned Grand Champion, as well as second in Showmanship. But seeing his name announced as a Delo TRC finalist in September? "That was a really good feeling. It's something I've been working toward for a long time. It was a blessing to get there."







AUSTIN CHAVEZ

"We found it in a little place south of San Antonio," Austin told us about his John Deere 4020. "My Dad and I were actually going through Craigslist one night. We were just seeing what we could find and came across this one, so we went one day to take a look at it and it sparked some interest in me. We researched it a bit, what it was worth, the condition it was in, and I think it was about a week before we went and picked it up. And from there started the fun."

Austin is currently a high school senior in Cuero, Texas, and this is his second year tackling a restoration of this size. "I restored a John Deere Model B in the Ag Shop the previous year on a team of three. I enjoyed every bit of it, and the thing I probably learned most from it was teamwork and leadership. It was a good project, and after that I thought man, I want to take on something bigger, so I went from about a 25hp tractor to about a 100hp tractor."

"The thing that sparked me the most was the powershift transmission in it. That's kind of what I was looking for. After driving it around a little bit, I didn't hear or see too much wrong with it until driving it up on the trailer and I heard a pretty good knock in it. During the restoration process, I figured out that it had been overheated pretty good at one time. So that was one of the major flaws on the engine itself that I noticed prior to tear down. As far as the sheet metal goes, it was in pretty decent shape, actually."

All total, Austin had around 1800 hours in his restoration. His time and hard work paid off, as he was the third Delo finalist to be announced on September 10. "It was crazy. I actually heard from another friend before I even knew, so I was like 'no way!' I was driving home from work, I think, so when I got home and saw my picture up there, the third finalist announced, it was just overwhelming."

The 4020 was Austin's project for his junior year, and as a senior, he's been rebuilding a truck. "A couple of my friends are doing another tractor this year, and it kind of hurts me not doing one, but it's also kind of a relief off my chest because it was long hard hours." He hasn't given up working on tractors, though. Through a program at his school, he's able leave mid-day to go to his part-time job in the service department of their local John Deere, where he's been working since early September.

Thanks to Austin's commitment, the 4020 looks just as good, if not better, than it did rolling off the assembly line when new! "My parents and grandparents both sponsored me, so this is going to be a tractor that stays in the family. And I'd like to thank my Ag teacher and advisor, Greg Nemec, because he's really the one who got me started in the restoring process."









AN AUDIENCE OF WINNERS

On the evening of October 25, we were invited to join the top 12 finalists, along with their families, the judges, and representatives of both Chevron and Delo, as they gathered in a banquet room of the Hyatt Regency in downtown Indianapolis to announce the new Grand Champion. During the meet and greet portion of the banquet, workbooks were displayed and we watched as finalists made their way around the room to survey the hard work of their peers, fully aware of the enormous effort and mental aptitude required to share such a prestigious stage. They were each polite, courteous, and respectful of the immense amount of talent surrounding them. It could only be described as a competition among friends.

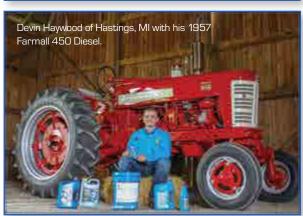
Several awards were presented during the course of the evening. Riley Dalrymple of Uvalde, Texas was awarded Best Photo with his 1925 John Deere D, described as "Museum material" by fellow finalist and 2017 Grand Champion, Corey Verstraeten.

Ryder Merta of El Campo, Texas was the winner of the online video voting with an overwhelming 35,000 votes. When he approached the stage and was asked the secret to his success, he casually replied, "I've got a big family," which was answered by laughter from the room full of attendees. An award was also earned by Austin Chavez for Best Presentation with his 1968 John Deere 4020.

Four Rivers Career Center of Washington, Missouri placed third with their careful restoration of a 1949









2018 Grand Champion Ricky Schilling (center) being awarded his \$10,000 prize from Dan Holdmeyer and Kerri McDonald of Chevron.



John Deere Model A, (and it's also worth noting their FFA Advisor, Dan Brinkmann, has since been recognized as 2018 Advisor of the Year). Devin Haywood of Hastings, Michigan was recognized as Reserve Champion for his work on a 1957 Farmall 450 Diesel.

The 2018 Grand Champion..... Ricky Schilling of Fayetteville, Texas with his show-stopping 1960 John Deere 435! We plan to follow Ricky's reign throughout the following year and can't wait to share this young man's immense talents with you! We also hear he's currently working on another tractor restoration... a red one!

"We are so impressed with all the students who participated in this year's Delo TRC. Chevron recognizes the tremendous dedication and commitment they have shown from taking a rusty workhorse tractor and restoring to a showroom-new look. The hours these students invest is only superseded by the knowledge they gain, not just in the actual restoration but also with skills like budget and resource management, project planning, time management, marketing and public speaking. The 2018 Grand Champion, Ricky Schilling of Fayetteville TX, took the recognition on his first entry in the competition. Though unusual, Ricky impressed the judges with his overall restoration, demonstrated knowledge and presentation," said Dan Holdmeyer.

