

200 SYNCHRONOUS THINNER



JOHN DEERE

OPERATORS MANUAL 200 SYNCHRONOUS THINNER

OMN159342 J6 English

OMN159342 J6

LITHO IN THE U.S.A.
ENGLISH





To the Purchaser


This new thinner was carefully designed and manufactured to give years of dependable service. To keep it running efficiently, read the instructions in this operator's manual. Each section is clearly identified so you can easily find the information you need—whether it is advance planning, operation, lubrication, trouble shooting, service, removal and storage or installation. Read the Table of Contents to learn where each is located. Use the alphabetical index for fast reference.

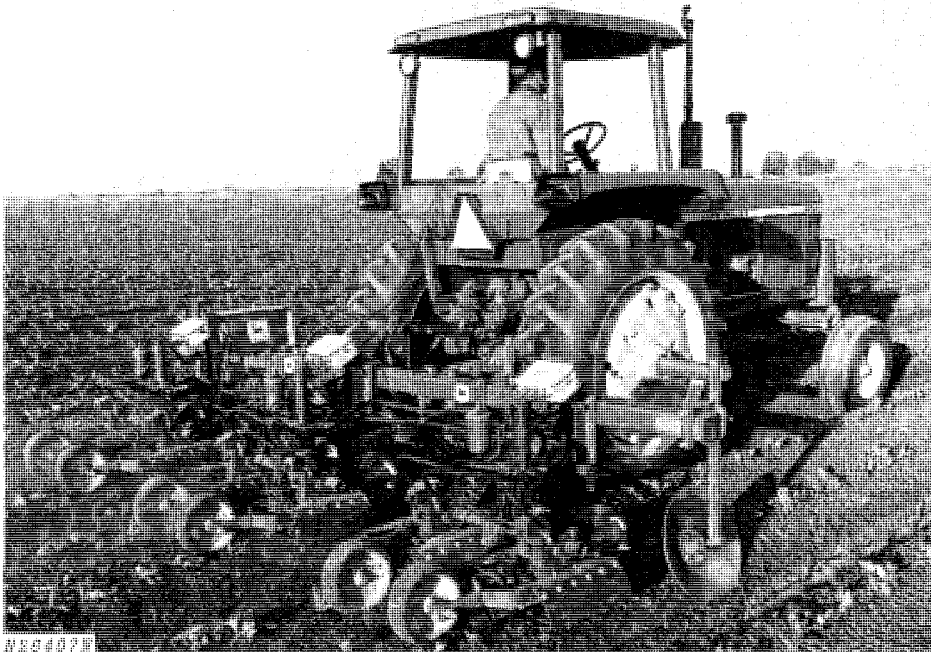
Should your thinner require replacement parts go to your John Deere dealer where you can obtain Genuine John Deere Parts — accept no substitutes. Genuine John Deere Parts fit properly and insure satisfactory service because they are made from the original patterns and from the same materials as used in new machines.

“Right-hand” and “left-hand” sides are determined by facing the direction the thinner will travel when in use.

Record your thinner serial numbers in the space provided on page 54. Your dealer needs this information to give you prompt, efficient service when you order parts or attachments.

The warranty on this thinner appears on your copy of the purchase order which you should have received from your dealer when you purchased the thinner.

 This safety alert symbol identifies important safety messages in this manual. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.





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Safety Suggestions

! The safety of the operator was one of the prime considerations in the minds of John Deere engineers when the thinner was designed. Simple adjustments and safety features were built into your thinner whenever possible.

However, investigation of thousands of farm accidents reveals that nearly one-third are caused by careless neglect in the use of machinery. You can make your farm a safer place to live and work by observing the following suggestions. Study these suggestions carefully and insist that they be followed by those working for you and with you.

Never clean, oil, or adjust the thinner when it is running.

Never allow anyone other than yourself on the tractor or the thinner when operating or transporting.

Keep all shields in place. Disengage all engine and/or motor power before servicing or cleaning thinner. Keep hands, feet and clothing away from power-driven parts.

In rocky soil, caution any observer to stand back at a safe distance.

Do not leave thinner unattended with actuators raised. Always lower them to the ground.

Before dismounting from tractor, always push the thinner electrical switch off. Place the hydraulic control lever in neutral position. Place the shift lever in park position.

