

# TWO-CYLINDER

THE OFFICIAL PUBLICATION OF TWO-CYLINDER CLUBS WORLDWIDE



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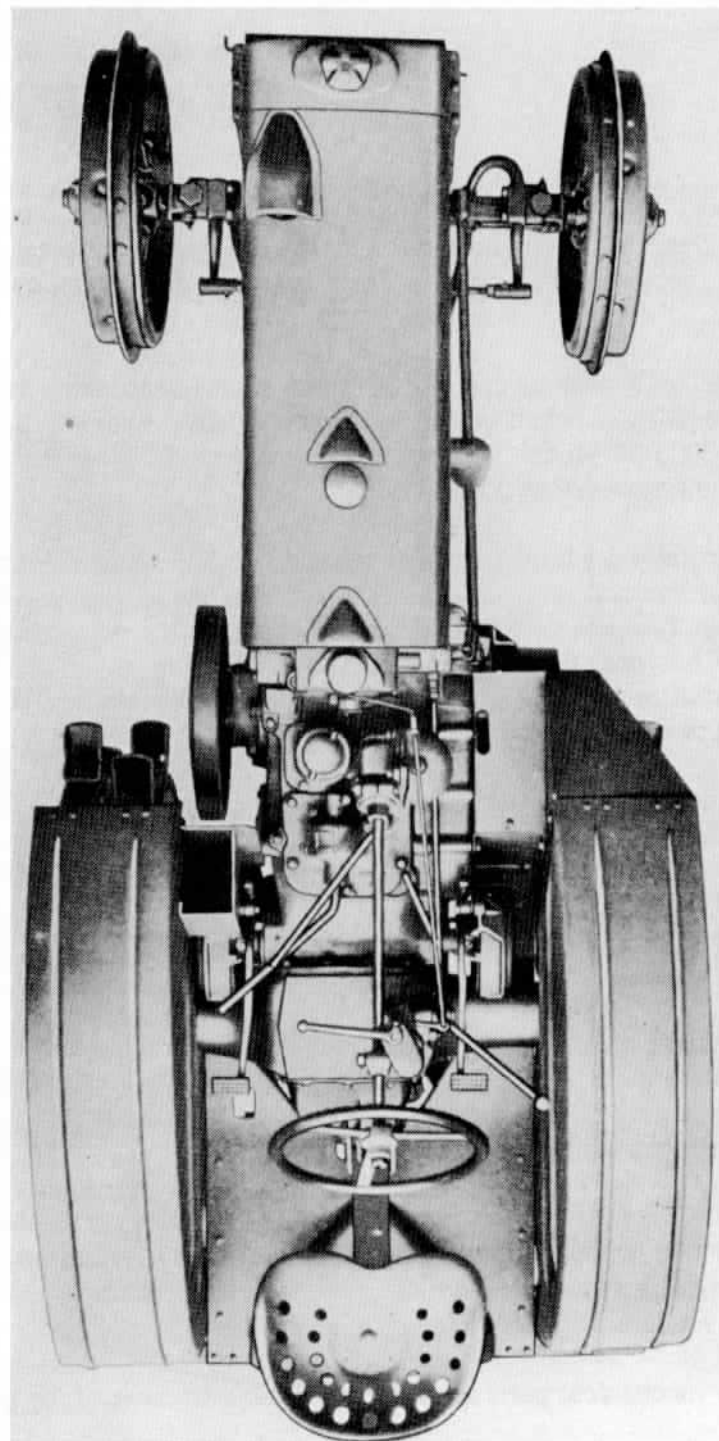
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Right: Overhead view of a Model "BO".



## THE JOHN DEERE MODEL "BO" TRACTOR

The Model "BO" has been discussed as being possibly the most ideal John Deere two-cylinder for the family desiring to have only one tractor to represent their hobby. There is a great deal of logic to that opinion...

- ... Model "BO" tractors can still be found at very reasonable prices - especially so when considering their relative scarcity. Of the over 300,000 Model "B"s produced, just over 5,000 were "BO"s. (About one out of 60.)
- ... It is usually not a nightmare to restore. Replacement sheet metal (hood, fenders) are available. Perhaps the banged-up fenders so frequently found on orchard tractors is part of the reason that the "BO" has not really caught on. A prospective buyer sees that wrinkled mess and loses interest. That has helped keep the purchase price down.
- ... The restored "BO" market is thought to be in a position to take a significant leap. If that happens, the tractor may prove to be not only a great family hobby, but also a wise investment.
- ... The compact size of the "BO" is an advantage in storage and maneuverability.
- ... The standard-tread design and low center of gravity lend to the tractor's stability -- an advantage for novice operators. (Overall height is only 52-1/2 inches.) The full fenders guard the operator from the rear wheels.
- ... Even though the "BO" remained unstyled throughout its production, there were equipment options that kept all of them from looking alike. Included are different wheel offerrings, regular or citrus fenders, and electric starting and lighting.
- ... Major mechanical parts are widely available because of the popu-

larity of the "B" series and number of "B" and "BR" parts tractors around the country. Tires are also available at reasonable prices.

- ... The features listed above, in conjunction with the overall simplicity of design, results in the "BO" being a relatively manageable tractor for a family project.

The "BO" is one of three basic members of the standard-tread Model "B" family...

- ... The "BR", which preceeded the "BO" Decision by about a month and a half in 1935, was designed as a standard tread for smaller farms or as a supplementary tractor on larger farms. Standard-tread tractors were generally designed for open field work, in comparison to the general purpose version of the Model "B" which is primarily a row-crop tractor. Both designs, of course, overlap into each others functional range in some applications.
- ... The "BI", which has been featured in a past Two-Cylinder Club Newsletter (prior to Two-Cylinder magazine), was the industrial version of the Model "B" series. It was designed for the requirements of industrial and road service and, with few exceptions, was painted industrial yellow with black lettering. Fewer than 200 "BI" tractors were manufactured.
- ... The "BO" was based on adapting the "BR" design to orchard requirements. That included differential brakes and some minor changes to help avoid damage from tree branches.