These exceptional students proved that hard work does pay off. Through busted knuckles and broken bolts, they stood by their commitments. Every one of them left that banquet a winner by our standards. And by preserving a part of the past, they also succeeded in learning more about themselves through perseverance, which will only serve as a further investment into their futures.

To learn more about the Delo Tractor Restoration Competition, visit their website: delotractorrestorationcompetition. com, or find them on Facebook.



EVERETT HERRINGTON

Idalou FFA - Idalou, TX 1968 Massey-Ferguson

AUSTIN REYNOLDS

Ira FFA - Ira, TX 1955 Farmall Cub

AUSTIN CHAVEZ

Cuero High School - Cuero, TX 1965 John Deere Model 4020

RICKY SCHILLING

Fayetteville ISD #278 -**Fayetteville, TX** 1960 John Deere 435

FOUR RIVERS CAREER H.S.

Four Rivers Career Center Night Shift - Washington, MO 1949 John Deere Model A

DEVIN HAYWOOD

Hastings FFA - Hastings, MI 1957 Farmall 450 Diesel

BOX ELDER HIGH SCHOOL

Box Elder FFA - Brigham City, UT 1949 Farmall C

RILEY DALRYMPLE

Uvalde FFA - Uvalde, TX 1925 John Deere D

RYDER MERTA

El Campo FFA - El Campo, TX 1949 John Deere Model B

NORTHWOOD HIGH SCHOOL

NorthWood FFA, Nappanee, IN 1950 John Deere MT

COREY VERSTRAETEN

Southwest FFA, - San Antonio, TX 1955 Oliver Super 88 LP

MACK BLAIR

Dubiski Career High School FFA - Grand Prairie, TX 1949 John Deere Model A

WHITE 2-155 THIR





The first two-wheel drive models to be introduced under the new color scheme were the 2-105 and 2-150. With the White Motors identification, the first digit indicated wheel drive while the second number indicated horsepower rating. The 2-150 stood for a 2-wheel drive with 150 horsepower. This model was built for two years before it was upgraded to the 2-155.

The 2-150 was powered by the 585 Minneapolis-Moline engine that was used in the Oliver 2155 and 2655. When they upgraded to the 2-155 in 1976, the engine of choice was the 478 CID turbocharged White-Hercules engine connected to a 14" button clutch. While the Hercules engine had good lugging power, many users say it also had a slight drinking problem. When tested at Nebraska in 1978, the 2-155 guzzled 15.12 hr/gal however, the JD 4640, which was rated at 156 hp, used 15.61 hr/gal. The IH 1586 with 161 hp was rated at 15.27 hr/gal. In comparison, I wouldn't say it's any worse than the others with that horsepower rating.

The 2-155, part of the Field Boss series, was produced from 1976 to 1986. During that time, it went through many different changes. The most notable of those would be the Series 1, 2, and Series 3 designation, although the only one that is labeled is the Series 3.



The first ten 2-155s were built in 1976 with the purpose of being the introductory models as "New for 1977". They had the early cab on them, which was also used on the early 2-135 models. One of the biggest differences in the 2-155 models are the cabs. While these cabs were a great improvement over the cab on the 2-150 as far as noise, they continued to make changes throughout production to decrease their noise even more. With the 2-150 cab, the noise level during Nebraska testing was 90.0 dB. With the second 2-155 cab, the noise level was reduced to 79.5 dB.

It is also important to recognize that there were two very different types of cabs used on the 2-155. The first variation is the standard cab that is completely independent of the tractor. With this type, you would unbolt the cab, lift it off and the tractor's operation is not affected in any way. You could go straight to the field. Engineering referred to this style as the "horseshoe collar" cab since it would mount right over the instrument panel and hood, with the opening similar to the shape of a horseshoe.

The second type of cab that came out on the Series 3 tractors was referred to as a Pod cab by engineering. This modern cab was like nothing White had ever used before. It was completely independent from the chassis and incorporated a ROPS into it. Unlike the earlier cabs, when you took the "pod" off, the steering wheel, pedals, and controls staved inside the cab. The tractor was completely useless without the cab/pod. Instead of a horseshoe collar at the front, it was a flat plate, similar to a firewall. Being completely independent of the chassis and mounted on rubber isolation mounts, the Series 3 cab or Pod was rated about 75.5 dB. For comparison, the Sound-Gard body on the Deere had a rating of 78 dB.

With the two different types of cabs, there were also two different variations of

each. The earliest cab was only used on a handful of tractors. This one did not incorporate a filter element. The second cab came into production at serial number 272 813 and it used a long filter element at the rear of the cab. The Pod cab came along at serial number 300 928 as part of the Series 3. The first version of this was used thru serial number 302 158 on the 2-135 and 2-155. Since no 2-155s were built in 1983, this particular cab was only used on the 2-155 in 1982. The next Pod cab was used throughout the remainder of production of the 2-155. The roof of the final 2-155 cab style was made of plastic and incorporated turn signals and flashers while the previous cab tops were made of metal. By the end of production in 1986, the 2-155 had the best cab available on it.

