

415A and 416A Integral Moldboard Plows



OPERATORS MANUAL 415A and 416A Integral Moldboard Plows

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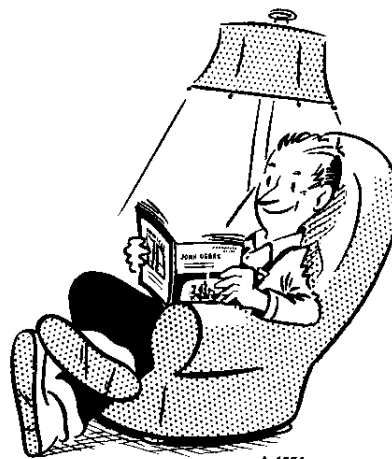
YOUR NEW PLOW

Behind your new plow is an organization that has specialized in designing and building plows for over 125 years. This plow was built in the world's largest plow factory by experienced men, many who have worked in this large plant for from 10 to 45 years, thus assuring the utmost in good design, high-grade workmanship and thorough inspection, so essential to the production of good plows.

High quality materials, precision production methods, and accurately controlled heat-treating assure maximum strength and long life for every part.

This manual has been carefully prepared and illustrated, so that you may make the necessary adjustments for adapting your plow to work properly in practically all types of soil and field conditions. These adjustments, such as proper hitching and adjusting for width and depth of cut, are fully covered in this manual.

Study this manual carefully. Keep it handy, in a safe place, for future reference.



Occasionally your plow may need new parts, or require service not covered in this manual. If so, we suggest that you take advantage of the facilities offered by your John Deere dealer, which assure you of genuine JOHN DEERE Parts and prompt "know-how" service in the field or shop.

If you will furnish your dealer with the information which should be recorded at the bottom of this page, when the plow is delivered, he can give you prompt and efficient service.

