

**OHIO TWO CYLINDER CLUB NEWSLETTER**  
**15136 County Road 75 Kenton, Ohio 43326**  
**(567) 674-8132 e-mail: deererun@dbscorp.net**  
**September 2009**



**A MESSAGE FROM THE PRESIDENT**

Summer has slipped by so quickly. Between tractor shows and family medical treatments in Columbus hospitals, summer just whizzed past.

The next show OTCC will be participating in is the Ohio Farm Science Review Sept 22,23, and 24. Our display lot will be changed this year. Display space will be about one-half of what we had before so that will curtail what we can show. Wheeled vehicles on the grounds during show will be limited to electric wheel chairs or golf carts for safety reasons. Please check website: [fsr.osu.edu](http://fsr.osu.edu) and click on golf carts. Ben Roby is in charge of FSR show.

Thank you, Ben.

We held a general membership meeting at the Mt. Gilead Show on Saturday, August 8. A group from the Coshocton Tractor Club presented information about their show and asked to have the OTCC State show during next summer. The membership voted to accept their request. The show will be July 10 & 11, 2010.

Included in this newsletter are reports of our participation at the July Canandaigua NY, July COSI Farm Show and August Mt. Gilead State Show.

We send our congratulations to OTCC member, Derek Snider for being selected King of the youth programs at the Hardin County Fair. He took many of his "110 tractor collection" to the fair.

Looking forward to everyone's involvement in the plans for 2010 Eastern National EXPO VI. We need many helpers to be successful.

Dave Badger, OTCC president

**Farm Science Review**

The Ohio Two-Cylinder Club will display at the 2009 Farm Science Review. Dates for the show are September 22, 23, 24. Display space will be about one half of what we have had before. Ben is organizing a fine line up of club member's tractors for the display. Come visit us at The Review.

**OFFICERS AND DIRECTORS**

President,	Dave Badger
Vice President,	Adam Scammahorn
Secretary,	Judy Brokaw
Treasurer,	Skip Shepherd
Director,	Kenny Smith
Director,	Neil Studebaker
Director,	Ron Grimes
Director,	Dave Howman
Director,	Craig Shepherd
Director,	Don Willson
Director,	Ned Brokaw
Director	Rodger Haulman
Director,	Bill Pride
Newsletter	Skip Shepherd

**CONTRIBUTING EDITORS**

If you have an interesting story or experience that you would like to share, please mail or e-mail it to us. We would like to see more members involved with your newsletter. I'm sure many of you are experts in your field and want to pass on some advice on restoring or collecting. Mail your articles to: OTCC Newsletter  
15136 County Road 75  
Kenton, Ohio 43326  
e-mail: [deererun@dbscorp.net](mailto:deererun@dbscorp.net)

**OTCC MEMBERSHIP**

Our club roster to date is at 360 members. Club membership dues of \$10 per year must be renewed by the end of November annually. You are welcome to renew for more than one year at a time or even lifetime memberships are available. Check the mailing label on your newsletter. The number following your name will reflect the year that your membership will expire. Dues should be mailed to:  
The Ohio Two-Cylinder Club  
15136 County Road 75  
Kenton, Ohio 43326  
Phone: 567-674-8132  
e-mail: [deererun@dbscorp.net](mailto:deererun@dbscorp.net)  
You may also register at any club-sponsored event.

## TRACTOR MAGAZINE SUBSCRIPTIONS

It's never too late to subscribe to one of the popular tractor magazines. They make great gifts.