The other obvious difference in the 2-155 series is the colors/ name designation. When first introduced to dealers in 1976, the tractor was Argent Silver and Charcoal Gray Metallic. The

side panels had the gray stripes and WHITE was spelled out in individual metal letters. A rectangular shaped plate on the front side panels spelled out FIELD BOSS. In the rear of the cab window was the WHITE. name on a decal.

At serial number 298 511 (late 1981), this all changed. The silver stripes on the side were replaced with a red stripe. The WFE logo took the place of WHITE on the side panels and WHITE FARM EQUIPMENT became a small decal under the WFE nameplate. In addition, the WHITE logo on the grill was also replaced with the WFE logo, and on the rear window of the cab, the WHITE decal was replaced with the FIELD BOSS decal.

When the Series 3 tractors came out with the new Pod cab, a SERIES 3 decal was placed below 2-155. No other decal changes were made.

David Stanonick worked for White Farm Equipment in Libertyville from 1977-1983. Prior to the Series 2 tractors coming out, he was asked to mock up two 2-155 tractors in different paint schemes. He painted one with the Series 1 sheet metal but painted the frame red. The second was painted like the Series 1 but had a red stripe down the hood. They were parked nose to nose for observation to see which one was more appealing. Clearly the red stripe on the hood won.



While the 2-155 was initially a two-wheel drive tractor, a front wheel assist option became available from the factory in 1978. At the same time, a new frame was introduced to accommodate the addition of the front axle carrier sub frame. This change took place at serial number 285 420.

The drive train in the 2-155 consisted of a 6-speed transmission coupled with Oliver's Over/Under Hydraul-Shift, which gave the tractor 18 forward speeds and six in reverse. On the 2-155, this configuration was known as the 3x6 Over/Under or Powershift transmission. The Over/Under transmission had been a popular option on the Oliver line since the mid-1960s.

While the 2-135 and 2-155 were the same engine, the 2-155 turned out more horsepower due to a different pump being used. The 2-135 used a Roosa Master DM4629AS3045, while the 2-155 used a Roosa Master DM4629AS3044. When the Series 3 tractor entered the scene, the 2-155 used a DM4629AAZ4146 pump.

Over the course of the 2-155's production life, there were many changes made. Problems with the engine oil pressure gauge reading lower than actual were experienced. This was caused by the oil pressure sending unit not being compatible with the oil pressure gauge. At serial number 285 083, a new sending unit was incorporated into production





tractors that was compatible with the gauge. By the end of 1979, a higher capacity fuel filter became available. This metal filter replaced the former glass filter and increased capacity by about 50%. At serial number 284 778, the 25 amp light fuse was replaced by a 30 amp fuse to allow for additional equipment to be tied to it. It was found that some tractors were running abnormally hot due to recirculation of air along the left side of the radiator. At approximately serial number 287 812, a fan blast baffle was added to the left side. For field problems, an air baffle package was available.

Changes were made in the hydraulic system along the way too. At serial number 292 269, the hydraulic filter was redesigned to prevent collapsing with cold oil. The new filter incorporated a reinforcing bar from top to bottom to give the filter additional strength. At serial number 289 228, a larger capacity hydraulic pump was released. This allowed the pump to be turned at a slower RPM while maintaining the rated capacity.

For a short time, there were some final drive failures on the 2-135 and 2-155. It was enough of a concern that engineering took a tractor and put it through some serious abuse in order to replicate the failure. David Stanonick was chosen to be one of the test riders. This test was done on asphalt and harsh enough that each test rider could only take about one of testing. The test started at full throttle. The operator would dump the clutch in what David recalls as 14th gear, then you had to hang on for the big wheelie, go about 100 feet and slam

on the brakes. After a couple days of testing, they had fried two clutches and they decided to get off the asphalt and do it in the dirt. In the end, it was found to be an assembly line problem centered around improper installation and the problem went away as quickly as it started. With proper assembly, the transmission and final drive in the 2-155 could not be destroyed. The inboard planetaries were extra heavy duty and delivered power through the 3 7/8" axles. The hydraulic, wet disc brakes with 19 3/4" diameter boosted torque for sharper turning.

On January 12, 1978, White announced their new tractor rental program, which would have been for the Series 1 model. "Effective immediately, White dealers will be allowed to rent any new White tractor from their floor plan inventory to a customer for a period of not less than 100 hours up to 300 hours of use. The rental rate has been established at 11 cents per horsepower hour." Therefore, the 2-155 rented for .11 x 155 =\$17.05 per hour.