JOHN DEERE 415A AND 416A INTEGRAL MOLDBOARD PLOWS

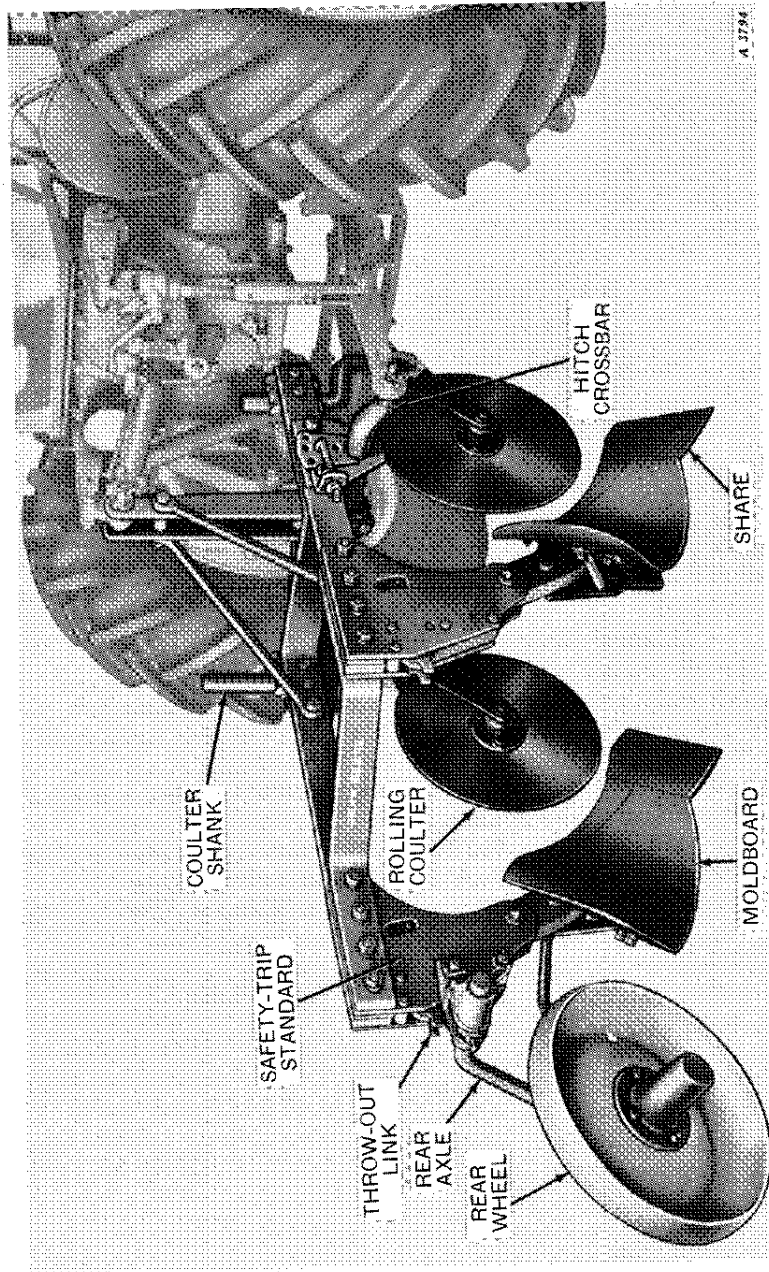
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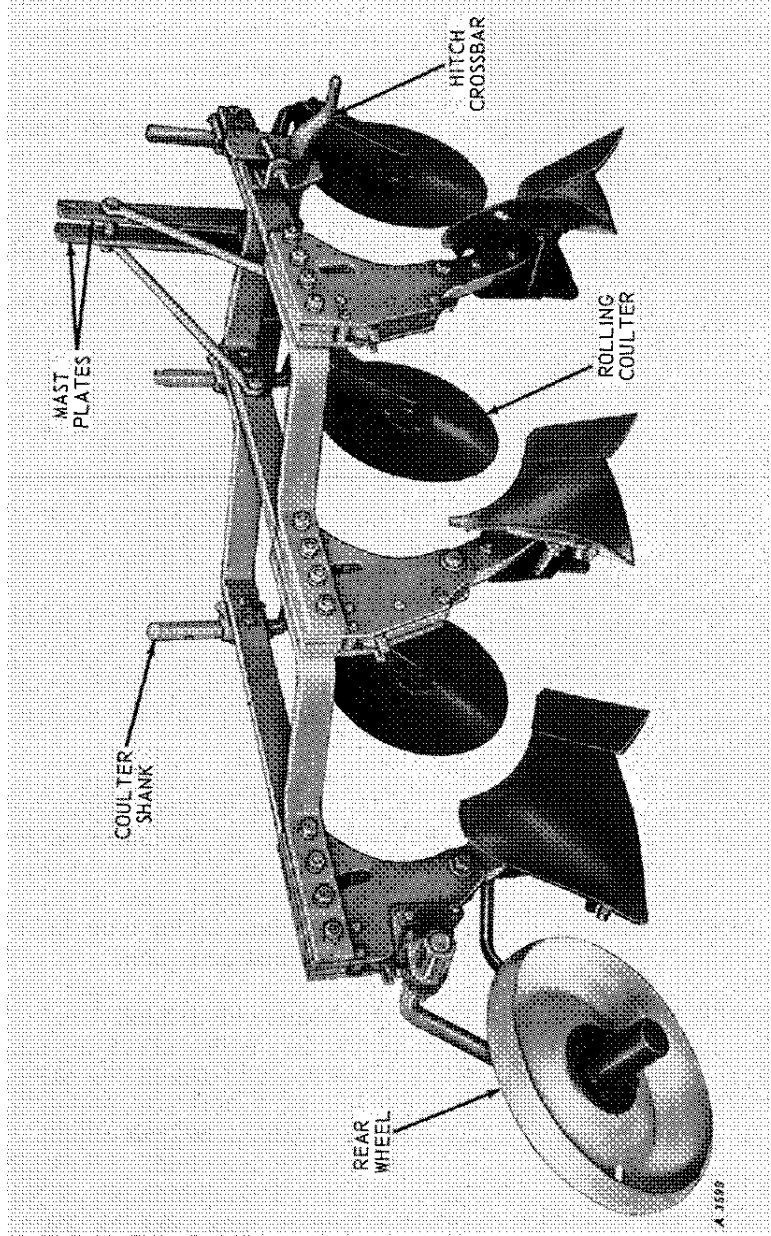
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John Deere 415A 2-Bottom Integral Moldboard Plow