Check electrical voltages in a dry location and avoid contacting any exposed wires or terminals while alternator is running.

When transporting the thinner on a road or highway at night or during the day, use accessory lights and devices for adequate warning to operators of other vehicles. In this regard, check local governmental regulations. Various safety lights and devices are available from your John Deere Dealer.

Reduce speed when transporting over uneven or rough terrain.

Shift the tractor into a lower gear when transporting down hills or steep slopes.

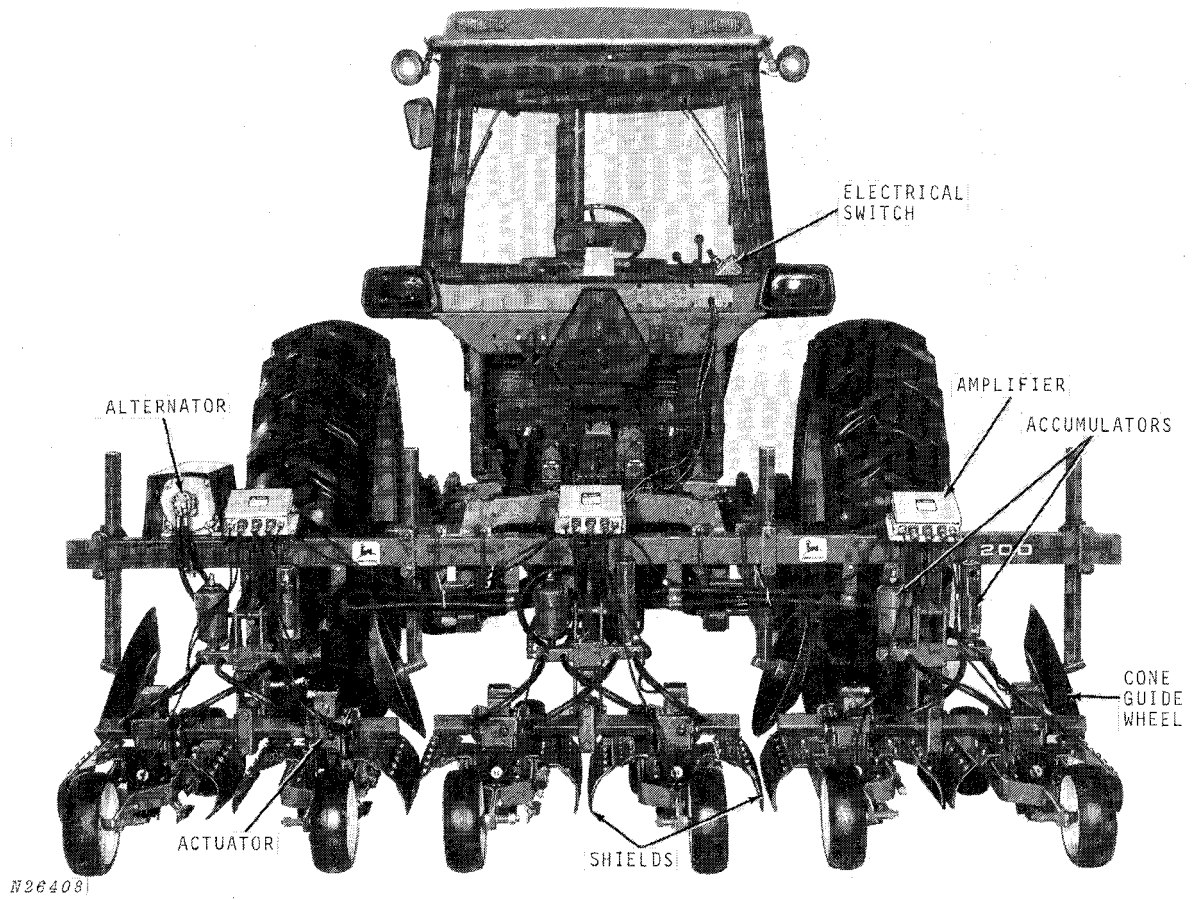
Make sure that your tractor has the required front end ballast as prescribed in your tractor operator's manual.

Replace damaged or leaky hydraulic hoses before they break. Prevent hydraulic hoses from rubbing together or against sharp edges.