Green Magazine  
2652 Davey Road  
Bee, NE 68314-9132  
Phone 402-643-6269  
Published monthly  
\$30.00 per year  
\$55.00 for 2 years  
[www.greenmagazine.com](http://www.greenmagazine.com)

Two-Cylinder Magazine  
P.O. Box 430  
Grundy Center, IA 50638-0430  
Phone 888-782-2582  
Published every 2 months  
\$32.95 per year  
[www.two-cylinder.com](http://www.two-cylinder.com)

Antique Power  
P.O. Box 500  
Missouri City, TX 77459  
Phone 888-760-8108  
Published every 2 months  
\$28.95 per year  
\$49.95 for 2 years  
[www.antiquepower.com](http://www.antiquepower.com)

John Deere Parts Manuals  
John Deere Distribution Service Center  
Phone 800-522-7448  
Parts, Operator and Service manuals

## TRACTOR TRIVIA

Thank you Ron Hardman for correctly answering the June newsletter trivia question.

What was the 1<sup>st</sup> model(s) tractor that John Deere styled?  
**The models A and B.**  
In what year did John Deere begin styling tractors?  
**1938.**

**What was the Model designation given to the "GP" prototype?**

If you know the answer to the trivia questions, be the 1<sup>st</sup> to give the correct answer to Skip Shepherd. Winners will receive a free hat or pair of EXPO coffee mugs.

## MAKE PLANS TO ATTEND

The 2009 Farm Science Review. Dates are September 22, 23, 24. For more information [fsr.osu.edu](http://fsr.osu.edu).

## WELCOME NEW MEMBERS

Jim Ronhausen	Kelly Irwin
Jim Porteus	Neil Buxton
Herbert Shaw	Bob Heinlen
Doug Palmer	Jeff Swartz
Kenneth Weavers	Elmer Detty
Joe Fleece	J.D. Fleece

## Plow Days Turns 10

On August 15<sup>th</sup> and 16<sup>th</sup> many members of the Ohio Two-Cylinder Club gathered in Hardin County for the annual Plow Days. The event was held where it originated 10 years ago at the Gary Shepherd farm. We counted 30 tractor and plow rigs that participated in the 2 day event. The weather was perfect both days and the soil moisture was just right for plowing. Delicious meals were catered by the Steve Price family and Janice Shepherd. A big thank you to Janice and family for hosting the event and to all who attended.

## OTCC Life Memberships

Lifetime memberships are available.

40 years and under	\$200
41 to 45 years old	\$185
46 to 50 years old	\$170
51 to 55 years old	\$155
56 to 60 years old	\$140
61 to 64 years old	\$125
65 years and over	\$110

## Question About Power Steering for Waterloo-Built Tractors

I was asked a question at a recent tractor show, “Why is John Deere’s two-cylinder row crop power steering so complicated?” The question has prompted me to think about this and write this reply that explains several things.

First of all, what does it take to have a hydraulic system? It takes a reservoir, a pump, a valve, and a cylinder - no matter who builds it. A hydraulic system doesn’t get any simpler than that!

Some competitive manufacturers used flow dividers to supply oil from the main hydraulic system. The flow divider spool valve will be spring loaded on one end to give steering priority, if system flow decreases for some reason. The problem with this type of system is experienced in what happens when a person is plowing and comes to the end of the field. The operator tries to steer and raise the plow at the same time. The main system volume is divided, trying to run both circuits. As tractors got larger the problem became more pronounced.

Some after-market and factory-produced steering systems simply put a rotary valve and a small hydraulic motor in the steering shaft between the steering wheel and the steering sector. This method makes the sector take the full force generated by the power steering.

To explain the John Deere Waterloo Work’s built power steering, it is a separate independent closed system, which is not affected by any other hydraulic demands on the tractor. In this instance, there is a small reservoir, a pump driven by the fan shaft, a spool valve moved via the steering shaft, a flow control valve (keeps steering speed uniform regardless of different engine speeds), and a cylindrical chamber with a large moveable vane that is hooked to the steering pedestal to turn the front wheels. We can call it a rotary hydraulic cylinder. This shape was used because the front end must fit into a narrow space to accommodate mounted implements such as mounted corn pickers, loaders etc.