The October 1977 Price Book shows the Series 1 tractor with a base price of \$29,452. Standard equipment included the 6-speed transmission with the Over/Under Hydraul Shift, Tilt-O-Scope hydrostatic power steering, closed center hydraulics, draft control 3-point hitch with Category III hookups, inboard planetary final drives with diff lock. The 1000 RPM PTO was the only option on the 2-155 and was included in the price. Although the tractor came with a nice cab, air conditioning was an additional

The May 1982 Price Book shows the Series 3 tractors with



a base price of \$49,690. That's a \$20,000 increase in five years! The Series 3 had many modern features over the previous models, including a wide range of back-lit instrumentation, warning lights, and sensors. It had hand and foot throttle controls, deluxe seats, a convenient right-hand console putting all of the controls in one place. The bright red sound-deadening upholstery was

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The new pod cab, new dash and controls, along with the addition of the **SERIES 3** logo, were a symbol of a new company and a new approach to business.

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appealing and there was plenty of it. And on the Series 3, the air conditioner was included in the base price. An Accra-Tach electronic monitor with bright digital numbers was an option for an additional \$220, however, it was standard equipment on the 2-180.

Ironically, the May 1982 Price Book also shows the 2-155 as a Series 2 but lists it as non-current. The base







price on that was \$48,820. For another \$1,000 you could have a tractor with an ultra modern cab and all the creature comforts of the latest and greatest. I don't think it would take me long to throw out an extra thousand. The addition of the power front axle increased the price by \$8,574.

So why the change of name from WHITE to WFE? By the time White Motors came out with the 2-155, the company was struggling. Sales were in a decline in 1977 and there was a drought out West. White tried selling off some of their product line, such as Euclid, in order to eliminate some of their debt, but the increasing interest rates were eating up any profitability that they had. They had signed agreements with several financial institutions in order to continue to provide inventory for the dealers. The year of 1980 produced a loss of \$47,000,000 to the company, and in September of that year, White

Motors had filed for bankruptcy.

At that same time, TIC (Texas Investment Corporation) began the process of acquiring the farm equipment portion of White Motors. White was brought out of bankruptcy proceedings on October 31, 1981 and placed in the hands of TIC. From that point on it would be known as White Farm Equipment. The silver stripes disappeared and were replaced with red and the WFE logo. This was the beginning of Series 2.

In the spring of 1982, TIC kicked it up a notch with the introduction of the Series 3 models. The new pod cab, new dash and controls, along with the addition of the SERIES 3 logo, were a symbol of a new company and a new approach to business. President and CEO, Robert Dineen, admitted that 1982 was not expected to be robust, but there was still sufficient opportunity for success.

By October of 1982, a layoff started that would last



10 months. For this reason, no 2-155s were built in 1983. Although production started up again in 1984, the company was faced with another bankruptcy. In March of 1985, Borg-Warner Acceptance Corporation called in its loans on White Farm Equipment. BW was putting White Farm Equipment on the auction block. However, White Farm Equipment got their Chapter 7 bankruptcy changed to a Chapter 11, so in other words, the company was allowed to reorganize and keep operating. In doing this, they were able to sell to Allied Products Corporation, who had a lot of experience in

the Ag industry through their ownership of Kewanee, Bush Hog, and New Idea.

In December of 1985, the plant began production again. While no 2-155 were built in that time, 141 more tractors were built in 1986 before the tractor was replaced by the 160. In total, there were 4581 of the 2-155s built. Of those, 492 of them were built as a Series 3. As a tractor built in a series of 3 and under three different owners, the last model incorporated the best improvements from all of them. They had finally got it right. As they say, the third time is a charm.

Н

The tractor used in this story is owned by Leffelman Farms of

Sublette, IL. When I saw the serial number, I couldn't believe my eyes. It was the very last 2-155 built by White Farm Equipment prior to their acquisition by Allied. It was the last 1984 model built. When I called Gene Leffelman to discuss what I had found, there was silence. He said, "Guess I should stop using it then." Even he didn't know it was White Farm Equipment's last tractor.

Gene purchased this tractor at an auction in 1992 with 175 hours

on it for \$20,550. At that time, it was his primary planter tractor used to pull an 8-row planter. The engine was rebuilt at 5800 hours. In 2010, it was repainted by Bossen Implement with 7605 hours on it. Although they don't use an 8-row planter anymore, the tractor is still used about 300 hours per year for mowing and pulling a grain cart. Currently it has 9820 hours on it and they have no intentions of getting rid of it.

When I asked about the fuel consumption, Gene said he really didn't know how much it used. "When the tank is empty, we fill it up."





2-155 Serial Numbers

Silver Stripe WHITE

Motors:

SERIES 1

1976: 272 595 - 272 812 **1977:** 276 055 - 281 209 **1978:** 282 280 - 286 929 **1979:** 287 812 - 293 708 **1980:** 296 160 - 296 244 **1981:** 297 134 - 298 510

Red Stripe WFE (TIC): SERIES 2

1981: 298 511 -299 365 **1982:** 300 259 - 300 429

Red Stripe WFE (TIC): SERIES 3

1982: 300 928 - 310 921

1983: None built

1984: 302 791 - 303 344

1985: None Built

Red Stripe WFE (Allied): **SERIES 3**

1986: 400 107 - 400 718

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HER IAGEIRO

H21026 INDUSTRIAL TRACTOR

Not just a re-numbered farm tractor

by **Kenneth Updike**

DUSTRIA

n the 1960s, IH offered tractors that were designed for industrial purposes like road building, earth moving, and commercial applications. To create these tractors, IH used tractor models already in their Ag Equipment line and modified them for Industrial purposes.

