100K
SYNCHRONOUS THINNER

JOHN DEERE

OPERATORS MANUAL

100K
SYNCHRONOUS THINNER

OMN159246 J0 English

OMN159246 J0

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 sections 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.

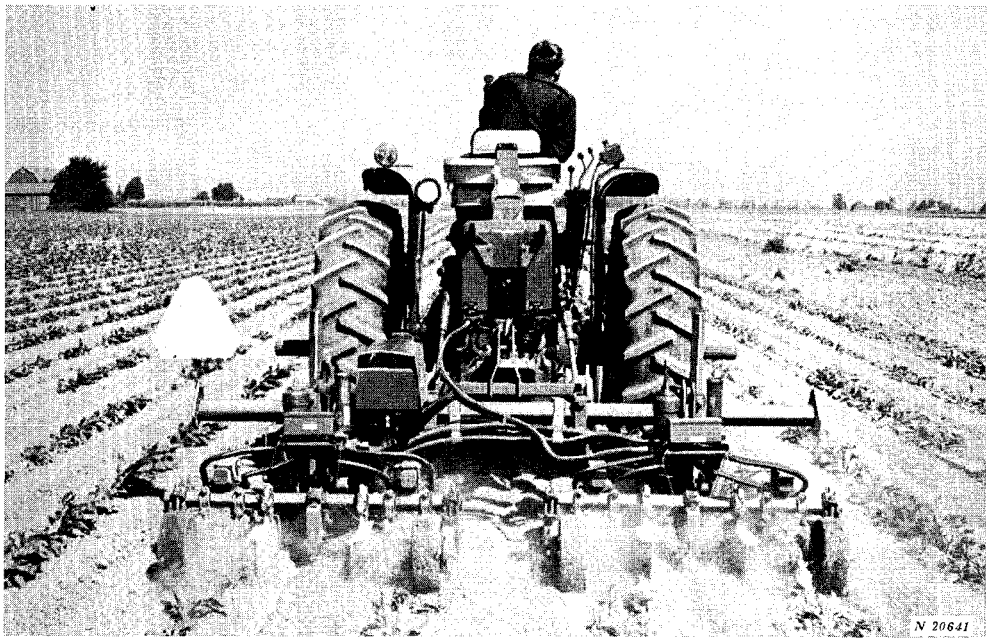
Should your thinner require replacement parts go to your John Deere dealer where you can obtain Genuine John Deere Parts -- accept no substitutes. Genuine