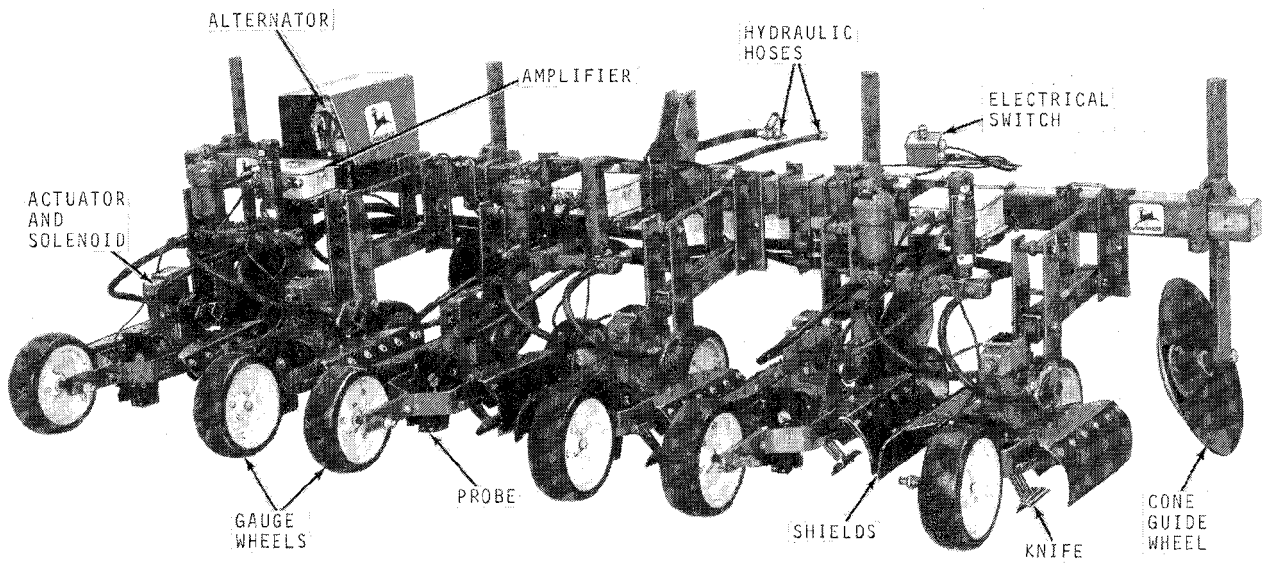
Escaping fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to the system, be sure all connections are tight and that lines, pipes and hoses are not damaged.

Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks.

If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.



200 Thinner—Two Rows Per Rig—Six 16 to 30-inch-(40.6-76.2 cm) Rows



#26409

200 Thinner—One Row Per Rig—Six 16 to 30-inch (40.6-76.2 cm) Rows



Description

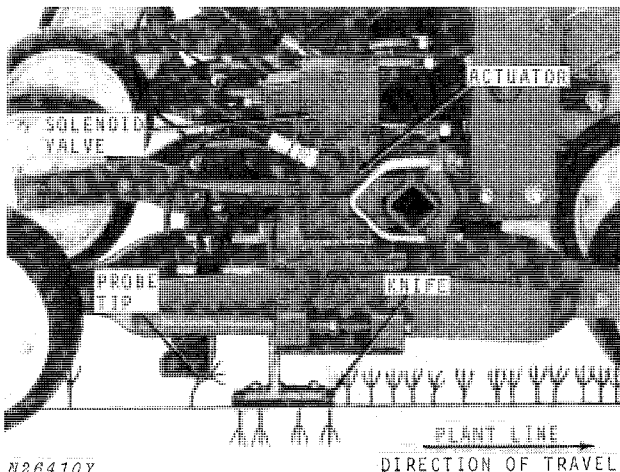
GENERAL

The John Deere 200 Synchronous Thinner will thin crops planted under a wide variety of conditions. The operating principle of all versions is the same. The distinctions concern the type of row units and the number of rows or seedlines each is designed to thin.

Four, six, or eight-row units may be obtained in the standard two rows per rig configuration, or the optional one row per rig version which provides increased flexibility to match irregular ground contours. Either version will accommodate 16 to 30-inch (0.41-0.76 m) row spacings.