IH painted these tractors Federal Yellow as their standard color, but other color choices (i.e. Omaha Orange) were offered for an additional paint application fee.

Generally, IH Industrial tractors did NOT have the following features: rear 3-point hitches, IPTOs, and adjustable tread axles. Industrial tractors usually did not need these.

The rarest IH Industrial tractor is the 21026 diesel hydrostatic drive tractor. The Industrial tractors were a model variant of the International (standard tread) series tractors. The pronunciation of the model number is often confusing. Some people call these the twenty-one, oh, twenty-six, or the two, one, oh, two, six. IH referred to them as the two, ten, twenty-six model.

The IH 21026 tractor was built by IH from 1969 to 1970, and was offered in a hydrostatic drive version only. A gear drive 21026 was NEVER made. To understand how a hydrostatic tractor differs from a gear drive, you need to know a bit about what makes a hydro a hydro.

IH Hydros

To understand how a hydro works, look at the design components. The basic concept of hydraulic propulsion is quite unique. Liquids are not compressible, and therefore could be used to transmit mechanical energy. The onset of World War II only forced researchers and industrial designers to rapidly advance their work on using high-pressure fluids to transmit mechanical energy in a compact, simple form.

The "medium" used to transmit this energy was typically a refined oil. By not using water or alcohol, many of the limitations of these fluids could be avoided, and oil offered a cheap and readily available form for power transmissions that performed well in all climates.



A basic hydrostatic drive system contains an oil reservoir, variable displacement pump, and motor. The pump is connected to the tractor's engine via the driveshaft or gears, and contains several pistons inside. These pistons pump oil to the drive motor, which in turn, drives the tractor's wheels.

A single lever on the lefthand side of the dash controls the travel speed and direction. By moving this lever, a swash plate on the pump is angled, allowing the pump to create a variable displacement. The farther the swash plate is moved, the faster the tractor travels. When moved back to a neutral position, the tractor stops. Because there is no pressure energy being made, the oil creates a positive braking action. When moving the control lever in the opposite direction, the tractor changes travel direction.

By using a variable displacement pump, even the slightest change in plunger stroke causes instant response at the drive wheels. Because oil is incompressible and used as the driving "mechanism" in the hydrostatic system, the connection between the engine and drive wheels is positive.

The jobs a hydro could do were nearly limitless. Using a hydrostatic drive tractor for any application that required frequent change of direction (front end loader for example) really displayed the hydro's ease of operation with clutch-less forward and reverse changes without gear clashing or stopping. Farming operations that needed ultra slow creeper speeds such as transplanting, chemical application, or close cultivating, also benefited from hydrostatic drive.





With a single lever that controlled both travel speed and direction, the operator had two speed ranges (high or low) available to them with infinitely variable speeds of 0-9 mph in reverse or 0-20 mph forward. IH replaced the operator's "clutch pedal" with what it called the "Foot and Inch" pedal. This was not a clutch, but it acted similarly. This pedal could be used for emergency stops, as it stops all hydrostatic power being transferred to the wheels when depressed. (IH still retained dual brake pedals for infield steering and stopping.) This also could be used to "feather" the hydro when operating in very close areas such as backing up to an implement. Before starting a hydro drive tractor, the "Foot and Inch" pedal must be

depressed to activate a safetystarting switch.

A high-low range gearbox is fitted behind the hydro. The low range is used for most heavy work, while the high range is for light jobs and transport. A neutral spot is featured to allow the tractor to be towed or pushed for a short distance if needed. The Range Control lever is on the right-hand side of the dash.

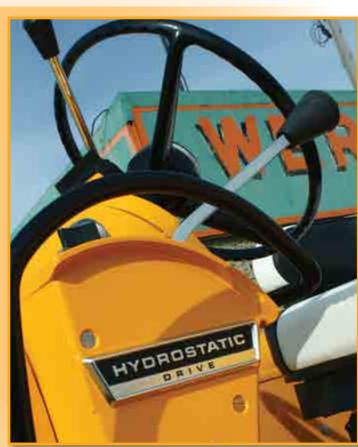
Hydro tractors were nearly identical to their gearbox counterparts in basic tractor appearance and features, except for the center transmission housing that contained the hydrostatic drive unit. Since the hydro was contained in a single housing, assembly and repairs were easy to perform.

A unique item found on the IH hydro drive farm and industrial tractors is its two-needle combination of tachometer/speedometer gauge. This gauge is mounted in the tractor's dash (where the engine tachometer is normally located on a gear drive model), and it reads both engine rpm and

ground travel speed. Only the hydrostatic drive tractors have this unique two-needle tachometer feature. The ground speed is driven by a cable connected to the Hi-Low range transmission gears.