John Deere Parts fit properly and insure satisfactory service because they are made from the original patterns and from the same materials as used 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 53. 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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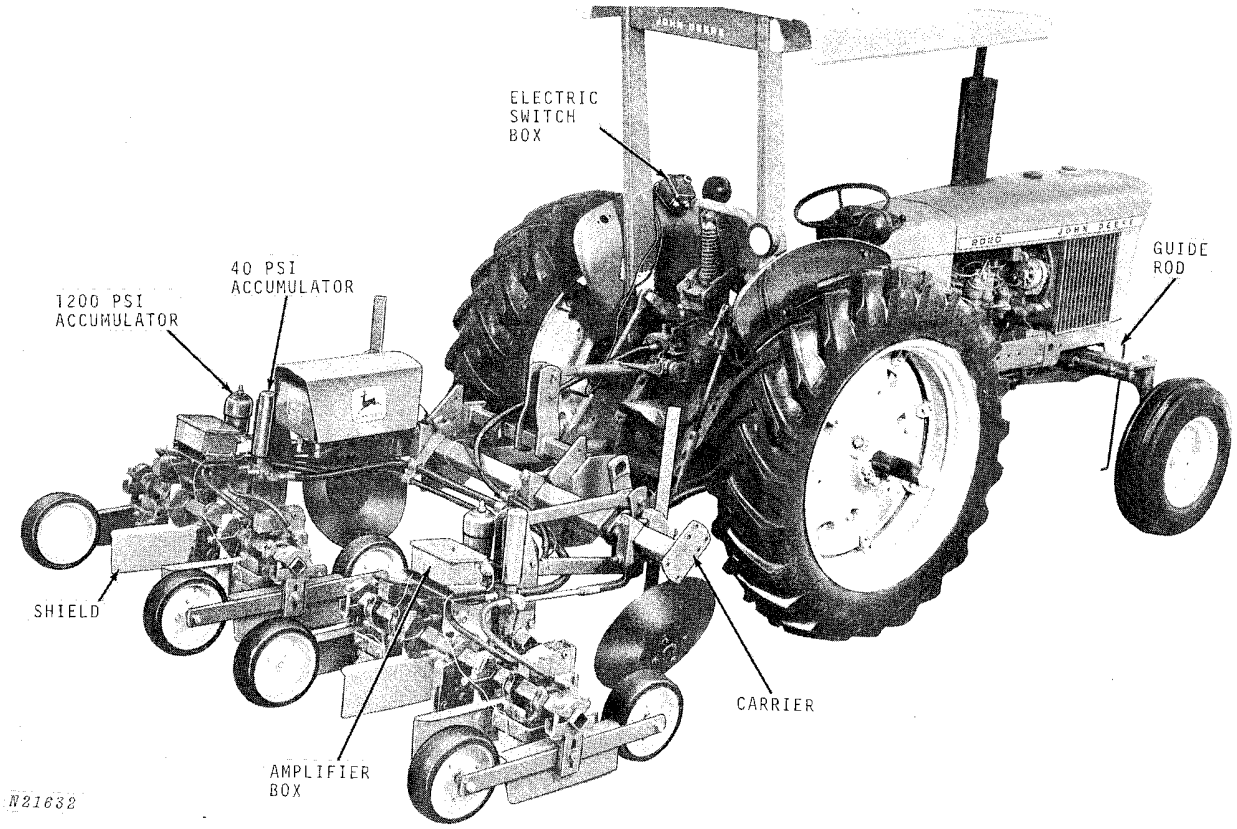
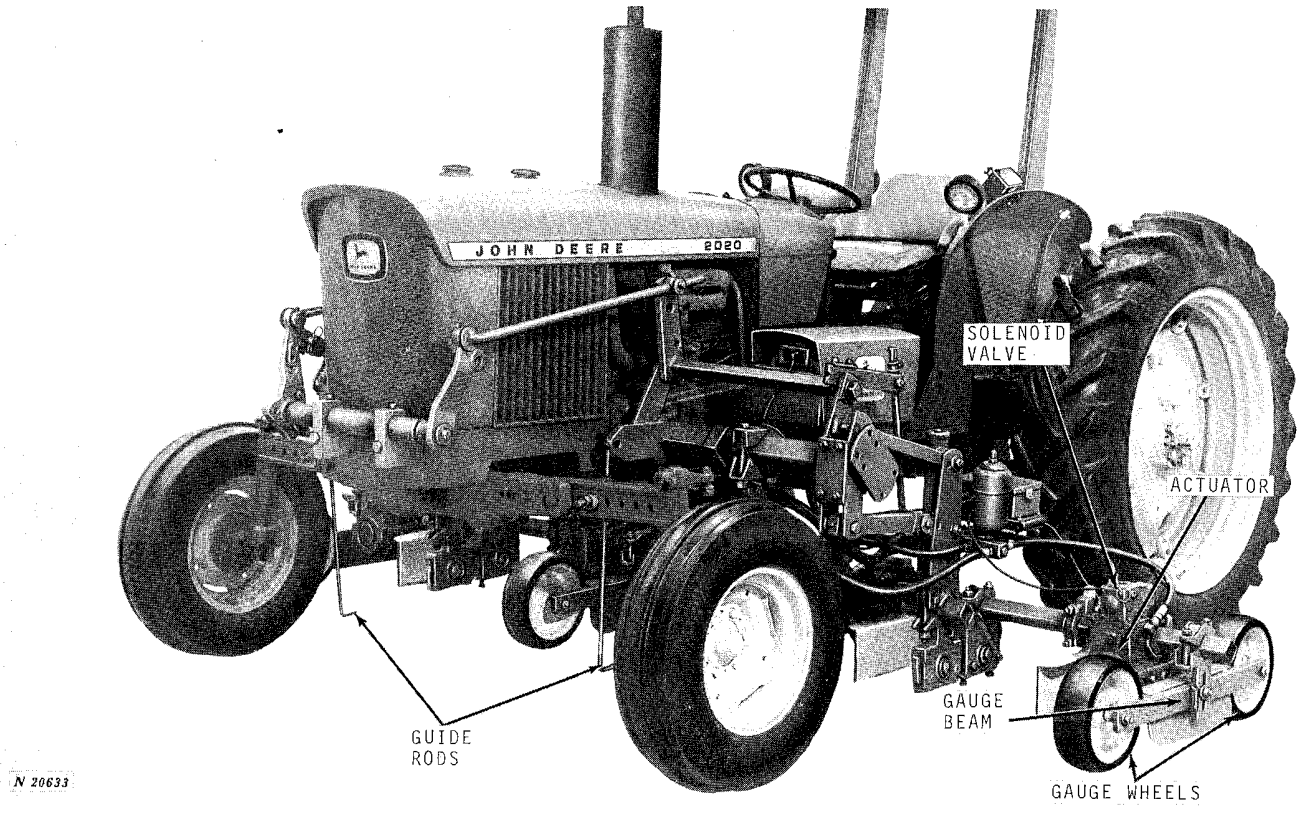
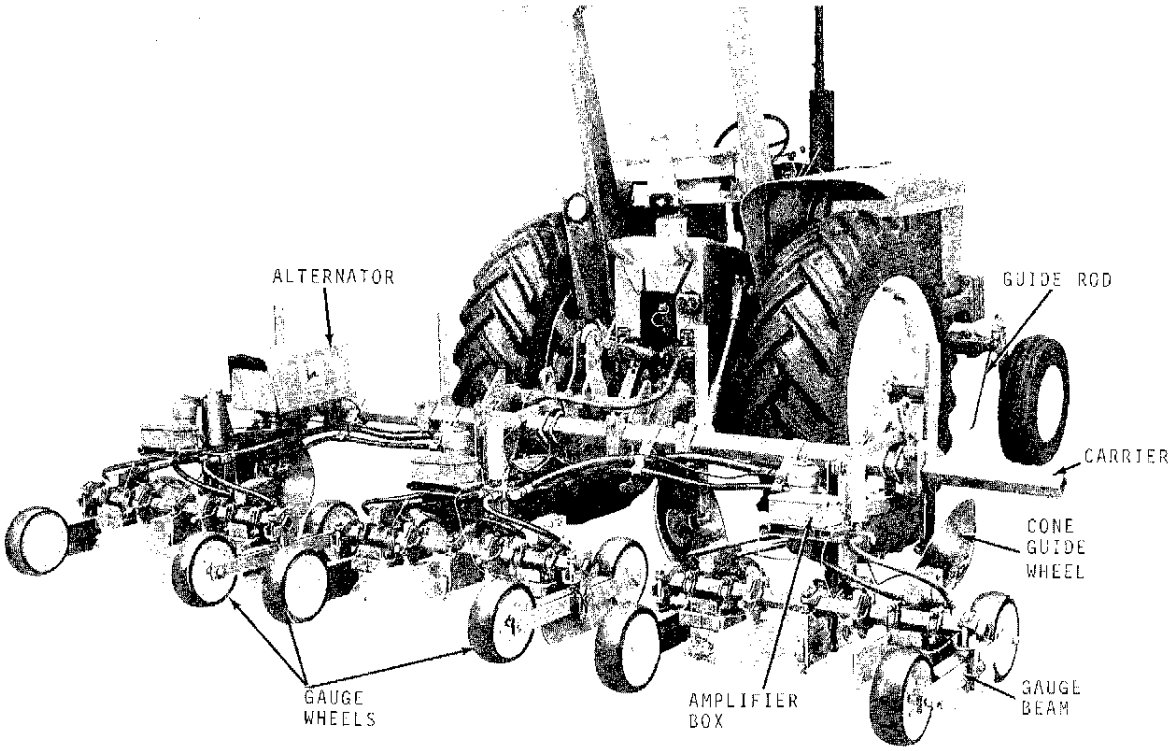