This power steering unit pushes the oil pumped directly down to the vane, which turns the front wheels. Pressure will be whatever it takes to overcome resistance to turn the wheels. This routing saves the steering sector from taking full pressure (or the load). As an operator turns the steering wheel, motion is transmitted to the steering valve actuating sleeve. As the sleeve is turned a dowel or set screw (early or later design) slides in the helix slot of the worm shaft, moving the sleeve and transmitting movement to the steering valve spool. The spool routes oil to do the work of steering the tractor. If for some reason there is no oil supply, then the steering shaft will turn the sector gear (which provides manual steering).

This valve is a very critical piece to reduce “play” in the steering wheel between turns in either direction. One of the final service tasks is to fine-tune the operation by centering the spool. This is done by not tightening the spool down tight so a service person can tap the spool housing endwise in small amounts to get the spool centered to turn front wheels equally in either direction with the engine running. Now you need to be aware of some inherent problems at this point. First, it is virtually impossible to get zero leakage with any spool valve. If it were manufactured down to zero clearance the valve will stick in the bore. Second, it is relatively easy to machine a spool valve to have lands with very accurate specifications. Third, the spool housing is a cast part with the ports cast in (not machined). Getting the internal ports accurate is very difficult. In aircraft manufacturing they can justify the costs to machine their valve bodies inside. A tractor company cannot. So just be aware there is always a possible problem at this point in spite of the best intentions.

Continuing on with how the valve works, the steering vane continues on for just an instant after the operator stops turning the steering wheel. This is necessary for the sector to move the valve spool back to the neutral position. As long as someone does not turn the steering wheel, the system stays in neutral. The valve is an open-center type meaning the valve is open in the center when in neutral. So, oil is flowing continuously through the valve but not doing any work and routed back to the reservoir. When the spool valve is moved, it routes oil down to the moveable vane.

A comment I have heard is that this system does not have a filter. Easy to say! But a canister or can type of filter is capable of with standing around 300 psi. The system relief is set at 1170 to 1210 psi. The usual way to filter oil is in the return circuit where pressure is low. However in this case the oil has just been in the steering cylinder at the lowest point of the system. Due to location it acts like a sump, and yes, debris accumulates there. An engineer has to think in the present. He cannot forecast what happens down the road 50 or more years very well. But that is what we are facing now! Accumulated debris down in the moveable vane area scores the parts and causes internal leakage. The amount of this

damage will be according to what care the tractor has had over the years. The Service Manual *Power Steering for 2-Cylinder Tractor SM-2050* gives steps how to replace the oil.

(It is not just a matter of removing a drain plug.) Service Manual recommendation is that power steering system be drained (but not flushed) once a year or every 1000 hours. Show tractors will not begin to see the use that this addresses.

Questions have come up about foaming of the oil. This system is sensitive to the type of oil used. Use only genuine John Deere power steering oil AF2235R.

I have e-mailed *Two-Cylinder Magazine* people for help in locating some engineering specifications. The specification I was really after was the amount of force the engineers arrived at to handle six-row, mid-mounted cultivators and front loaders that can lift a ton of material under field conditions. It was determined that 12,000 inch pounds were required. So I figure 12,000 inch pounds equal 1000 foot pounds or taking a steel bar and chaining to the front wheels going out a distance of ten feet a person would have to exert a force of 100 pounds to stall the power steering system. Doing that would make all oil go over relief and back to sump. The engineers' research showed that some competitive makes of tractors came way short of this steering capability.

The John Deere power steering was designed such that under all conditions it would take three to five pounds effort (or rim pull) to turn the steering wheel. The effort becomes no greater and no less regardless of load on the front wheels.

Pages 10-5-1 through 10-10-4 from Service Manual *Power Steering for 2-Cylinder Tractor SM-2050* have drawings and text that more fully explain how the system works. You can still order a new copy of SM-2050 by calling 1-800-522-7448 at the John Deere Distribution Service Center.