The Decision Copy for the "BO" was published on September 11, 1935. It reads as follows:

*To adapt the Model "BR" tractor design to orchard requirements, we will adopt a Model "BO" Orchard Tractor, differing from the "BR" tractor in being provided with differential*

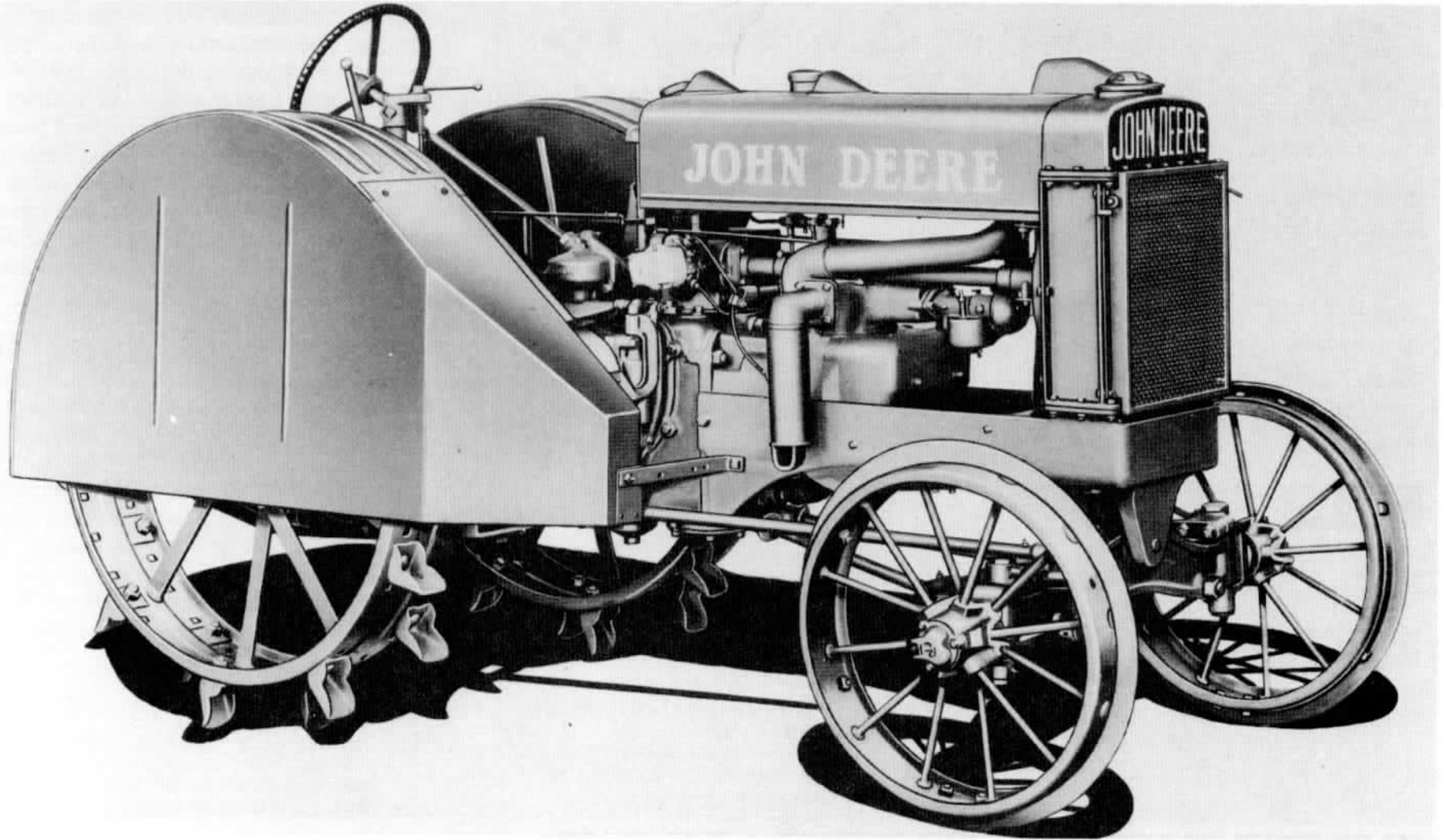
*brakes for short turning, lowering the air stack, and shields for the air stack, fuel and gasoline filler caps.*

*The design of the steering brakes differ from that of the Model "B" in that each brake is an entirely self-contained unit, complete with locking cam. A porous bronze bushing is provided for the outer brake shaft bearing. Lubrication is from an oil reservoir through the porous bushing rather than by grease, and the brake pedals are revised as required by the lowered*

*position of the operator.*

*Estimated requirements - 300 tractors per year.*

The estimate was somewhat low. Production started in September of 1935, sharply reduced during the World War II years of 1942 and 1943, and ended in January of 1947. Even though the above were "short" years, the average was 389 per year over the 13 production years.



Studio photograph of a 1935 "BO" with citrus fenders.



# NEW



## JOHN DEERE MODELS AO and BO TRACTORS for Grove, Orchard, and Vineyard

### **NEW** in Performance

Here are grove and orchard tractors with all the simplicity, economy, dependability of other John Deere Tractors . . . built for extra years of service.

### **NEW** in Speed

Four speeds forward—2, 3, 4, and 6-1/4 miles per hour—adapt these tractors to a wide variety of uses, including hauling. There is a reverse of 3 miles per hour.

### **NEW** in Economy

The engines in the Models AO and BO are of the exclusive John Deere two-cylinder design. They burn the low-cost fuels that save you money.

### **NEW** in VALUE

Get the feel of the Model AO or BO—out in the field. Notice how easily it handles . . . the convenience of all controls . . . the perfect view of the work . . . the comfort of the dust-proof full-skirted fenders . . . the wide, roomy platform . . . the easily adjusted hitch . . . not a thing has been overlooked.