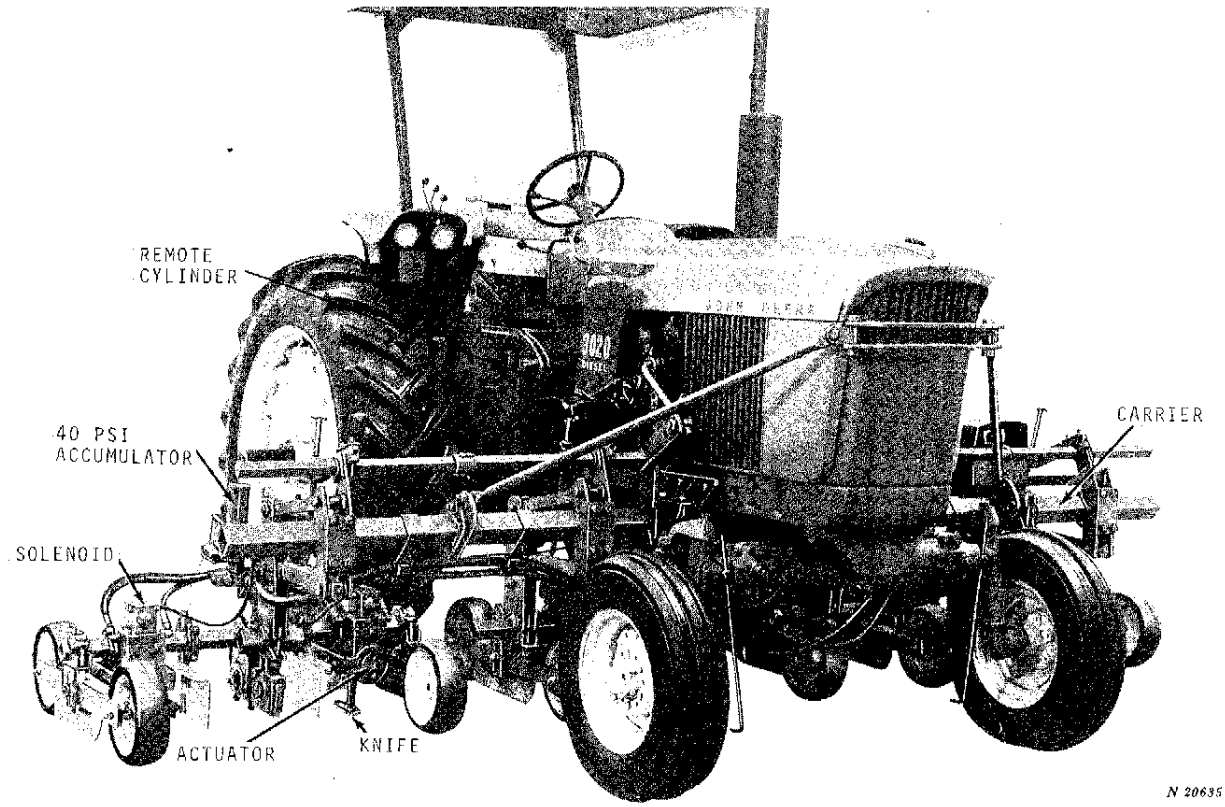
John Deere 114K-30 Synchronous Thinner Mounted on 55KBG Carrier