IH design stylists added a decal on the front hood area of the tractors that have a

hydrostatic drive transmission. This white decal with black trim (black with white trim for industrial tractors) simply said "HYDRO" in cursive text. This decal was similar in size and font to the "TURBO" decal being used on the Farmall 1256 turbocharged diesel tractor. A 3-D emblem saying











"Hydrostatic" was placed below the S-R lever on the left-hand side of the tractor to also identify these tractors.

Since the 21026 is both Turbocharged and Hydrostatic, IH put the HYDRO decal on the hood and that was the main identifying feature of the tractor. IH never made any tractors that have BOTH the "TURBO" and "HYDRO" decals on the same hood.

The main "downside" to a hydro drive tractor was a reduction in fuel economy when compared to similar-sized gear

drive models. This was because of the parasitic power loss that hydros have (mechanical energy that is lost because it is required to pump oil). Gear drive tractors also suffer from some mechanical transfer efficiency loss. No tractor can transfer 100% of the engine horsepower to the driving wheels.

If the hydrostatic pump and motor are the "heart and soul" of a hydro tractor, the "lifeblood" is its drive system oil. This needs to be serviced at regular intervals as the owner's manual specifies. With IH hydro

tractors, the recommended oil to use is Hy-Tran Ultraction. There are several other oil brands that claim to be "equivalent" to Hy-Tran, but none of them have the corrosion resistance, water absorption or contaminant suspension properties of Hy-

Hy-Tran can absorb up to 3% of its volume in water. Many other hydraulic oils cannot make this claim. Filter changes are also critical to a hydro tractor. The machining tolerances of the pump and motor parts can be in the 1/100,000th of an inch or less. Dirt particles can easily damage or kill any hydro. It is imperative to keep your hydro drive tractor filled with clean oil and fresh filters for a long life.

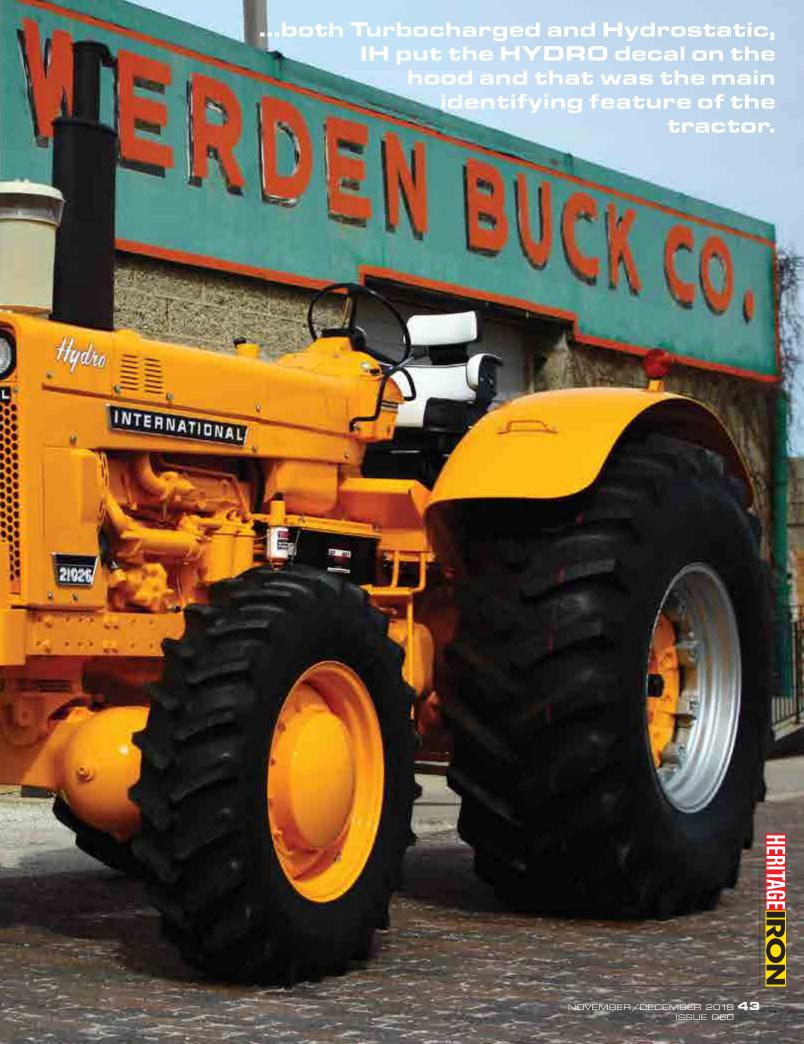
A tip to increase your hydrostatic drive tractor's life is to make sure that EVERY

hydraulic powered implement that is connected to the tractor also has *clean* and *compatible* hydraulic oil in it. If the implement oil is polluted, it will quickly contaminate the oil in the tractor. This oil pollution can happen to any tractor that has an implement plugged into it. Working in dusty, dirty conditions that Industrial tractors are typically working in, can also contaminate hydraulic oil quickly

INDUSTRI











The 21026 featured in this article has an IH-built DT407 diesel engine. This 6-cylinder turbo-charged diesel engine was similar to that used in the larger model 1456. It features dual spin-on style fuel filters, a dual element dry type air cleaner, heavy duty alternator, Roosa-Master injection pump, large capacity engine cooling radiator, and twin-jet oil-cooled pistons.