GET THE FEEL OF THE WHEEL . . . ASK YOUR DEALER FOR A DEMONSTRATION

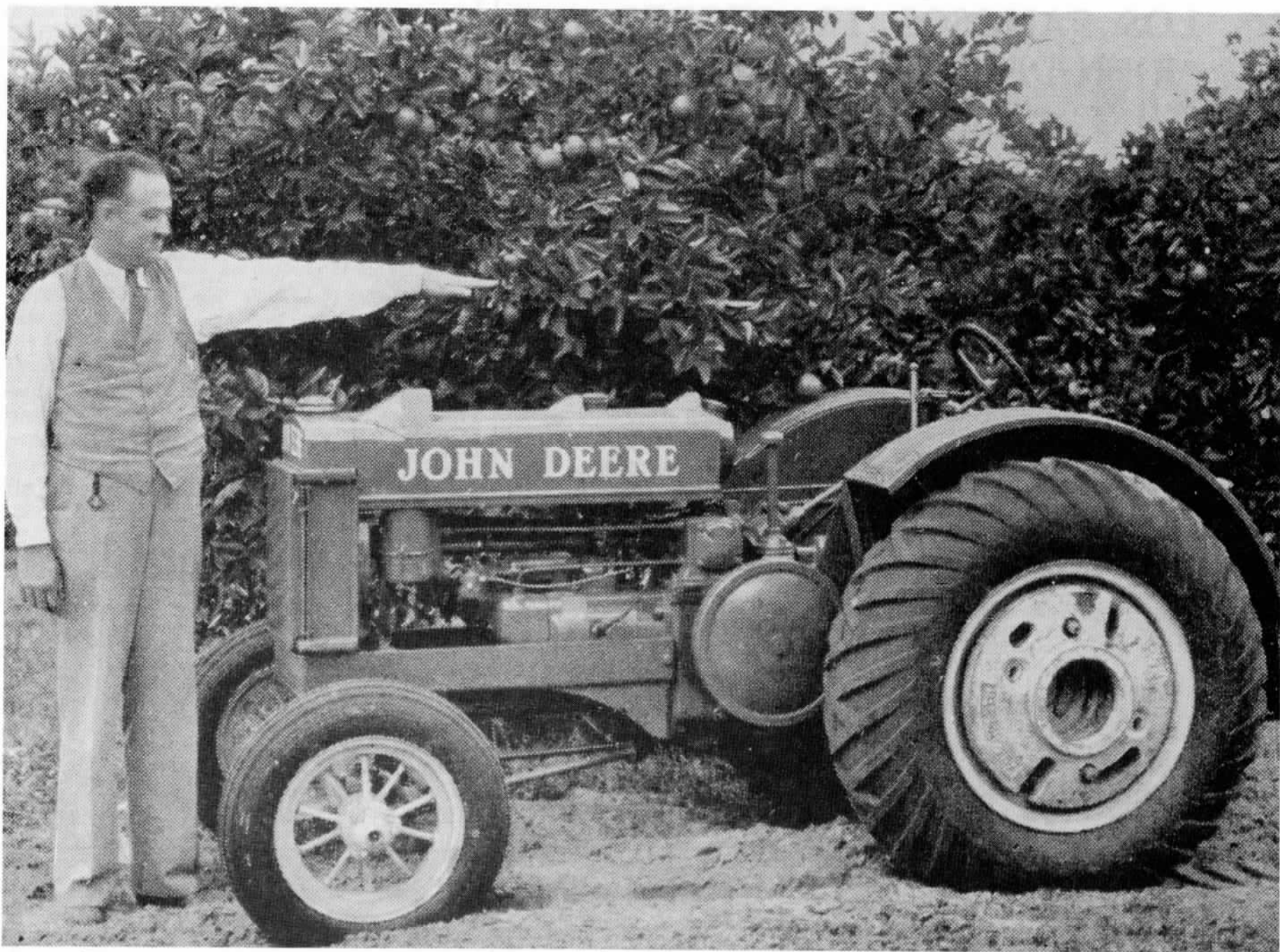
years.

Despite its popularity beyond the estimate, production of the "BO" was overshadowed by the "BR" during most of those years. That trend reversed in 1946 and 1947 when many "BO"s were shipped to Yakima, Washington, to be converted to "BO" Lindeman Crawlers.

The Lindeman connection is a story in itself, and will be covered in a future issue of Two-Cylinder. The John Deere-Lindeman association began back during the production of the "GP" Orchard tractor. A small number of "GP" Orchard tractors were fitted with a Lindeman crawler attachment. The Lindeman Brothers later developed a crawler unit to fit the "BO", and its popularity increased considerably during World War II. Refer to the back cover photo for a look at the "BO" Lindeman Crawler.

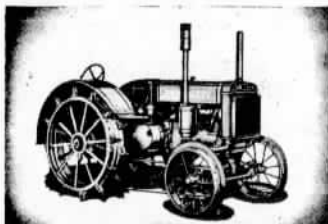
The Model "B" standard tread series ("BR", "BO", "BI"), including the "BO" Lindeman Crawler, had a different serial numbering system than the general purpose Model "B". While the general purpose "B" began with serial number 1000, the standard tread series began with 325000. At this time we do not have an explanation for the numbers starting with 325000, but it was good reasoning to have separate numbering systems for the different types -- it avoided many problems in the parts network.

This 1935 announcement of the "AO" and "BO" tractors uses the term "new" in comparative reference to the "GP" Orchard and Model "D" with orchard equipment.



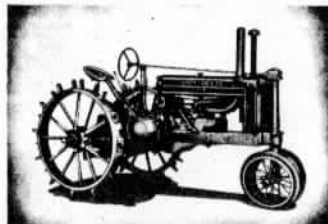
This photograph, grainy in appearance due to its having been enlarged from a small photograph in a 1936 "BO" sales literature, shows the compact size of the tractor.

# LOS FAMOSOS TRACTORES "JOHN DEERE" PARA GASOIL



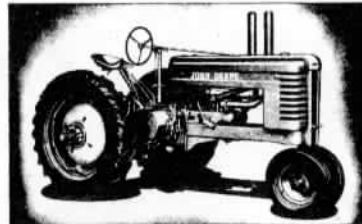
TRACTOR MODELO "D"

El tractor mas grande que fabrica "John Deere". Unicamente de tipo de cuatro ruedas, para trabajo pesado con implementos de arrastre. Tiene tres velocidades hacia adelante.



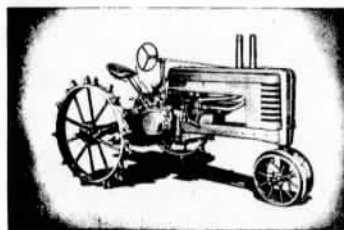
TRACTOR MODELO "G"

El tractor mas grande para trabajar con implementos de arrastre y con implementos montados sobre el tractor. Tiene las ruedas traseras ajustables y las delanteras juntas. Cuatro velocidades hacia adelante.