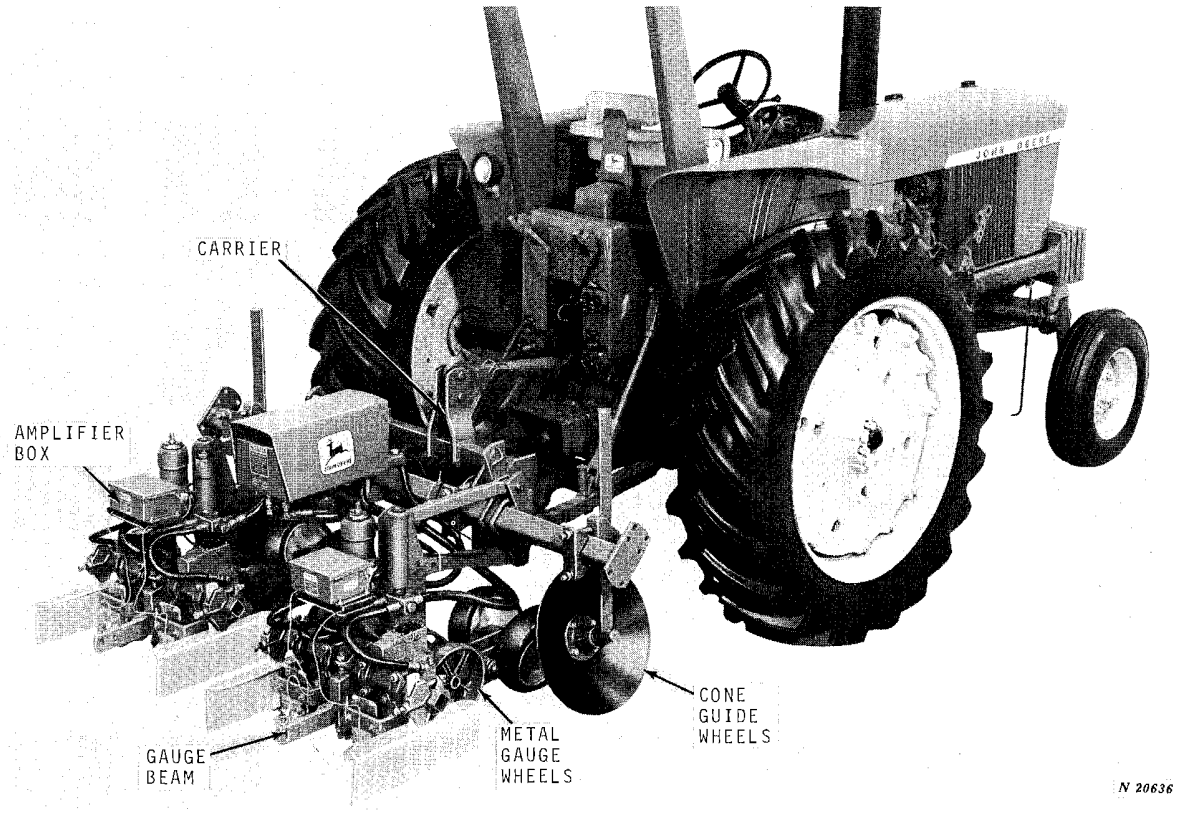
John Deere 114K-40 Synchronous Thinner Mounted on 53K2 Carrier



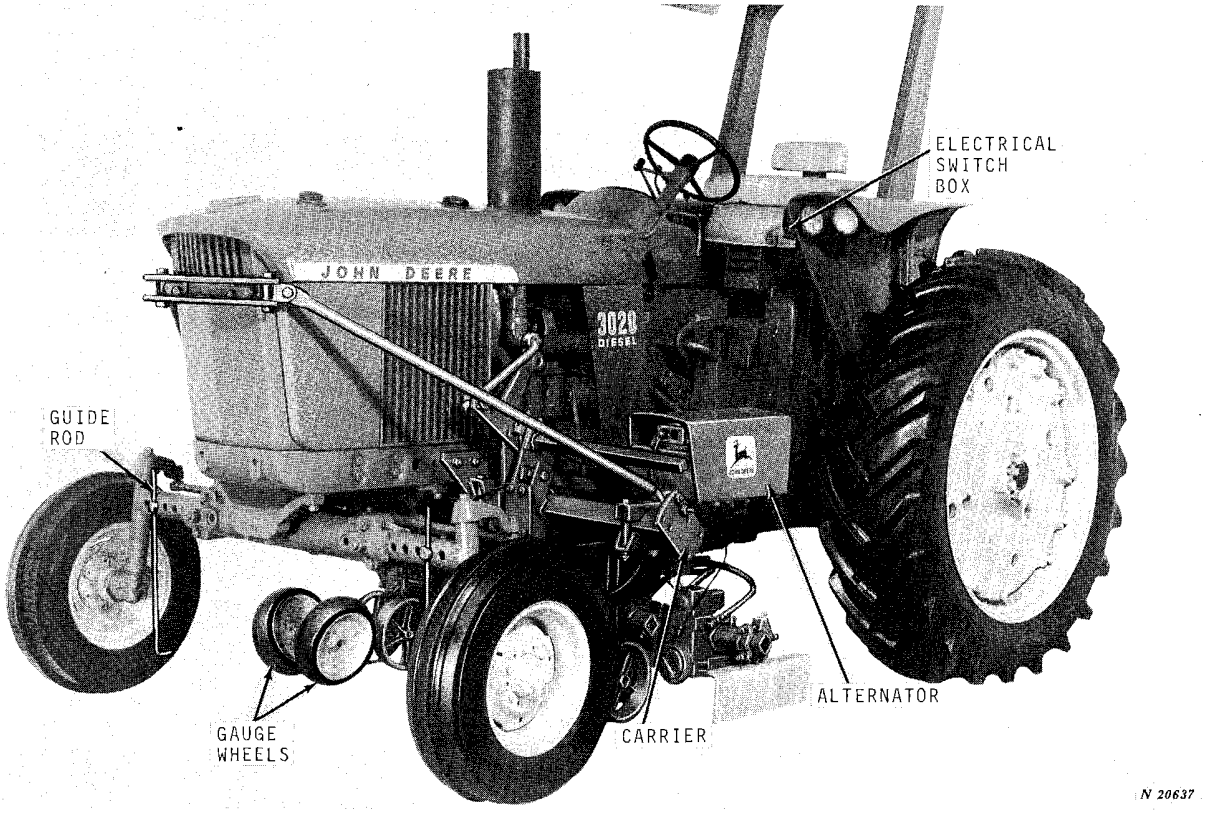
John Deere 116K Synchronous Thinner Mounted on 55KCGE Carrier