John Deere 416A 3-Bottom Integral Moldboard Plow

SPECIFICATIONS

| | |
|-----------------|--|
| TYPES | 415A 2-Bottom, 12- or 14-Inch Integral Moldboard Plow for John Deere 320, 330, 420, 430, and 1010 Series Wheel-Type Tractors. 415A 2-Bottom, 16-Inch Integral Moldboard Plow for John Deere 420, 430, and 1010 Series Wheel-Type Tractors. 416A 3-Bottom, 12- or 14-Inch Integral Moldboard Plow for John Deere 420, 430, 1010 and 2010 Series Wheel-Type Tractors. 416A 3-Bottom, 16-Inch Integral Moldboard Plow for John Deere 430, 1010, 2010 Series, and 435 Diesel Wheel-Type Tractors. |
|-----------------|--|

NOTES: The 415A 2-Bottom Plow may be converted to a 3-bottom plow. The 416A 3-Bottom Plow may be reduced to a 2-bottom plow or it may be converted to a 4-bottom plow by adding a fourth-beam attachment.

When using the 415A or 416A 16-Inch Plows, a 52-inch tractor rear wheel tread is required. The use of 1010 Single Row-Crop and Utility or 430 Standard and Utility Tractors is limited to those equipped with power-adjusted rear wheels.

These Plows also can be used on other tractors of comparable horsepower with a standard 3-point hitch.

| | |
|-----------------------|--|
| DEPTH RANGE. | 2 to 10 inches depending on type and size of bottoms and ground conditions. |
| SUCK ADJUSTMENT . . . | Turnbuckle on center hitch link. |
| LATERAL LEVELING . . | Leveling crank on right-hand lift link. |
| BOTTOMS | Various types available as ordered. |
| LANDSIDES | Bottoms with short landsides (No. 4 for conventional-type bottoms and No. 9 for high-speed bottoms.) |
| REAR WHEEL | Regular with 19 x 3-1/2-inch steel disk wheel. Special with wheel for 4.00 x 12-inch tire, with or without tire. |

| | |
|----------------------|--|
| COULTERS | 17-inch plain, regular. 17-inch notched or rippled edge, special. Round shank. Chilled-cone bearing, regular. Anti-friction bearing, special. |
| SPECIAL EQUIPMENT. . | Weed hooks Root cutters Independent cast jointers Landing lever Trash boards (for high-speed or high-speed slat bottoms only) Moldboard extensions (for HS400 Series and Conventional-type bottoms) Moldboard pads (for HS400 Series bottoms only) Share frog braces to attach 16-inch high-speed shares to 14-inch high-speed bottoms Fourth Beam Attachment for 416A Plow |

(Specifications and design subject to change without notice.)

NOTE: When the term "right" or "left" is used, it means from a position behind the plow and facing the front.

OPERATION

IMPORTANCE OF PROPER ADJUSTMENT

Your new plow is fully adjustable and, when properly adjusted to operate in the type of soil and field conditions on your farm, it will do a good job of plowing at a minimum of expense. A well-adjusted plow pulls lighter; its furrow slices are uniform in width and depth; it covers trash; it leaves the soil in proper condition to be worked down into the best-type seedbed.

Improper adjustment results in rapid wear and possible breakage of parts, and inefficient operation.

PREPARING THE PLOW

PLOW BOTTOMS AND COULTERS

The polished surfaces of the plow bottoms and coulters have been painted with protective black paint.

In most cases it is not necessary to remove the black paint because it will wear off quickly upon contact with the soil. In those soils where the black paint will not wear off, remove with gasoline, kerosene, or diesel fuel.



Be careful when using any of these fuels so they do not ignite. Plow should be in a well-ventilated area and away from any sparks or flames.

If the plow is not to be used immediately, protect the polished surfaces by applying a coat of cup or gun grease. If plow is to be put in storage for a considerable length of time, see pages 28 and 29.

BOLTS AND SET SCREWS

Before starting to work with a new plow or one which has been stored, check to see that all bolts and set screws are tight and all cotter pins spread to keep them from falling out. Check the bolts that hold the plow bottoms to see that they are drawn up very tight.

A good practice is to check for loose bolts, screws, or parts when lubricating the plow. Loose bolts are easily lost or cause excessive wear on parts, resulting in possible serious damage to the plow.

TIRE INFLATION

If plow is equipped with rubber-tired rear wheel, check to be sure it has 36 pounds air pressure.

LUBRICATION

Be sure plow has been properly lubricated. See Lubrication Chart on page 30.

Do not handicap your equipment by using inferior or incorrect oil and grease. Use only quality lubricants at intervals specified in operator's manual.

PREPARING AND ADJUSTING THE TRACTOR

GENERAL

For complete tractor operating instructions, refer to your tractor operator's manual.