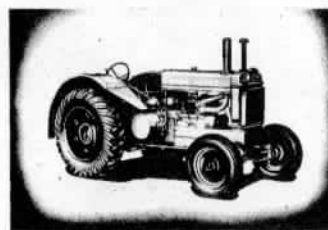
TRACTOR MODELO "A"

El tractor mediano para toda clase de trabajo, cultiva y siembra hasta cuatro surcos y arrastra un arado de tres discos. Tiene las ruedas traseras ajustables y las delanteras juntas. Cuatro velocidades hacia adelante.



TRACTOR MODELO "B"

El tractor chico para toda clase de trabajo, cultiva y siembra dos surcos y arrastra un arado de dos discos. Tiene las ruedas traseras ajustables y las delanteras juntas. Cuatro velocidades hacia adelante.



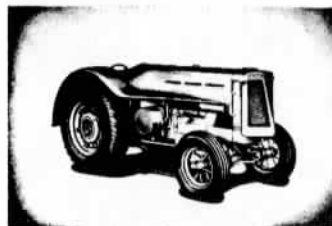
TRACTOR MODELO "AR"

Este es el tractor mediano para implementos de arrastre, como el Modelo "A", trabaja con arado de tres discos y otros implementos que piden la misma fuerza. Este tractor difiere del Modelo "A" unicamente en que es del tipo de cuatro ruedas.



TRACTOR MODELO "BR"

Este tractor es de la potencia del Modelo "B", tiene la fuerza para un arado de dos discos o para cualquier otro implemento que pide la misma fuerza. Es del tipo de cuatro ruedas para trabajar unicamente con implementos de arrastre.



TRACTOR MODELO "AO"

Este tractor es como el Modelo "AR", es de tipo de cuatro ruedas pero está hecho mas bajo y tiene las ruedas y el mecanismo bien cubierto para que puede trabajar en huertas sin lastimar los Arboles.



TRACTOR MODELO "BO"

Este es el tractor chico para trabajar en huertas. Es del tipo y potencia del Modelo "BR" pero mas bajo y protegido para que no puede lastimar los árboles frutales.



TRACTORES MODELO "AW" y "BW"

Los dos tamaños de los tractores "A" y "B" se puede suministrar con las ruedas delanteras y traseras ajustables desde 142 hasta 303 cms. Estos tractores trabajan con implementos montados y tambien de arrastre, tienen muchas ventajas en tierras atascosas.

The first serial number of the standard-tread series was a "BR". Number 325000 was built September 24, 1935. The first "BO" was serial number 325084. For the purpose of collectors interested in pursuing one of the very early "BO"s, the original destination of the first 23 are provided here. Why 23? Simply because we were going to list 20 but felt that the 23rd one had a particularly unusual history and decided that it should be included.

Serial Number	Build Date	Shipping Location/(Ship Date)
1. 325084	27 Sep 35	Milwaukee, Wisconsin
2. 325085	4 Oct 35	Portland, Oregon
3. 325096	7 Oct 35	Landov, New York
4. 325097	30 Sep 35	Walkill, New York
5. 325098	1 Oct 35	Hughesville, Pennsylvania
6. 325099	7 Oct 35	Baltimore, Maryland
7. 325101	1 Oct 35	Stockton, California
8. 325102	1 Oct 35	Portland, Oregon
9. 325103	1 Oct 35	Nichols, New York
10. 325104	1 Oct 35	Nichols, New York
11. 325105	7 Oct 35	Albion, New York
12. 325106	1 Oct 35	Atlanta, Georgia
13. 325107	2 Oct 35	Baltimore, Maryland
14. 325125	3 Oct 35	Waterloo, New York
15. 325127	4 Oct 35	Orlando, Florida
16. 325128	7 Oct 35	Portland, Oregon
17. 325129	3 Oct 35	Minneapolis, Minnesota
18. 325130	3 Oct 35	Neshanic, New Jersey
19. 325131	3 Oct 35	Albion, New York
20. 325132	4 Oct 35	Orlando, Florida
21. 325133	4 Oct 35	Dallas, Texas
22. 325134	4 Oct 35	Orlando, Florida
23. 325135	7 Oct 35	Peoria, Illinois (8 Oct 35), Caterpillar Tractor Company, Seattle, Washington (30 Jan 36)

Changes in specifications occurred during the 13 years of production, but none that really changed the "BO" very much. The major change was probably

The "BO" was one of the tractors featured on a 1938 sales literature for the export market.

(VUELTA)



the larger, more powerful engine. The bore and stroke was increased from the original 4-1/4" x 5-1/14" to 4-1/2" x 5-1/2" in June of 1938. The last "BO" with the smaller engine was serial number 328890, which was exported to an unspecified location.

The new engine began at serial number 329000 in the Model "B" standard-tread series. It was a "BR". The first "BO" with the larger engine was 329082. It initially was the property of the sales department, but was then shipped to Syracuse, New York.

The last "BO" was serial number 337506, built January 15, 1947. It was shipped to Yakima, Washington, on January 18th, and most likely became a Lindeman Crawler.

The end of the Model "B" standard-tread series was a "BR", number 337514, built January 16, 1947. It was exported to an unspecified destination which makes locating it pretty difficult. The last of the series (another "BR") shipped to a North American location was 337509, shipped to West Springfield, Massachusetts.

Unlike the Model "A" standard-tread series, the "B" standards did not stay in the lineup to become styled tractors. The "BI" dropped out in 1941 due to lack of demand. The "BR" and "BO" were discontinued in 1947 rather than be extensively revised to adopt the new engine introduced that model year.

This insert for late 1938 sales literature announced increased power of the "BO" with its larger engine.

# Now... GREATER POWER

## in the JOHN DEERE Model "BO" TRACTOR

HERE'S news of real importance . . . news concerning *increased power* in the John Deere Model "BO" Orchard and Grove Tractor, which is illustrated and described in this booklet. The engine in the Model "BO" now has a 4-1/2-inch bore and a 5-1/2-inch stroke and develops the power to pull two 14-inch bottoms in most soils.

In open field work, it will (1) plow up to 9 acres in a 10-hour day; (2) single-disk 40 to 50 acres with an 11-1/2-foot harrow; (3) cut 25 to 35 acres of hay with a power mower; (4) drill 20 to 25 acres; (5) pull a 1-row potato digger with ease; (6) within its power limits do a wide variety of belt work; (7) operate a power take-off driven sprayer; and (8) do all of its work while burning distillate, furnace oil, and other low-cost fuels successfully, efficiently, and safely.