John Deere 116K Synchronous Thinner Mounted on 54KBE Carrier



John Deere 124K Synchronous Thinner Mounted on 55KBG Carrier



John Deere 124K Synchronous Thinner Mounted on 54KB Carrier

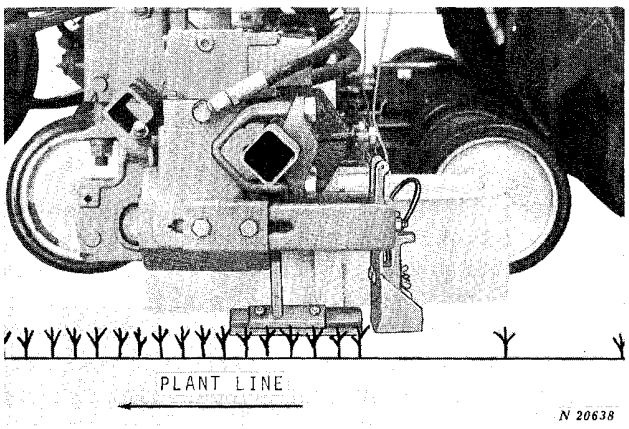
Description

GENERAL

John Deere 100K Synchronous Thinners are available in seven different models to thin various crops planted under various conditions. The operating principle of all models is the same. The distinctions concern the type of row units and the number of rows or seedlines each is designed to thin.

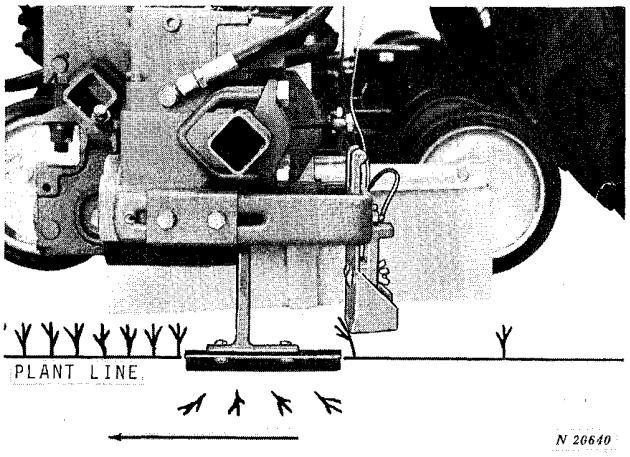
Row units are of two types, single-row units and double-row units. The single-row unit thinners are for crops, such as cotton, sugarbeets, etc., planted one seedline per bed. The single-row unit actuators are spaced from 22 to 40 inches apart. The double-row units are for crops, such as lettuce, broccoli, cabbage, etc., planted two seedlines per bed. The double-row unit actuators are spaced from 12 to 15 inches apart.

HOW IT WORKS



The thinner row unit (moving left in picture above) approaches the plant. The operation begins when the plastic shield on the probe touches the outer edge of the 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.

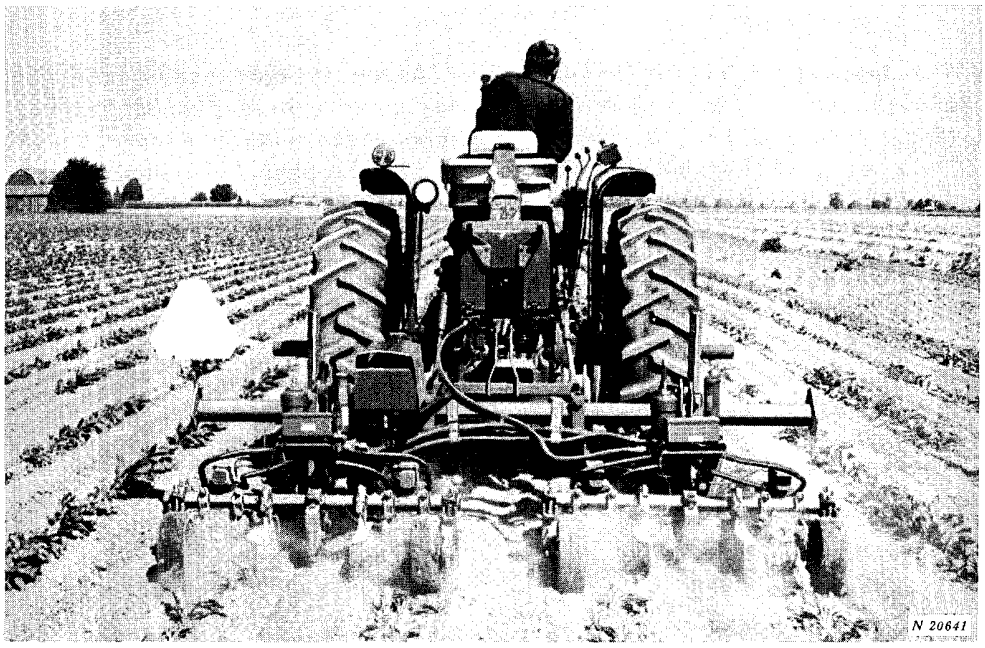
As the unit continues to move along the row, and the shield folds the leaves forward, the electronic probe touches the plant near the plant's center. Contacting the plant completes an electric circuit, and generates a signal to a solenoid valve. The valve directs hydraulic oil to activate a piston in the actuator which, in turn, moves the knife.