Attachments are available to allow thinning of two 16 to 30-inch (0.41-0.76 m) rows, four 40-inch rows, six 40-inch rows or 40 to 48-inch (1-1.2 m) skip-rows, and two, four, six, or eight 12 to 15-inch (0.31-0.38 m) rows. The wider spaced units are suitable for crops such as cotton and sugarbeets. The narrow spaced row units are ideal for crops planted two seedlings per bed, such as lettuce, broccoli and cabbage.

HOW IT WORKS



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As the thinner row unit approaches the plant, the operation begins when the plastic shield on the probe touches the edge of a leaf. The shield folds the leaves forward until the probe is over the center of the plant. This is to prevent the leaves from contacting the electronic probe, which would activate the knife too soon.

As the unit continues to move along the row, the electronic probe touches the plant stem. The plant completes an electric circuit, which generates a signal to a solenoid valve. The valve directs hydraulic oil to activate a piston in the actuator instantly moving the knife.

The knife swings across the row at an extremely high speed. (From the time the probe touches the plant until the knife completes its swing, time lapse is only .028 second.) This speed assures that the knife will pass close enough to the plant sensed to leave single plants and provides enough force to cut out excess plants, for a distance slightly longer than the length of the knife.

At the end of the swing across the row in one direction, the knife and knife arm are stopped hydraulically, and the probe circuit is shut off for a period determined by the delay setting on the amplifier. When the shield and probe contact the next plant, the same series of electrical and hydraulic actions take place; the knife swings back across the plant line, again clearing out excess plants. As the process is repeated along the row, a stand of young plants is left to mature, properly spaced for the desired growth.

ADVANCE PLANNING

Advance planning and proper field preparation is required for efficient operation of the thinner. Follow these recommended steps:

1. Planting and spacing the crop is important. For efficient thinning, the plants should be spaced at least 2 inches (51 mm) apart. If the plants are too close, the thinner will consider two plants as one and save both plants.

2. Field surface should be firm and as smooth as possible. This is necessary for accurate gauging and maintaining uniform height of the electrical probe. An irregular surface could cause the gauge wheels to (1) raise the probe above the plants, resulting in no thinning or (2) permit the probe to touch the soil and activate the knife, taking out a plant that should be saved.

3. The plant line should be free of clods, which could complete the electrical circuit and activate the knife. In this case, the plants in front of the clod would be removed. Thinning before cultivating is recommended. If it is necessary to cultivate and if clods appear in the plant line, roll the field a day or two before thinning—if the plants will tolerate rolling.

4. For the most accurate work, the plants should be from 1 to 4 inches (25 to 102 mm) tall. Shorter plants may be thinned if the ground surface is smooth, so the electrical probe may be adjusted close to the ground without touching the soil as the thinner moves across the field. When the plants are too tall, it is possible for the machine to malfunction because of trash or cutout plants accumulating and contacting the electrical probe. The tall crop attachment will minimize this problem.

5. There should not be any weeds in the plant line. A large weed will activate the knife, saving the weed and destroying the adjacent plants.

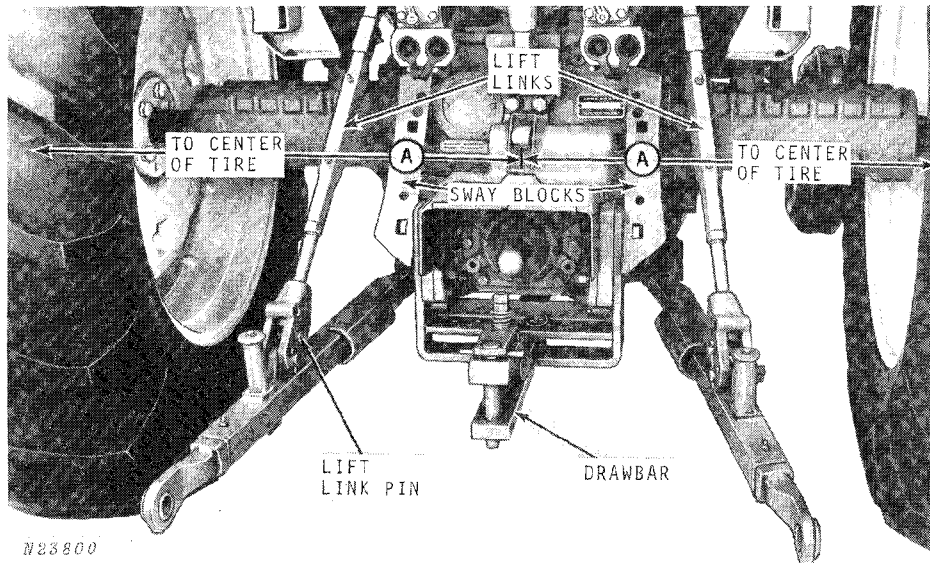


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Operation

PREPARING THE TRACTOR



See your tractor operator's manual for complete tractor operating and adjusting instructions.