My first experience using this power steering system was on a new JD 620 tractor. I had just graduated from high school and started working for a farmer that lived a few miles away. He started me plowing with a late JD "A" that had seen many years of hard work. The plow was a two-bottom with trip rope to raise and lower the plow. When I would come to the end, it took nearly all of my strength to turn the "A" quickly. One day the farmer put me on the new 620 pulling a new three-bottom hydraulically operated JD plow. Man, that was a great leap in technology! They were a marvelous pair! I had never driven anything that worked so well. I felt like I had the world by the tail! While daydreaming about the new 620 "purring along" I came to the end of the field and had to turn quickly. I spun the steering wheel hard like I did for the "A". I almost ran over the plow! The steering was so light and responsive - I just wasn't prepared for the easy steering! I never forgot that experience.

I also hope you appreciate the John Deere power steering capabilities.  
Dave Badger

### **Mt. Gilead Annual Farm Days Show**

The Morrow County Antique Tractor and Equipment Association wants to sincerely thank all who were involved in our 20th edition of Farm Days in August. This was by far our best show ever with about 155 John Deere Ag and Industrial tractors at the show. Special thanks go to Walter Calvin for bringing the Dain Hay Press, to Kenny Fulk for the miniature self propelled combine, and to Leo Lotz for his superb display of pedal tractors. In addition there were about 75 tractors of various other colors and several lawn and garden tractors. We sincerely appreciate Ohio Two-Cylinder's participation and look forward to another year when we can host your Club.

Loren A. Fulton  
President, Morrow Co. Antique Tractor and Equipment Assn.

## Canandaigua NY Show July 9 -11, 2009

With 836 items registered by Saturday afternoon, the Canandaigua NY Show was very busy. The scope of tractors was from two Waterloo Boys right up through a JD840 with attached scraper as well as a few New Generation tractors. Most were restored. There was a good assortment of implements.

Rain came Tuesday late afternoon while setting up the tent and again Saturday afternoon and night during the tractor pull times. Weather otherwise was excellent. We gave out a lot of EXPO VI show brochures. We talked to a lot of people and made some new friends. It is experiences like this that make a tractor show great. We think there were at least 30 pieces of equipment there from about 45 or more OTCC members. So we were well represented there.

Dave Badger

## COSI Farm Days

“Little Seeds, Big Tractors” was the theme for Farm Days at COSI. This is an annual event held in down town Columbus July 15 – 19. Sponsors are Franklin County Farm Bureau, JD Equipment and The Ohio State University. The educational event brought in approximately 5000 people per day. Children experienced “hands on” farming by shelling corn with an antique corn sheller, riding peddle tractors, learning to plant seeds, milking a simulated cow and climbing on old and new John Deere equipment to get the feel of the farm. Thanks to all the club members who helped and displayed tractors.

## TRADING POST

We will run your ad for 3 consecutive newsletters unless you contact us and want it continued. Please contact us if your item has been sold or if you want it removed from the listing. Phone: 567-674-8132

**For Sale:** JD 2-row corn planter. 937-845-9519

(3)

**For Sale:** 1947 JD “B”

Good rubber and sheet metal

Runs good \$1800 740-852-3896

(2)

(3)

**For Sale:** 2 rebuilt lift cylinders for JD 45 loader

1 good manure bucket

419-365-5409

(1)

**For Sale:** JD 3010 gas, narrow front end,

Excellent shape, approximately 4000hrs.

With JD snow plow. 231-796-2093.

(3)

**For Sale:** (2) 4 speed transmissions for JD 110's

1 good, 1 needs top end repair. Both for \$150

Howard 740-361-3192

(2)

**For Sale:** Heavy duty steel ramps for low-boy

trailer. Sturdy and in perfect condition.

740-426-6444

(3)

**For Sale:** Nice 15 ft. JD 750 No till grain drill

Has dolly wheels 419-846-3818

(1)

**For Sale:** John Deere Van Brunt grain drill

FB SN5211

740-245-5181

(1)

**Wanted:** JD PTO-driven corn binder.

Needs to be a working machine to cut ornamental corn. 419-846-3818

(1)