When activated by the signal from the probe, 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 28/1,000 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 equal to 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. 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 down the row, a stand of young plants properly spaced for maximum growth, is left to mature.

Advance Planning



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

1. 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.

2. The plant line should be free of clods as a clod can complete the electrical circuit and activate the knife. In this case the clod would be saved and the plant in front would be removed. Cultivating before thinning is normally not recommended. If it is necessary to cultivate and if clods appear in the plant line, roll the field a day or two before thinning. NOTE: Be sure plants will tolerate rolling before doing so.

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

4. For the most accurate work, the plants should be from 1 to 4 inches high. Smaller plants can be thinned if the ground surface is smooth and free of clods so the electrical probe can be adjusted close to the ground without touching the soil as the thinner moves across the field. When the plants are too high, it is possible for the machine to malfunction because of trash or cutout plants accumulating and contacting the electrical probe.

5. There should not be any weeds in the plant line as a weed will activate the knife the same as the plants to be saved.

Operation

CONTROLS

Before attempting to operate your new thinner, acquaint yourself with the location and function of all controls.

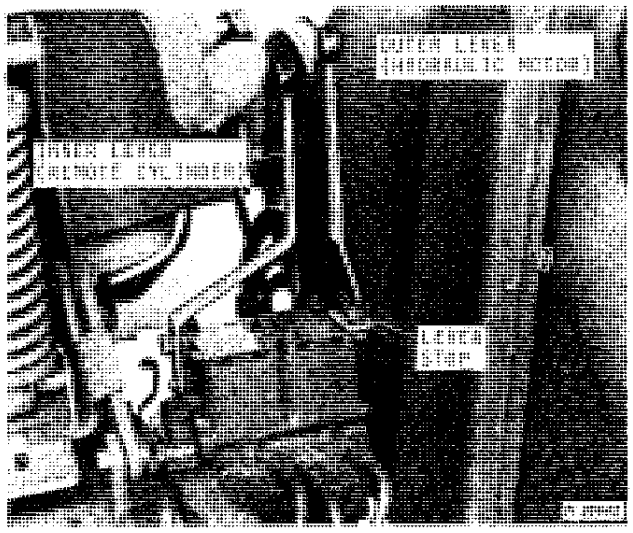
All controls are located within easy reach of the tractor seat. Refer to the illustrations for the location and name of the various controls.

Remote Cylinder Operating Levers

One remote cylinder operating lever raises and lowers the front-mounted thinner. The rockshaft control lever raises and lowers the rear-mounted thinner.

The other operating lever provides constant hydraulic pressure to operate the alternator and the actuators. *NOTE: It is necessary to keep this lever in the operating position to provide constant hydraulic pressure.*

1020, 1520, and 2020 Tractors



The lever stop is attached to hold the outer lever in the operating position. This lever will provide constant hydraulic pressure.

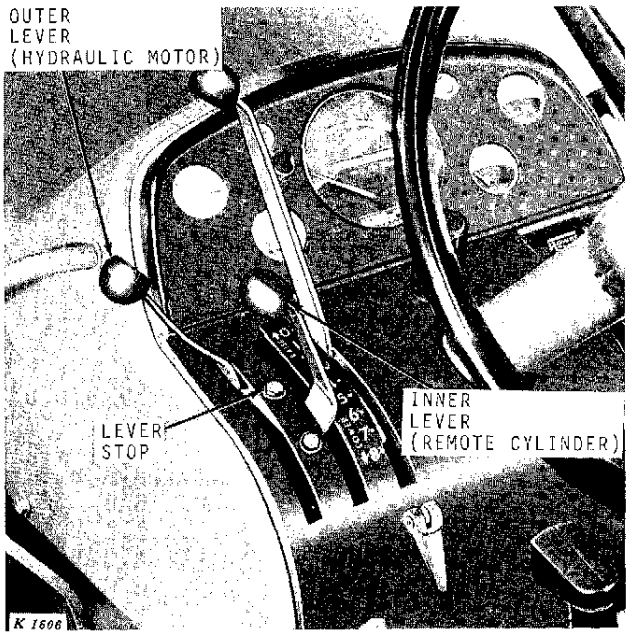
To hold the lever in operating position, push lever forward, and rotate lever stop into position to secure lever.

To release lever stop, rotate away from lever.

Raise and lower the front-mounted thinner with the inner operating lever.

Raise and lower the rear-mounted thinner with the rockshaft control lever.

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



The lever stop is attached to hold the outer lever in the operating position..

CONTROLS—Continued

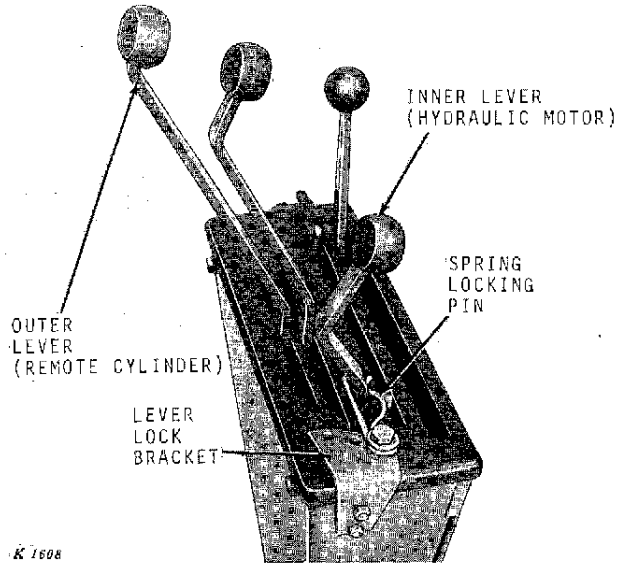
To place lever in operating position, push lever up.