Wheel Spacing

Set the tractor wheels for the desired row spacing so the wheels are centered between the rows. The dimension "A" from the center of the tractor to the center of each tire should be the same.

See your tractor operator's manual for correct tire inflation pressures and instructions for wheel ballast where required.

Sway Blocks

Place the sway blocks in the upper, wide setting (as illustrated) to prevent thinner side sway during transport and allow side sway in working position. (See your tractor operator's manual.)

Lift Links and Center Link

Adjust length of lift links and center link to minimum length, being sure to maintain adequate clearance between tractor tires and thinner components. (See your tractor operator's manual.)

Drawbar Position

Place the drawbar in the short, center position to provide maximum clearance between rear of drawbar and thinner.

Lift Link Lateral Float Adjustment

If guidance systems are used (P-15), adjust lift link pins to allow lateral float. (See your tractor operator's manual.)

Rockshaft Selector Lever

Place rockshaft selector lever in the "zero" or "D" (depth control) position.

Ballast Information

Tractor front end stability is necessary for safe and efficient operation. Therefore, it is important that the proper amount of weight be installed on the front of the tractor as recommended in your tractor operator's manual.

NOTE: Ballast recommendations provide for adequate transport stability. (See your tractor operator's manual.)

Instructions for Determining Ballast

Step 1 - Find your thinner model in Implement Code Table and enter its Implement Code on Line 1 below.

Step 2 - Enter an Implement Code for each attachment or option used on your thinner on Line 2.

Step 3 - Add Implement Code of thinner and Implement Code(s) for each attachment or option used to obtain the Total Implement Code.

Step 4 - Refer to tractor operator's manual to determine required tractor front ballast.

IMPORTANT: 1. If the total implement code exceeds the maximum implement code listed for a particular tractor model, the implement-attachment combination is not recommended for that tractor.

2. The total load on any tractor wheel due to the weight of the implement-attachment combination and tractor equipment, should not exceed the carrying capacity of the tractor tires.

Refer to tractor operator's manual for weight limitations applicable to your tractor and tires.

IMPLEMENT CODE TABLE

Thinner Model	Implement Code	
	2 Rows per Rig	1 Row per Rig
4-Row 16-30" (40.6-76.2 cm) Row Spacing	69.5	73.2
4-Row 31-48" (78.7-121.9 cm) Row Spacing	69.5	74.4
4-Row 12-15" (30.5-38.1 cm) Row Spacing*	68	71.7
6-Row 16-30" (40.6-76.2 cm) Row Spacing	95.1	102.7
6-Row 30-48" (76.2-121.9 cm) Row Spacing	95.1	103.6
6-Row 12-15" (30.5-38.1 cm) Row Spacing*	94	100.4
8-Row 16-24" (40.6-61.0 cm) Row Spacing	124.1	133.9
8-Row 25-30" (63.5-76.2 cm) Row Spacing	124.1	—
8-Row 12-15" (30.5-38.1 cm) Row Spacing*	122	131.8
2-Row 16-30" (40.6-76.2 cm) Row Spacing	40.1	—
6-Row Offset 22-24" (55.9-61.0 cm) Row Spacing	102.4	—
<i>*2-Rows Per Bed</i>		
Options		
2 Additional Cone Guide Wheels	+ 6	+ 6
High Flotation Gauging:		
3 Gauge Wheels per Row	+ 1.3/Row**	+ 1.3/Row**
4 Gauge Wheels per Row	+ 2.1/Row**	+ 2.1/Row**
<i>**Multiply by Number of Rows</i>		