If you are interested in a small, compact, easily handled orchard and grove tractor that is now powered to do more work than ever before at rock-bottom cost, the John Deere Model "BO" is the tractor you have been looking for.

A field demonstration is the best way to appreciate the extra power built into the Model "BO". See your John Deere dealer and ask him to let you drive this powerful, efficient, money-saving tractor. Arrange for a demonstration today.

Throughout its life the "BO" was offered only as an "all-fuel" tractor. Horsepower was not generally advertised, as was true of the tractors of that era. Instead, working capacity figures were provided. The most common reference was plow capacity, and with the early (small-

er) or later engine the "BO" was rated as a two 14-inch plow tractor. Observed horsepower of the smaller engine was 16.01. It increased to 18.53 with the larger bore and stroke. The advertising insert for late 1938 literature, shown on page 7, announces the increased power.



Model "BO" on steel pulling John Deere-Van Brunt Model F Grain Drill.

When introduced, the standard wheel equipment for the "BO" was steel with a variety of lugs offered. Rubber tires were optional. Rubber tires later became standard equipment with a choice of cast or spoke wheels. Rubber tire equipment was available in both 24" and 28" sizes. Tractor specifications, shown on page 11, are from a 1940 sales literature. Note that rubber tires on heavy cast wheels are listed

as standard at that time. The tractor weight increased as a result. Depending on other factors, it is about 2900 pounds with steel wheels.

The "BO", as mentioned earlier, is an excellent addition to a collection, or can be an ideal only tractor. Interest is on the increase which is bound to affect the price. Since many of the 5054 factory-built



Model "BO" hauling apples. Francis Boal, Berrien Springs, Michigan. It is undetermined whether the tractor was painted a very light color, or whether the original photograph had been retouched in preparation for some additional artists work. Photo taken in October 1938.



"BO"s were converted to Lindeman Crawlers, the original wheel-type tractors are far more scarce than most people realize. That becomes apparent in most parts of the country when you begin a search for one.

With the increased specialization in collecting, the "BO" becomes a natural addition to a collection of either the Model "B" line or the John Deere Orchard tractors. The tractor is so likeable it seems entirely

possible to have a collection of variations of just the "BO". A three-tractor collection, for example, could be made up of an earlier (smaller engine) "BO" on steel, a later "BO" on rubber, and a "BO" Lindeman Crawler. Considering that the number of John Deere tractor collectors probably far exceeds the number of remaining restorable "BO"s, promptness is an important factor in your success in obtaining just what you want. ■



Model "BO" with No. 51 Plow. B. K. Burnee, Auburn, New York. Photo taken in May 1938.



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## SPECIFICATIONS FOR THE MODEL "BO" JOHN DEERE TRACTOR

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### CAPACITY

Handles two 14" plow bottoms under normal conditions

**SPEEDS** (m.p.h. with 9.00x28 rubber tires) - 1st - 2; 2nd - 3-1/4; 3rd - 4-1/4; 4th - 6-3/4; Reverse - 3-1/2

**BELT PULLEY** - Diameter, 10-5/8 inches; Face, 5-1/2 inches; R.P.M. (Rated Speed) 1150; Bearings, 1 roller and 1 bronze

**BELT SPEED** - (Feet per Minute) 3200

**POWER TAKE-OFF** (Engine Driven) - 554 R.P.M.

### ENGINE -

2 Cylinders - Cast-In-Block - Valves-In-Head

Engine Speed - 1150 R.P.M.

Bore and Stroke - 4-1/2 inches x 5-1/2 inches

Bearings - Two main, bronze-backed, babbitt-lined. Removable. 2-1/4" diameter x 2-1/2" wide.

Connecting Rods - Special quality steel, drop-forged. Bearings - babbitt, centrifugally spun in rod. 2-1/2" diameter x 2" long.

Bronze busing for piston pin.

Governor - John Deere design, enclosed fly-ball type - one ball-thrust and two self-adjusting ball bearings

Carburetion - Natural-draft type with load and idle adjustment

Ignition - High -tension magneto with enclosed automatic impulse starter

Air Cleaner - Oil-wash type

Lubrication - Full force-feed pressure system with oil filter

Cooling - Thermo-siphon with gear-and shaft-driven fan. (No belts or water pump)

**FUEL TANK CAPACITY** - 12 gallons (U.S.)

**GASOLINE TANK CAPACITY** - 1 gallon (U.S.)

**WATER CAPACITY** - 6 gallons (U.S.)

**CLUTCH** - Two 8" dry disks - locking in and out

**TRANSMISSION** - Selective type spur gears, forged, cut, and heat-treated. Shafts operating on 3 roller, 4 tapered roller, 5 ball bearings.

**REAR AXLES** - 2-1/2" in diameter. Mounted on 4 tapered roller bearings.

**REAR WHEEL SIZE** -

9.00X28 - 4-ply rubber tires, mounted on heavy cast wheels

Other sizes available as special equipment: 11.25x24 - 4-ply;

11.25x24 - 6-ply. Steel wheels special equipment. Diameter 40".

Face 8".

**FRONT WHEEL SIZE** -

5.50x16 - 4-ply rubber tires. Mounted on 4 tapered roller bearings.

Steel wheels special equipment. Diameter 24". Face 5".

**REAR-WHEEL TREAD** - 41-3/4"

**WHEEL BASE** - 68"

**TURNING RADIUS** - 11', 8"; with differential brake-8', 8"

**DRAWBAR RANGE** -

Vertical Adjustment - 12-14-16"

Horizontal Adjustment - 25-3/4"

**DIMENSIONS** -

Over-all Width

52-1/2 inches

Over-all Length

117-3/4 inches

Height to Radiator Cap

50-1/2 inches

**SHIPPING WEIGHT** - 3441 pounds

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## PETROLEUM DISTILLATE

"Fill it up with distillate."

"Huh?"

The common fuel for John Deere two-cylinder tractors of the '20s, '30s and much of the '40s was petroleum distillate. Most of the senior collectors are pretty familiar with the stuff, while the younger enthusiasts have heard of distillate, but few know much about it.

The pages of Two-Cylinder have frequently referred to "all-fuel" tractors. There's a link to the nomenclature. John Deere "all-fuel" tractors are those designed to run on petroleum distillate as well as some other fuels.