To release lever to neutral position, push lever to the left and return lever past the stop to neutral.

Raise and lower the thinner with the inner operating lever.

NOTE: The lever stop must be removed when operating other implements which require regular detent action. To remove lever stop, remove tractor cowl and remove two bolts securing lever stop. Replace cowl.

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



The lever stop is attached to hold the inner lever in the operating position.

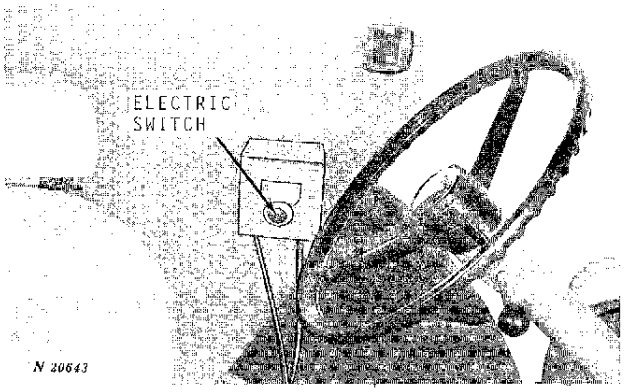
To place lever in operating position, push lever forward until secured by spring locking pin.

To release lever to neutral position, pull lever rearward from spring locking pin.

Raise and lower the front-mounted thinner with the outer operating lever.

Raise and lower the rear-mounted thinner with the rockshaft control lever.

Electric Switch



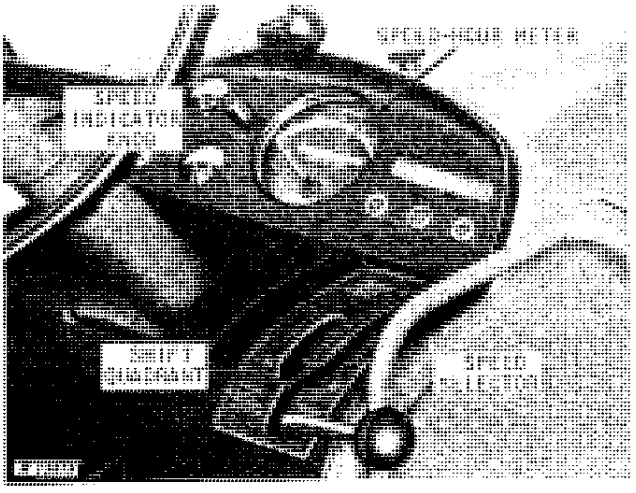
The electric switch is mounted on the left-hand tractor fender.

The alternator supplies 110 volts of electric current for operation of the solenoid valve and sensing circuit, through the amplifier. The electric switch controls the electrical power to the amplifier.

To turn switch on, pull switch out; to turn off, push switch in.

For storage, the switch box can be removed from the switch bracket by lifting box up and storing with thinner.