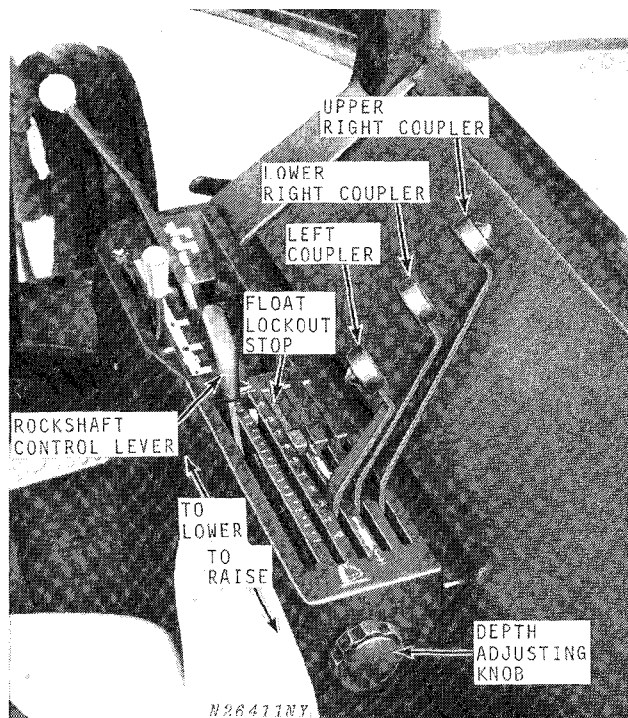
Line 1 _____

Line 2 _____

Total Implement Code _____

CONTROLS

The controls necessary to operate the thinner, in addition to the tractor propelling functions, are the rockshaft control lever, one remote hydraulic control lever, the electrical switch, and the speed hour meter.



Rockshaft Control Lever

Use the tractor rockshaft control lever to raise the thinner for transport and lower the thinner for operation.

Set depth stop so thinner main frame works at the recommended depth of 26 inches (660 mm) from planted surface (or top of bed) to bottom of frame.

To lower the thinner temporarily without re-setting the depth stop, move the rockshaft control lever to the left-hand side of the slot and forward past the stop.

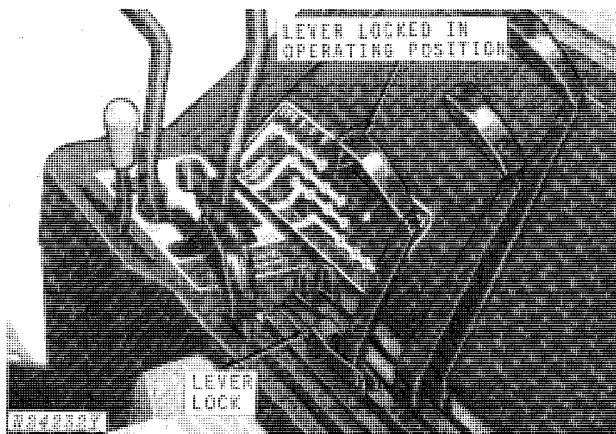
NOTE: Adjust rockshaft rate of drop as described in your tractor operator's manual. Place rockshaft selector lever in depth control ("ZERO" or "D") position.

Remote Hydraulic Control Lever

This lever is used to provide constant hydraulic pressure to operate the alternator and the actuators. Install lever lock to hold lever in operating position.

NOTE: The lever lock must be removed when operating other implements which require regular detent action.

4030, 4230, and 4430 Tractors

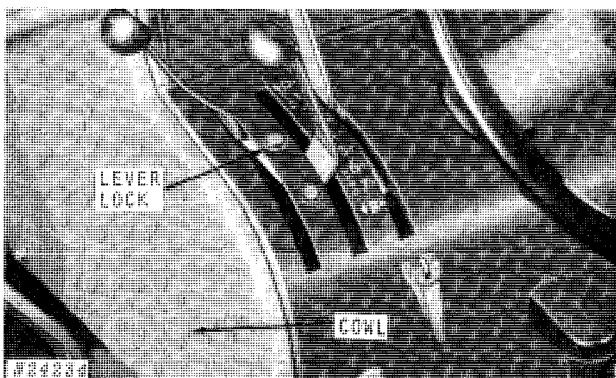


Squeeze the lock together slightly and insert it in the quadrant slot just behind the float lockout stop. Raise the stop slightly and slide the lock forward into position; then push the stop down to hold the lock in place.