Tire Inflation

Inflate the tractor tires as recommended in the tractor operator's manual.

Rear Wheel Weighting

Rear wheel weights may be necessary to eliminate excessive wheel slippage or for stability in rough or hillside fields. However, weights should not be added to the point where all slippage is eliminated. To do so would hinder maximum performance of the tractor.

The ideal amount of added weight can be determined by observing the tracks of the rear wheels. When the tractor is pulling its rated load, the soil between the tire lugs should be broken or shifted. If too much weight has been added, the tread marks will be clear and distinct. If too little weight has been added, the tread marks will be entirely obliterated.

Liquid Weights

Water and calcium chloride solution is an economical means of adding weight to rear wheels. Calcium chloride is recommended rather than water as it will not freeze. See your tractor operator's manual or your John Deere dealer.

Cast-Iron Weights

Where weight in addition to or in place of liquid weight is required, cast-iron weights can be bolted to the rear wheels. This type of weight can be secured from your John Deere dealer.

For maximum ballast, refer to your tractor operator's manual.

PREPARING AND ADJUSTING 320, 330, 420, 430, AND 1010 SERIES, AND 435 DIESEL TRACTORS.

Belt Pulley and Powershaft Shield

The belt pulley and powershaft shield must be removed from the tractor.



Replace the master shield immediately upon removal of the plow. Be sure the master shield is installed whenever the powershaft is used.

External Powershaft Speed Changer on 330 and 430 Tractors

If the tractor is equipped with an external powershaft speed changer, the speed changer, support, and drawbar extension must be removed to eliminate any interference between the tractor and the plow. See instructions received with the speed changer.



Be sure the tractor powershaft is covered by the flipper guard before operating tractor.

Tractor Drawbar

Set the tractor drawbar in the short high position and pin it to the extreme left side of the support.

Front End Weighting

When using the 415A and 416A Plows on 320, 330, 420, 430 and 1010 Series and 435 Diesel Tractors, maximum front end weighting, in addition to liquid in the tires, is recommended. See your tractor operator's manual.

8 Operation

Rear Wheel Settings

Distance Between Center of Tractor and Inside of Rear Tires

| Tractor | 415A | | | 416A | | |
|----------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | 2- Bottom 12" | 2- Bottom 14" | 2- Bottom 16" | 3- Bottom 12" | 3- Bottom 14" | 3- Bottom 16" |
| 320 and 330 Standard and Utility | 22" | 24" | ... | ... | ... | ... |
| 420 and 430 Standard | 22" | 24" | *26" | 22" | 24" | *26" |
| 420 and 430 Utility | 22" | 24" | *26" | 22" | 24" | *26" |
| 420 and 430 Tricycle | 22" | 24" | 26" | 22" | 24" | 26" |
| 420 and 430 Row-Crop Utility | 22" | 24" | 26" | 22" | 24" | 26" |
| 435 Row-Crop Utility (Diesel) | 22" | 24" | 26" | 22" | 24" | 26" |
| 1010 Single Row-Crop | 22" | 24" | *26" | 22" | 24" | *26" |
| 1010 Utility | 22" | 24" | *26" | 22" | 24" | *26" |

* Tractors must be equipped with power-adjusted rear wheels.

The rear wheels of the tractor must be set properly as shown in chart above. Unless the tractor wheels are set correctly, the plow and tractor cannot work smoothly together, uneven furrow slices will result, and the tractor will be difficult to steer. Adjust rear wheels of the tractor equi-distant from the center line of the tractor. The distance between the center line of the tractor and the inside of the tire is determined by the size of the plow.

Front Wheel Setting

On wide front axle tractors, set the front wheels to conform to rear wheel settings, center-to-center of tread.

3-Point Hitch and Hydraulic System

The 3-point hitch provides a fast, easy means of attaching the plow to the tractor. See your tractor operator's manual for complete explanation of the hydraulic system.

Load Control Yoke

Connect center link to hole in load control yoke furthest from the pivot pin. This setting gives the most sensitivity of the load control system.

Load Control Lockout Screw

Turn the load control lockout screw in so the load control yoke will operate.

Parallel Lift Arm Operation

On tractors with dual hydraulic system, adjust the system so integral cylinders are in parallel and so lift arms will operate together to obtain maximum lifting capacity.

Center Link

The length of the center link controls the amount of suck in the plow. Too short a setting on the center link allows the plow to run on its nose and pull heavy. Too long a setting will cause the plow to enter the ground slowly and not permit the plowing depth desired.