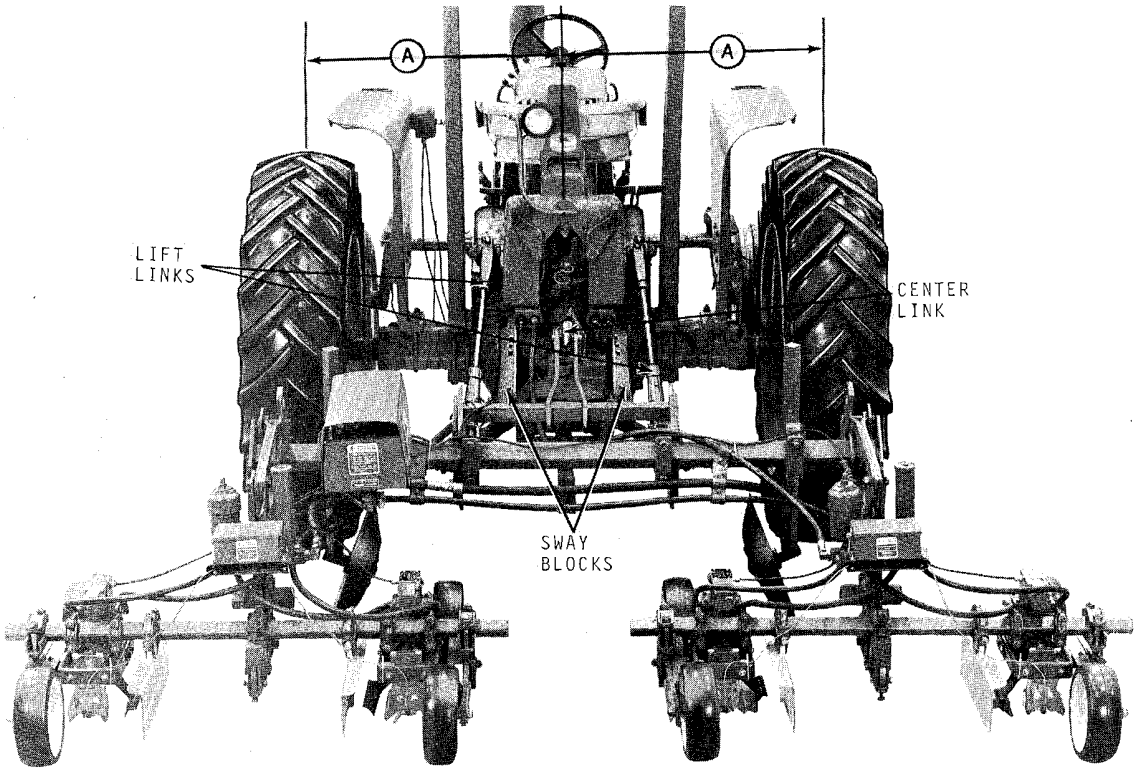
Selecting Speed



Speed Indicator Knob and Speed Selector

With engine running at required rpm (See "Field Operation," page 15) to supply enough hydraulic oil for your size thinner, turn speed indicator knob to the gear which shows 3 mph at the required rpm. Drive tractor in that gear.

PREPARING THE TRACTOR



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Wheel Spacing

Set tractor wheels to operate in the center of the rows or furrows. Measure from center-to-center of tires and be sure tractor wheels are spaced equidistance from the center of the tractor as at "A" above.

See your tractor operator's manual for correct tire inflation pressure and rear wheel ballast.

Sway Blocks (Rear-Mounted Thinners Only)

Place sway blocks in the upper position in category 2 or wide setting as shown above.

See your tractor operator's manual for installation.

Lift Links and Center Link (Rear-Mounted Thinners Only)

Adjust the lift links and center link to their normal operating length. See your tractor operator's manual for normal length.

Front End Weights (Rear-Mounted Thinners Only)

Front end weights may be necessary for increased stability and steering control. See your tractor operator's manual.

ADJUSTMENTS

The length and quality of service you receive from your new thinner depends on the correct operating adjustments to meet varying crop and field conditions, throrough lubrication, and regular service.

Shop Adjustments

Make the following step-by-step checks and adjustments before taking your thinner to the field.

IMPORTANT: Position your thinner on a level surface before adjusting.

1. Lubrication, Oil Level and Overall Checks

Lubricate thinner according to the lubrication instructions (see pages 20 and 21).

Check hydraulic oil level in tractor (see tractor operator's manual).

Check for damaged wires (bad insulation), and loose or broken wires.

Check all bolts for tightness, especially knife, knife arm, and clamp bolts.

Clean probe with file to remove any build-up of foreign material.

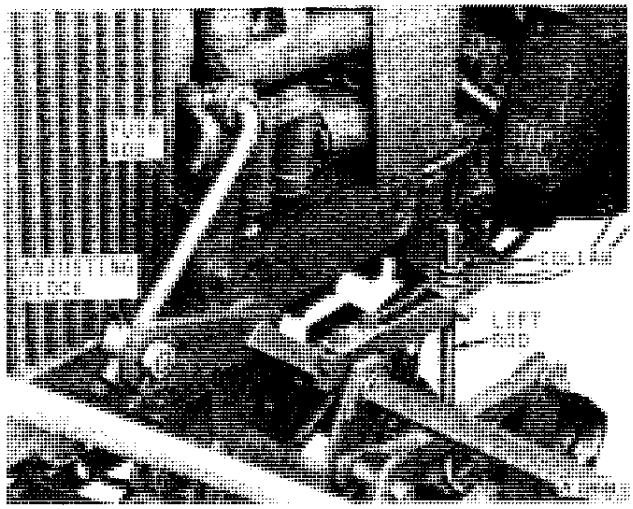
⚠ CAUTION: DO NOT touch probe while switch is on. Turn off electric switch and shut off tractor engine.

2. Dimensions

Check the following dimensions (see diagrams on pages 41 through 49).

Actuator row spacing
Gauge wheel row spacing
Rig hanger location
Shield location
Cone guide wheels or coulter location (rear-mounted thinners only). Set each one the same height.

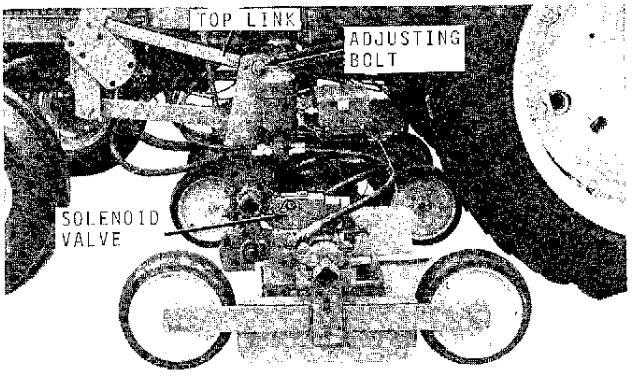
3. Lift Rod and Push Rod (Front-Mounted Thinners Only)



Adjust each lift rod for minimum lift by setting the set screw collar at the top of the rod. Lift thinner slowly, checking to see if it is level on both sides. Lower set screw collar on the lift rod if thinner is lower on one side than the other. Adjust until thinner has equal transport clearance on both sides.

Lift thinner slowly and check clearance under the tractor. Loosen set screw in adjusting block and adjust push rod length to allow a full stroke of the remote cylinder when the thinner clears under the tractor.

4. Leveling - Front-to-Rear



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Sight across the top of the solenoid valves to check if they are level with each other and with the floor. If not, loosen the adjusting bolt on the rig hanger and adjust hanger until valves are level with each other and the floor. Tighten adjusting bolt.

On rear-mounted thinners check to see if they are level with the ground. If not, adjust center link until valves are level with the ground.

Thank you so much for reading.

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