Push the lever forward into the lever lock to operate the hydraulic motor.

To remove the lock, raise the float lockout stop first; then slide the lock rearward and remove it from the stop.

3020 (Below Serial No. 123,000) and 4020 (Below Serial No. 201,000) Tractors

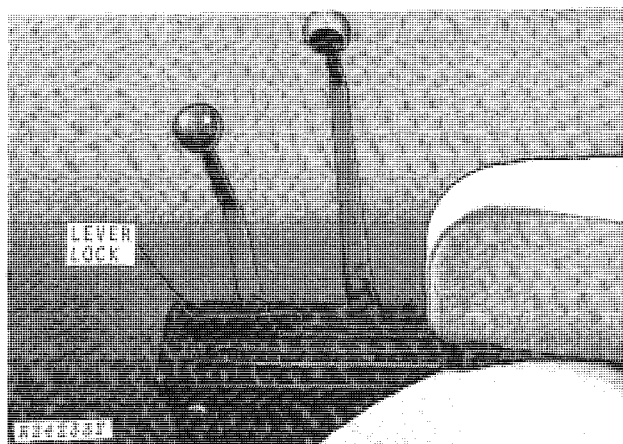


Remove tractor cowl and install lever lock as shown. Replace cowl.

Push lever forward past the lever lock to hold it in the operating position. Pull lever to the left and toward the rear past the lever lock to stop the hydraulic motor.

To remove lock, remove tractor cowl and unbolt lock. Replace cowl.

2520, 3020 (Serial No. 123,000 and Above), 4000, 4020 (Serial No. 201,000 and Above) and 4320 Tractors

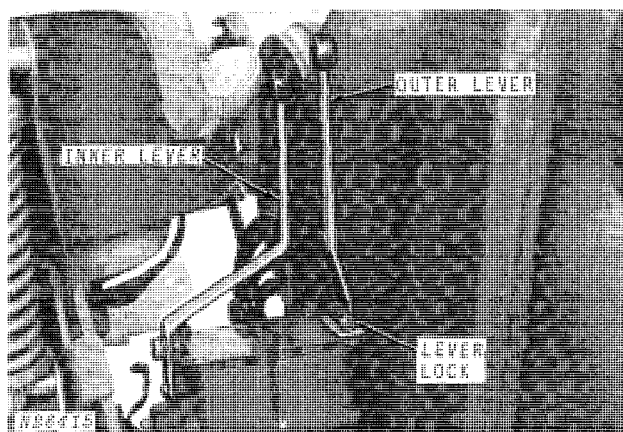


Insert front hook of lock into hole in console; then push rear tab down into front of slot in console.

Push lever forward into lever lock to operate motor.

To remove lock, pull tab up and out of slot in console; then unhook from hole in console.

1020, 1520, 1530, 2020, 2030 and 2630 Tractors



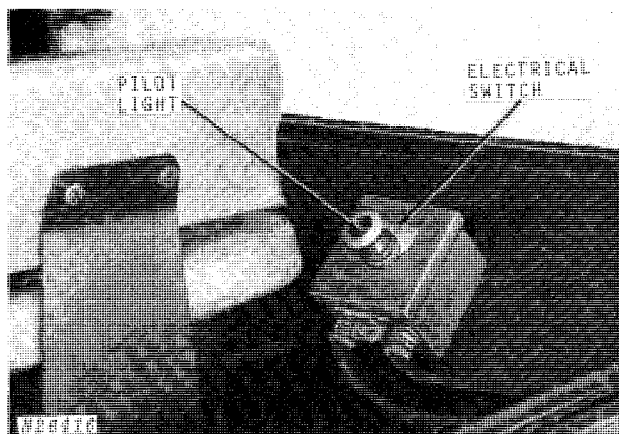
To hold the lever in operating position, push lever forward, and rotate lever lock into position to secure lever.

To release lever, rotate lock away from lever.

NOTE: Lever stop may be left in place, rotated away from lever, for regular detent action.

Electrical Switch

The electrical switch may be mounted on the right or left-hand side of the tractor, on the tractor fender or inside the cab, depending upon the tractor.



The electrical switch controls the power applied to the amplifier and associated circuits when the alternator is running.