Until the 1947 model year and the introduction of two-cylinder tractors with gasoline-burning engines, they were designed for the regular use of petroleum distillate. After 1947, and until the end of domestic John Deere two-cylinder tractors in 1960, continually shrinking numbers of tractors were built for the use of distillate. There are a number of reasons for this, the primary ones being...

... The demand for increased tractor power dictated increased compression ratios and a corresponding increase in fuel octane. Gasoline had become widely available for farmers and distillate tractor sales began to be overshadowed by those with gasoline engines.

... Petroleum distillate became generally less available. In addition, the price gap between the lower cost distillate and gasoline began to narrow in most areas of the country.

As more engine types became available in John Deere tractors, the term, "distillate engine" gradually gave way to "all-fuel". Today, because of the low numbers of all-fuel tractors produced in the later models (mid- to late-1950s) the all-fuel tractors are becoming increasingly sought after and usually bring prices from collectors above those of the gasoline, LP-gas, and Diesel tractors. On the other hand, individuals seeking a working tractor would tend to be less

interested in an all-fuel tractor because of its lower horsepower.

Some horsepower comparisons between all-fuel and other tractors have been made with certain models in previous issues of Two-Cylinder. A few of these examples will be provided later in this article, but first let's take a closer look at petroleum distillate...

Petroleum distillate is a product obtained when crude oil is heated in a still. The boiling of the crude oil releases, in the form of vapor, various volatile or combustible elements. These vapors are then condensed following separation processes, and liquified fuels in the form of gasoline, kerosene and distillate are produced.

Gasoline, kerosene and distillate are similar in chemical nature, but quite different in the degree of volatility -- the rate at which they vaporize.

While there are chemical similarities in the products, distillate generally contained a higher percentage of sulfur. Most commercially available distillates contained less than one-half of one percent sulfur, but others had as much as three-quarters of one percent. The sulfur levels and other impurities made burning distillate somewhat more damaging to the engine than the use of higher grade fuels, but the decades which tens of thousands of John Deere two-cylinder tractors operated successfully on distillate bears testimony to its success in an engine properly designed for that purpose.

The dark color of distillate was not a visual indicator of the presence of harmful impurities, but instead was the result of not subjecting the low cost fuels to further "finishing" processes that are used in producing the almost water clear color of higher cost fuels. Kerosene, for example, is usually very clear, and in some instances contained as much sulfur as better grades of distillate.

A study was taken in the early 1930s that showed 87% of the owners of John Deere two-cylinder tractors were using low cost fuels (primarily distillate) while just 13% were burning gasoline. There were

at least two distinct reasons for this, both attributed to advantages provided by distillate:

**Power** We're not talking about the peak horsepower of an engine. This time power is the ability to do work. Distillate contains more B.T.U. (heat units) per gallon than either kerosene or gasoline. Therefore, there is more power available in a gallon of distillate. Again, this does not mean you can burn distillate in an engine and get higher horsepower output. It does mean that at a given level of work the engine will use less distillate than it would gasoline. It's similar in some ways to the comparison between Diesel and gasoline engines.

**Cost** During the peak of distillate usage it was available in many areas of the country at about half the cost of gasoline. In pure dollars it was possible to pay for the tractor in fuel savings. That depended, of course, on the extent the tractor was operated and the cost differential between distillate and higher grade fuels. Nonetheless, there are many documented instances where farmers who kept accurate records were able to show that the ability to operate with distillate had indeed paid for their tractor. The 1931 advertising shown at the right provides an encouragement to apply the fuel cost-saving logic when purchasing a tractor.

There were and are some advantages associated with the use of distillate not yet mentioned, as well as some disadvantages. Among the advantages, the most important many years ago was probably the lower fire hazard when compared to more volatile fuels such as gasoline. Equipment and knowledge in proper handling of fuels has improved considerably over the years. It was undoubtedly much safer to store and handle the less volatile distillate.

# Pay for a John Deere Tractor with the Money It Saves in Fuel Costs

Meet the challenge for lower production costs with the John Deere—the tractor that *burns low-cost distillate* successfully.

During the long life of the John Deere Tractor you can *save enough* over the cost of kerosene or gasoline to *practically pay for a new John Deere Tractor*. (Study table below.)

## What a Farmer Saves by Using Low-Cost Fuel

### JOHN DEERE TRACTORS BURN LOW-COST FUEL

No. Days Tractor Used a Year	Fuel Used per Year at 25 Gals. per Day	Cost of Gasoline at 13 cents per Gal.	Cost of Kerosene at 12 cents per Gal.	Cost of Distillate at 8 cents per Gal.	Money Saved by Using Distillate Instead of Kerosene		Money Saved by Using Distillate Instead of Gasoline	
					In One Year	In Ten Years	In One Year	In Ten Years
50	1250	\$162.50	\$150.00	\$100.00	\$ 50.00	\$ 500.00	\$ 62.50	\$ 625.00
75	1875	243.75	225.00	150.00	75.00	750.00	93.75	937.50
100	2500	325.00	300.00	200.00	100.00	1000.00	125.00	1250.00

**NOTE:**

The number of gallons of fuel used a day depends upon size of the tractor and kind of work being done. The figure used represents a fair daily average between the two-plow, and three-four plow tractors.

The fuel prices as used in the table above are average figures obtained from tractor owners. These prices will vary somewhat in different localities but not enough to change materially the answers as shown.

John Deere Tractors always have successfully burned gasoline, kerosene or distillate. Now with a real need for lowest possible production costs, its ability to burn low-cost fuel better than ever is a cash-in-hand advantage you cannot afford to overlook.

The saving you can make in fuel costs is but one of the many savings you make in operating a John Deere Tractor.

You get the advantage of extreme simplicity

—few but sturdy parts, **few repairs to buy**; few adjustments to make—**all easily made out on the farm without hiring a mechanic**; complete enclosure of all important operating parts with all parts made **quickly accessible** from a **standing position**; long life—**more years of better service at low cost**.

The John Deere Tractors for 1931 are better than ever. You get even better performance, even longer life, even greater economy than ever before.

## INVESTIGATE—See Your John Deere Dealer

This 1931 advertising provided basic logic for the use of distillate in the John Deere tractor. The figures used were averages, and the cost advantages were actually greater than shown here in some areas of the country.

The disadvantages included...