The Hydrostatic transmission and final drive itself were similar to that of the 826 hydro. Standard equipment on the 21026 hydro included: fixed wide front axle, ether starting aid, vertical acting upholstered seat with padded backrest, and 38-inch wedge lock rear wheels. The 21026 featured a 42-gallon fuel tank for long days at the work site, not at the fuel pump. Wide coverage rear fenders and platform mudguards were also included.

A unique feature of the IH Industrial series tractors is their Heavy Duty front grille. It looks and 1971. One of the least like a flattened hammer mill screen, but it is made to take any abuse that may be put on it. IH fitted a stamped aluminum emblem near the top of this grille that says "Industrial" to indicate that this was not just a re-numbered farm tractor.

An optional all-weather cab could be fitted to the 21026. A range of front and rear tire size combinations and cast iron wheel weights and front suitcase style weights for additional ballast were also available.

has the optional American Coleman (aka Coleman) FWA axle attachment added to it. This allows full use of the tractor's power in loose dirt and sand. When IH fitted this axle to the tractor AT THE FACTORY, a pair of chromed

metal emblems saying "All-Wheel Drive" were placed on the side cowling near the dash. The emblems were used by IH previously on their SCOUT utility vehicle. Only tractors that had the FWA axle installed at the factory have these emblems. On tractors that had the FWA axle added in the field or by a dealer, the "All-Wheel Drive" emblems were not included.

The Coleman FWA axle attachment is a rare item to find, as it was optional and an extra cost item. The turning radius of a 21026 is significantly more with the Coleman axle fitted than if the tractor had the normal heavy-duty fixed tread wide front axle.

It's ironic to note that the 21026 was IH's first 100 + PTO HP hydro drive Industrial tractor and also had one of the shortest production lives of an IH tractor. IH built the 21026 for only 2 years, 1970 produced IH tractors is the I-1026 with only 58 units being made. Of these 58 tractors, an unknown number were built as the 21026. This author would estimate that the number of 21026s made was less than 10, more likely less than 5. I base this estimate on the fact that Industrial tractors were a VERY LOW production unit with a VERY LIMITED sales market. To find one of these today would be very rare!

The 21026 featured in this This particular model 21026 article is serial no. 7505, meaning it is the 4th I-1026 tractor built. (The starting serial number is 7501). It may very well be the first 21026 tractor made. The 21026 tractor was considered a variant of the I-1026 tractor and they share a common serial number range. HI







450 The Last of SERIES 4 by Sherry Schaefer In the Muscle Tractor world, nothing says BIG like

In the Muscle Tractor world, nothing says BIG like Big Bud. Built in Havre, Montana from 1969-1990, this line of equipment was created to fill a void after the acquisition of the Wagner Ag line. When Deere ceased production of the WA-14 and WA-17 after producing less than the agreed upon 100 units, loyal Wagner users were left without a tractor. This resulted in Wagner's largest Ag dealer (owned by Willie Hensler) to start production of their own tractor. Named after the shop foreman, Bud Nelson, the Big Bud was born.

During the 30-year span of production, the manufacturing company, which had been named Northern Manufacturing, built four different series of tractors. Series 1 tractors were built from 1970-1977 and consisted of the HN and KT series. The Series 2 tractors were built from 1977-1978 and used the Cruiser Cab, which was designed by Big Bud's engineer, Keith Richardson.

The Series 3 tractors were built from 1979-1988 and continued to use the Cruiser Cab. The Series 4 tractors were introduced in 1986, even though a few of the Series 3 tractors were still built. They took on a completely new look and incorporated gray into the markings. The new design included a high tech engine, electronic transmission, and was built to compete in the market with the rest of the articulating tractors.

Unlike the other series of Big Buds, the Series 4 tractors were built to order. Jay Worrall of Loma, Montana had been a loyal Big Bud user for years and farmed 4500 acres. He purchased a new Big Bud in 1976, another in 1981, and placed an order for a third tractor in 1989. This last tractor would be a Series 4 Big Bud 450. Although it was ordered in '89, it took until 1991 before it was completed and delivered. He custom ordered the tractor with a Detriot through Leo Bitts, who was a Big Bud salesman in Big Sandy, Montana. The tractor was purchased to pull a 60' chisel plow, a 57' air drill, and a 45' Krause disc.

When the 450 arrived at Worrall farms, Jay installed the red, high-back truck seat that is still in the tractor. He also put the DOT tape down the side





so it would be seen on a dark snowy night. When the tractor was new, it just had a single exhaust.

After Roundup killed the need to go over the land multiple times, the tractor wasn't

really needed anymore. They also wanted a tractor for the grain cart that had a PTO. The decision was made to replace it with a 2008 JD 9430. By then, the 450 was only being used with the planter, so they sold it

in 2014. Worrall Farms had put over 4000 hours on the tractor. The tach went bad when they had it so a new one was installed. (Currently, the tach shows 900 hours so the machine has around 5,000 hours on it total.)