The following chart gives the recommended center link length for the various tractors. Measure from center-to-center of pins.

| Tractor | Center Link Length |
|---|--------------------|
| 320, 330, 420, and 430 Standard, and 1010 Single Row-Crop | 21-1/2" |
| 420 and 430 Row-Crop Utility, and 435 Diesel. . | 27" |
| 420 and 430 Tricycle | 23-1/2" |
| 320, 330, 420, 430, and 1010 Utility | 27" |

Lift Links

Do not change the length of the left-hand lift link; it is set to the recommended length at the factory, 19-13/32 inches.

The right-hand lift link provides adjustment for leveling the plow.

When using the 415A 12- or 14-inch plow with the 320, 330, 420, 430, and 1010 Tractors, or when using the 415A 16-inch plow with the 420, 430, or 1010 Tractors, the tractor lift links can be attached to either the inner or outer holes in the rockshaft lift arms.

When using the 416A plow with the 430 or 1010 Series, or the 435 Diesel Tractors, the lift links must be attached to the inner holes in the rockshaft lift arms.

PREPARING AND ADJUSTING 2010 TRACTOR

Rear Wheel Setting

The rear wheels of the tractor must be set properly as shown in chart below. Unless the tractor wheels are set correctly, the plow and tractor cannot work smoothly together, uneven furrow slices will result, and the tractor will be difficult to steer. Adjust rear wheels of the tractor equi-distant from the center line of the tractor. The distance between the center of the tractor and the inside of the tire is determined by the size of the plow.

When the 416A 4-bottom 14-inch plow is used on 2010 Row-Crop Utility Tractor equipped with a fixed-hub rear axle, the maximum rear tire size must be 16.9 x 26 due to limited wheel tread settings.

Distance Between Center of 2010 Tractor and Inside of Rear Tires

| Plow Size | Inches |
|-------------------------|--------|
| 3- or 4-Bottom 12-inch* | 22 |
| 3- or 4-Bottom 14-inch | 24 |
| 3- or 4-Bottom 16-inch | 26 |

**The 416A 4-Bottom 12-inch Plow cannot be used on a 2010 Row-Crop Utility Tractor equipped with a fixed-hub rear axle.*

Front Wheel Setting

On wide-front-axle tractors, set front wheels to conform to rear wheel setting.

Front End Weighting

Tractor front-end weighting is necessary for maximum field performance: 2010 Row-Crop and 2010 Row-Crop Utility Tractors should have 300 pounds of front end weighting.

10 Operation

PREPARING AND ADJUSTING 2010 TRACTOR—Continued

Tractor Drawbar

Set the drawbar in the short high position.

Universal 3-Point Hitch and Hydraulic System

The universal 3-point hitch provides a fast easy means of attaching the plow to the tractor. Once the plow is attached, the depth or the load is maintained by the tractor hydraulic system according to the setting of the selector lever. See your tractor operator's manual for complete explanation of the hydraulic system.

Link Lengths

It is important that the length of the center link and lift links be adjusted properly. Measure from center to center of pins.

The chart below shows the recommended starting lengths of the links.

NOTE: A slight increase or decrease in the recommended length may be necessary in other than normal conditions and in very deep or very shallow plowing. Final adjustment should be made in the field.

Parallel Lift Arm Operation

Adjust the hydraulic system so integral cylinders are parallel and so lift arms will operate together to obtain maximum lifting capacity.

Move left control lever to forward position and secure in this position with adjustable depth stop.

Set rockshaft selector lever in "No. 1" position.

Selector Lever

For most plowing conditions, set the selector lever in "LD" (middle) position. In very light draft soil or in irregular surface conditions, "L" position may give better performance.

Sway Blocks

Sway blocks must be attached in the upper position. This will eliminate side sway when the plow is raised for transport, but will permit lateral flexibility when working.

Starting Link Lengths

| Tractor | Left Lift Link | Right Lift Link | Center Link |
|----------------------------------|-------------------|--------------------|----------------|
| 2010 Row-Crop* | 25-1/8" | 26" | 26" |
| 2010 Row-Crop Utility* | 24-1/8" | 25" | 26" |

**The lift link measurements shown are for 2010 Tractors with rigid draft links. If 2010 Tractors are equipped with telescoping draft links, set the lift links 2-1/4 inches shorter than the measurements given above.*

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