- ... The need for a two-fuel system for starting. Gasoline was needed to start the tractor and bring it up to operating temperature. That's the reason for the small gasoline tank and fuel selection valve.
- ... Cooling water and manifold temperatures must be kept high. This tended to make distillate perform best in warmer weather under at least medium loads.
- ... Distillate tends to dilute crankcase oil.
- ... Engine deposits.
- ... Low power for the size of the engine.

The disadvantage of lower horsepower for the size of the engine almost sounds like a contradiction of the statement that distillate produces more power per gallon. It's really two different subjects.

The lower grade fuels will not tolerate as high a compression as, say, gasoline, without producing excessive detonation. That was a major factor in the horsepower output of the John Deere two-cylinder distillate or all-fuel engine being significantly lower than the same size gasoline engine. Examples of the differences are shown below:

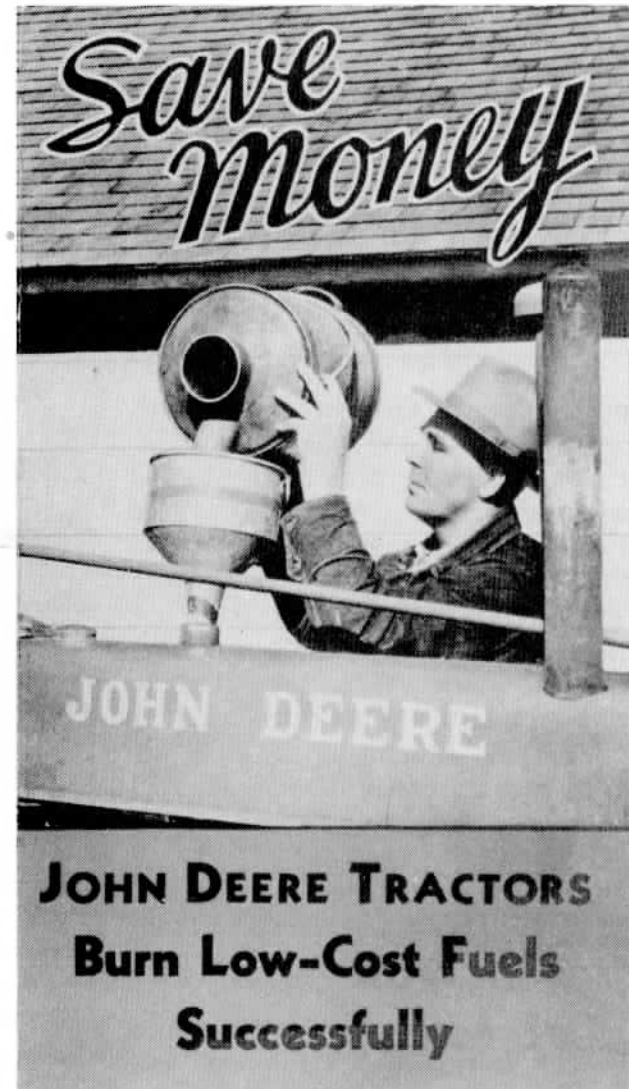
\*Horsepower Comparison

<u>Model</u>	<u>Distillate Engine</u>	<u>Gasoline Engine</u>
"A"	26.30	33.53
"B"	20.68	24.39
"60"	28.27	35.33
"520"	22.62	32.79
"620"	30.33	41.38
"720"	38.53	50.25

\*Rated belt horsepower figures shown.

As was stated earlier in this article, the lower horsepower, reduced availability of low-cost distillate and the increased ability to obtain competitively priced gasoline and other fuels ended the distillate era. John Deere two-cylinder tractors were the shining example of the engineer's ability to take advantage of the use of distillate for the benefit of the farmer. The era ended, as did the all-fuel tractor.

Today, because of the low numbers of these tractors produced near the end of the era, the collector has the opportunity to set his sights on tractors that truly fit the scarce and rare categories even though they are only 30 years old.



Shown above is the front of a small advertising leaflet from 1935 that provided graphic comparisons of the various fuels available to the farmer. Several pieces of John Deere tractor advertising from the '20s and '30s focused on the subject of burning low-cost fuels.



## TWO-CYLINDER CLUB NEWS AND EVENTS

### Old John Deere Films Now Available on Video Tape

In the March-April issue of Two-Cylinder, it was announced that three early John Deere films had been made available on VHS video tape. Only 1000 of each were produced, and from the sales over the past weeks it is obvious that they will soon be gone.

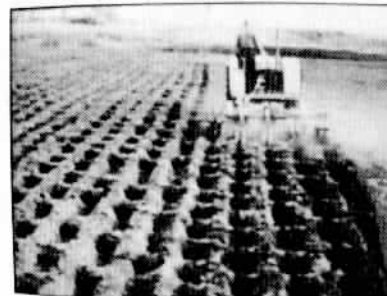
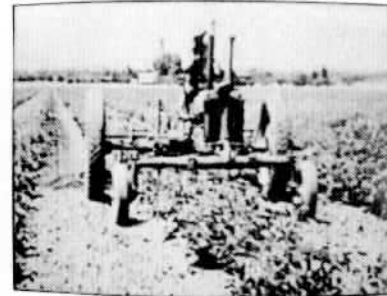
Special efforts have been made to make additional films available, and we're happy to announce a set of two more tapes to round out your John Deere vintage film library. Only 500 sets of these tapes are in production, with delivery expected the third week of July. We urge you to get your order in at once to assure that you won't be disappointed.

A limited number of individual tapes and full sets of the first three (Set No. 123) are still available and in stock for immediate shipment. Orders for the new set (Set No. 45) should be placed now for shipment immediately upon their arrival at Two-Cylinder Club Headquarters. An order form included with this issue provides a description of the content of the tapes. The five tapes available are:

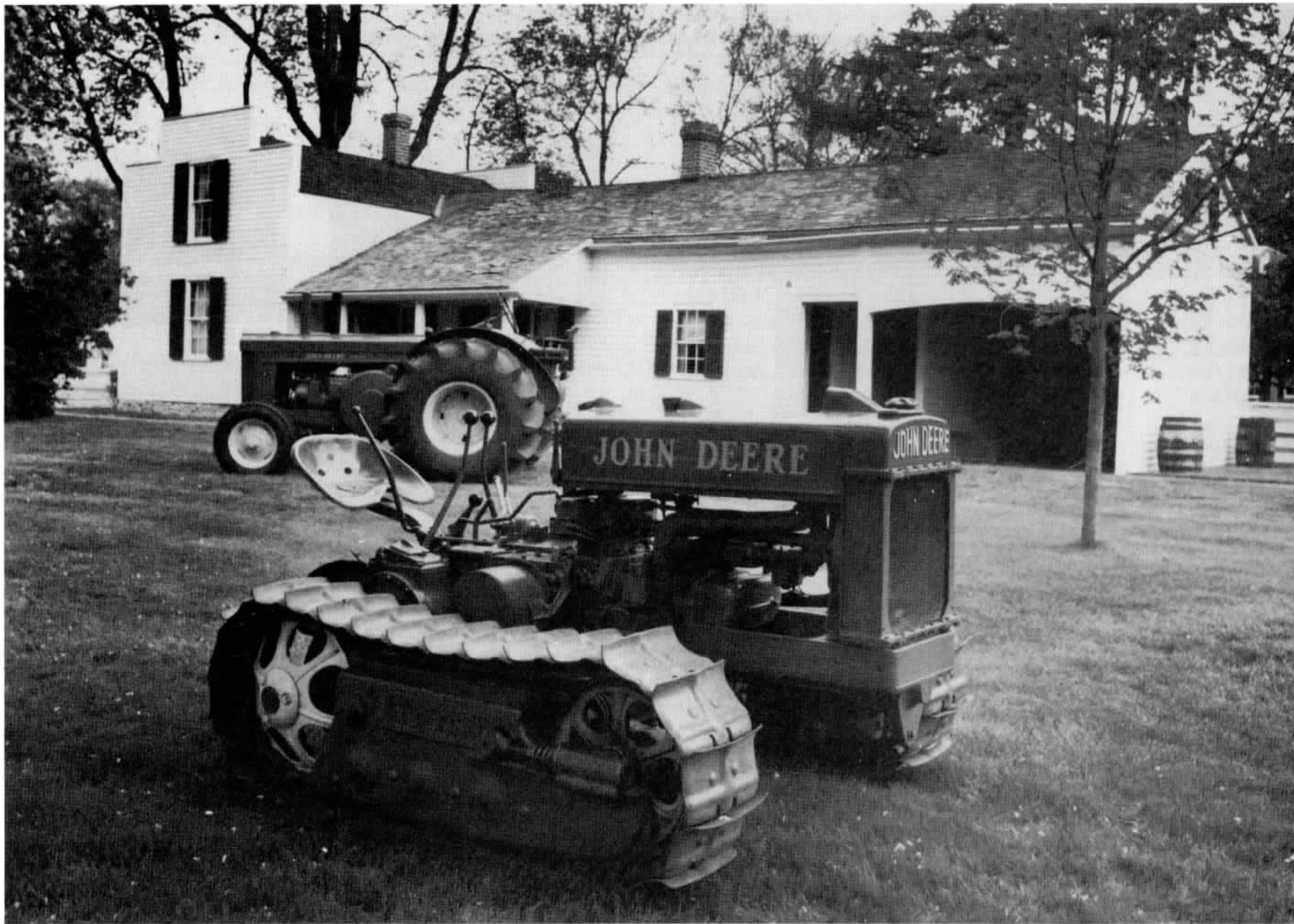
- No. 1 "Looking Ahead with John Deere" - 1946
- No. 2 "Murphy Delivers the Goods" - 1936
- No. 3 "The Tuttle Tugger" - 1939
- No. 4 "Making Tractor History" - 1941
- No. 5 "Partners" - 1935

While reviewing tape No. 4, "Making Tractor History", as it was being readied for production in July, we had the opportunity to grab a camera and take some photos right off the television screen (*right*). That's a poor way to take a decent photograph, but it's hoped that they will serve to give you an idea of its fascinating content. Tape No. 5, "Partners", is equally outstanding.

Tape orders will be honored based on the date received. Payments for orders arriving after the supply is exhausted will be returned immediately.



The photographs above were taken from a television screen by a regular 35mm camera at slow shutter speed, which results in the motion of the tractors being blurred. The quality of the films as they appear on the VHS tapes is quite good considering the age of the originals.



"Two-Cylinder Days" at the John Deere Historic Site will be held 26-29 July in Grand Detour, Illinois, northeast of Dixon. Antique two-cylinder John Deere tractors, owned by members of the Two-Cylinder Club, will be displayed and demonstrated on the grounds of John Deere's home (shown in background) and blacksmith shop. The Model "R" and "BO" Lindeman Crawler shown here belong to Illinois State Director, L. E. (Steve) Stevenson. The Crawler will be present at the event.

### Two-Cylinder Days at the John Deere Historic Site

On July 26-29, 1989, plan to attend "Two-Cylinder Days" at the John Deere Historic Site. (See photo and caption on page 16.) This is the location where John Deere, the blacksmith, built and tested his first steel plow. The home he built still stands and will be open for you to visit and photograph. The Historic Site is located at Grand Detour, Illinois, a short distance from Dixon. The blacksmith shop where the plows were manufactured from 1837-1847, before his move to Moline, Illinois, will also be open to tour.

The John Deere Historic Site is a peaceful, very attractive setting. It

will not be quite as peaceful, however, for the 4-day Two-Cylinder Club event because several volunteering Two-Cylinder Club members will be bringing tractors to display and demonstrate to the visiting public. Details of this were provided in the Club News and Events section of the March-April 1989 edition of Two-Cylinder. Several volunteers have already been confirmed for the event. We have complimentary hotel rooms held for them, and three or four rooms are still available for additional volunteers. Please contact Two-Cylinder Club Headquarters (319-824-5534) immediately if you wish to participate by bringing one or more restored tractors to Grand Detour.

### COVER PHOTOGRAPHS

#### FRONT

John Deere Model Model "BO" with disk harrow. The photo was taken in 1935, at which time the tractor was owned by Bastady Brothers of Buena Park, California.

#### BACK

John Deere Model "BO" Lindeman Crawler with 6-foot Killefer Chisel Plow. While this issue of Two-Cylinder does not feature the Lindeman Crawler version of the Model "BO", the photo provides visual understanding of the reasoning behind Lindeman Brother's development of the crawler attachment. The operator is identified as C. R. Chapman. Photograph taken at Ashland, Oregon, in May of 1941.

The "BO" Lindeman Crawler will be covered separately in a future issue of Two-Cylinder.