Halfway across the country in Michigan, Larry Addleman was looking for another Big Bud to add to his stable. Larry, a Big Bud enthusiast, already owned a 400/20, along with a 650/50 that we featured in *Heritage Iron* issue 59. He also has a great fascination for Detroit-powered equipment.

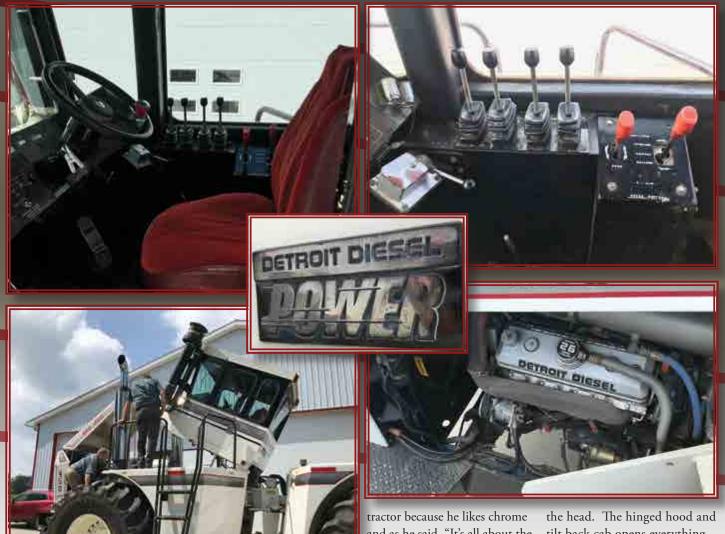
Ron Harmon of Big Bud knew that Larry was looking for another tractor and he also knew Larry had one for sale, so he made it happen. The tractor was taken to the Big Bud facility in Havre to get ready for the trip to Michigan. According to Jay, the tractor did NOT want to leave the farm, nor the state of Montana! When Ron Harmon's truck came to get it, they couldn't get it started. It had NEVER had a problem before, but on that day, the ECM quit. It absolutely refused to start. They had to drag it onto the trailer. When they got it back to Ron's, they put a new ECM on it, but it still didn't want to cooperate. It took a while for them to finally get it going so it could make the trip to Michigan.

According to Keith Richardson, who was the Chief Engineer at Big Bud and the brains behind the creation of the 747, the 450 was the only Series 4 tractor built with a Silver Series 8-V92 DDEC (D-Deck) engine = Detroit Diesel Electronic Control. There have been a few repowers since that day but it was the only one built while Big Bud was still in production.

The powershift transmission in the 450 was purchased through Steiger and was a copy 12-speed Twin Disc. Steiger was having a few issues with the Twin Disc transmission, so Fujitec, a Japanese company, made a copy of the Twin Disc transmission and that is also what is in the 450.

The 450 was the last tractor built out of the last 19 of the Series 4. The serial number on the frame is 90507-450. The last series used a slightly





different numbering system. The first 2 digits indicate the year. The middle number indicates the model series and the last two are the number. Therefore, this 450 is a 1990, 500 series, 7th one built in 1990.

It took quite a while for Jay's custom ordered 450 to be built. According to Keith, they were working with the tribes in the shop at that time. They all had to be trained and worked at a slower pace. There was a lot of employee turnover so things did not progress very quickly.

When Larry received the tractor in Michigan, it came with 30.5 duals, as seen in the

Worrall pictures. Larry didn't really need the duals since the tractor wasn't purchased to do heavy fieldwork. He put wider tires on it, but not so wide he couldn't go through the parades. He has done a little disking and cultivating with the 450. He also put the dual exhaust on the and as he said, "It's all about the looks for me."

Number 90507 was the last tractor built by Big Bud as a production model. It was also the only one with the electronic good visibility. There is no controlled engine, making it a unique and special model. Larry said he's very pleased with the tractor. He did shorten the high-back truck seat because it kept hitting him in the back of

tilt back cab opens everything up for servicing. The fold down step on the front allows you to climb up on the tractor easily. The sloped hood allows vibration through the 1" frame and if he could have made one suggestion it would have been, "You should have kept building them." HI



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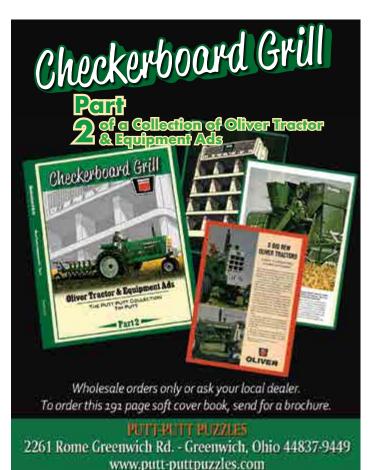
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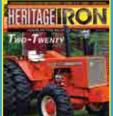
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