The alternator supplies 125 volts of electricity to the amplifier, which supplies 125 volts for operation of the solenoid valve and 11 volts for operation of the sensing circuit.

CAUTION: Do not operate the switch while anyone is standing near the thinner knives. If the probe is grounded, the knife will be actuated instantly when the switch is operated.

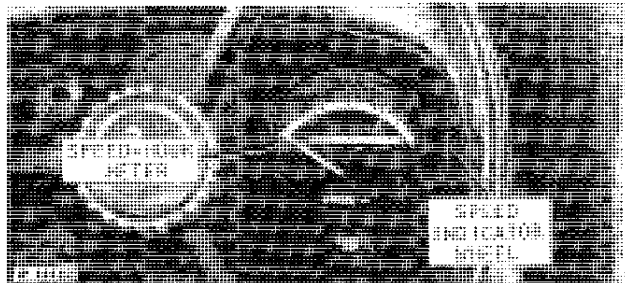
To turn power on, pull switch knob out. The pilot light in the switch knob should come on, indicating that power is being supplied to the system. To turn power off, push switch knob in.

NOTE: If the pilot light does not come on, check and replace the bulb if necessary, or trouble shoot the electrical circuits as required. (See page 30.)

For storage, remove the switch box by lifting it out of the switch bracket. Disconnect electrical cables, or remove them from the cab rear panel as desired. Store the switch box in the thinner in a DRY place. (See page 23.)

Speed-Hour Meter

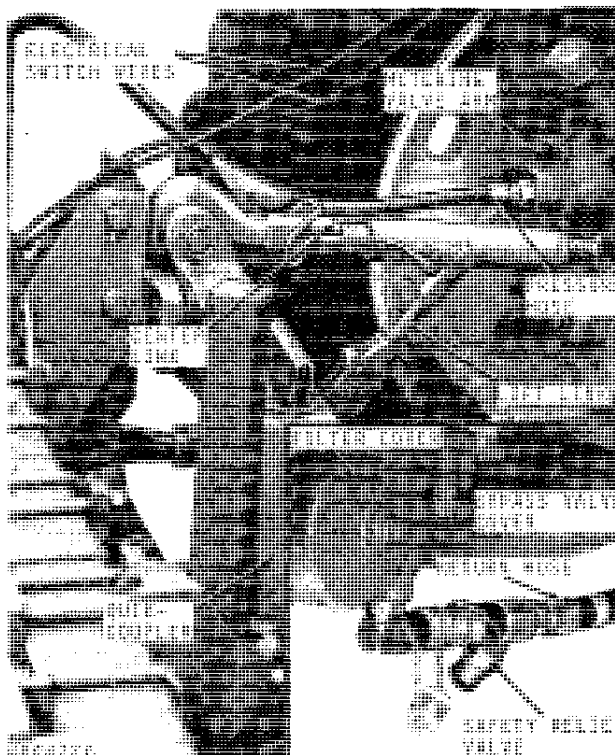
The location and adjustment procedure for the speed-hour meter will vary, depending upon the tractor. See your tractor operator's manual.



Use the speed-hour meter to determine the gear in which you should operate the tractor to obtain the desired ground speed. Proceed as follows:

1. Determine the minimum required engine rpm to supply the necessary hydraulic oil flow for your thinner. (See page 17.)
2. Determine ground speed at which you wish to travel, based upon the knife size you are using. (See page 16.)
3. If required, set speed-hour meter to reflect ground speed chosen in step 2.
4. Read the designated gear setting on the speed-hour meter.

ATTACHING TO TRACTOR



Back tractor to thinner and connect top link and lift links or Quik-Coupler to thinner. Adjust lift links and center link until thinner main frame is parallel to the ground. (See your tractor operator's manual.)

Install pressure hose in remote cylinder outlet.

NOTE: Turn metering valve arm fully clockwise, or adjust control valve for maximum hydraulic oil flow. (See your tractor operator's manual.)

Install and connect the Quik-Coupler on the return hose and filter cover. Make sure the pressure relief valve is pointing down, see inset.

IMPORTANT: Never install the Quik-Coupler in the John Deere thinner return line without also installing the safety relief valve in the line between the coupler and thinner.

NOTE: Tractor bypass valve must be CLOSED. (See your tractor operator's manual.)

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