

4310 BEET HARVESTER



OPERATORS MANUAL

4310
BEET HARVESTER

OMN159434 D7 English

OMN159434 D7

LITHO IN THE U.S.A.
ENGLISH





To the purchaser


This new beet harvester 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 operation, lubrication, or adjustments and service. Read the Table of Contents to learn where each section is located.

In addition to the equipment furnished with your beet harvester, attachments are available to help you do a better job in special crop conditions. These are described in the Special Equipment section of this manual and can be purchased from your John Deere dealer.

"Right-hand" and "left-hand" sides are determined by facing in the direction the beet harvester will travel when in use.

Record your beet harvester serial number in the space provided on page 53. Your dealer needs this information to give you prompt, efficient service when you order parts or attachments. If your beet harvester requires replacement parts, go to your John Deere dealer where you can obtain genuine John Deere parts — accept no substitutes.

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

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

Your operator's manual contains SI Metric equivalents which follow immediately after the U.S. customary units of measure.





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Safety Suggestions

! Careless use of machinery causes many accidents. Make your farm a safer place to live and work by following these safety suggestions. Insist that they be followed by those working with and for you.

Do not allow anyone to ride on the harvester when it is in motion. Observe the beet harvester operation only from the tractor platform.

Safety shields were designed with your safety in mind. Keep them in place when operating the harvester.

Always shut off the engine, set the brakes, and disengage the PTO when leaving the tractor. Remove the ignition key when leaving the tractor unattended.

Reduce speed before turning or applying the brakes. Apply both tractor brakes evenly when making emergency stops. Drive at speeds slow enough to insure your safety.

Wear relatively tight and belted clothing. Loose clothing may catch on some part of the machine and cause an injury.

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.

Lower the lifter wheels when the harvester is not in use. Do not work under the frame when the wheels are raised.

Do not lubricate, adjust, or clean the harvester when it is in motion.

Always block the wheels and use a safety support if wheels are removed, when working on, under, or around the harvester.

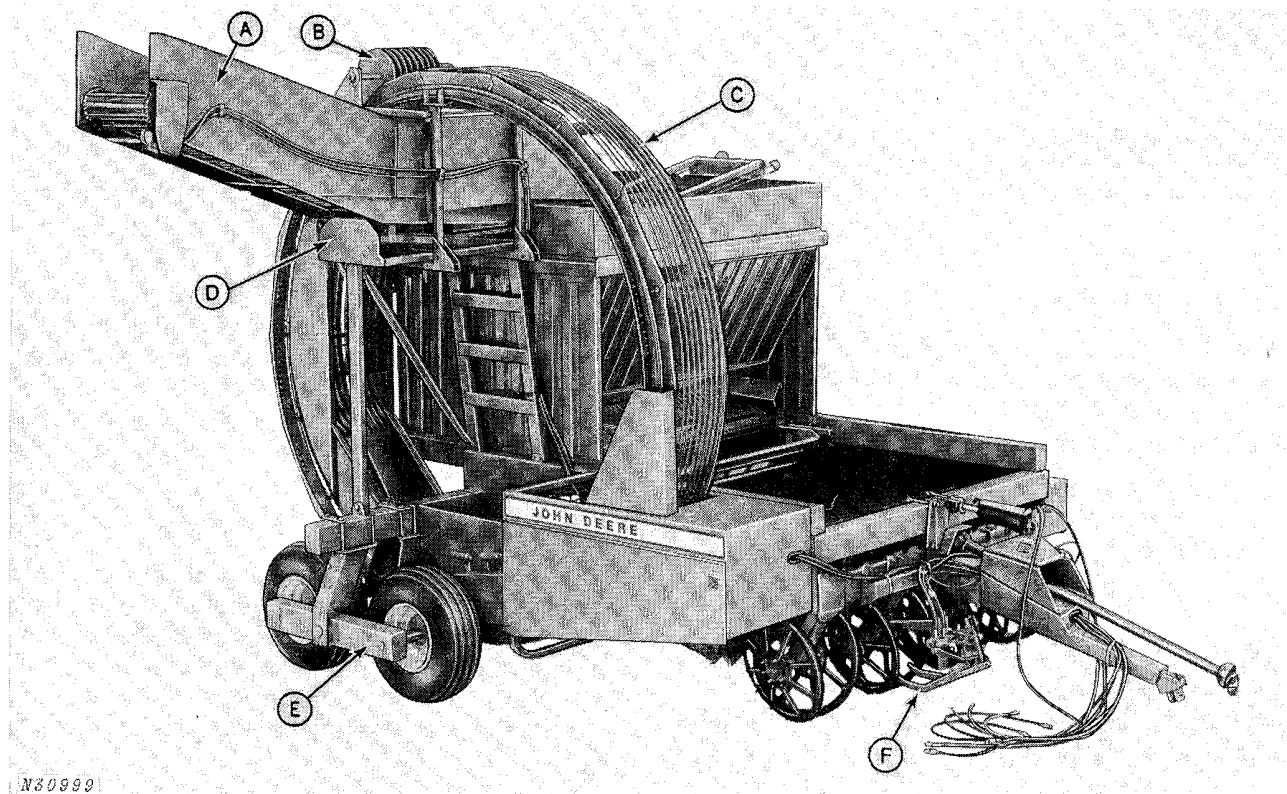
Always shut off the tractor engine before lubricating, adjusting, or refueling.

Do not smoke or use a light with an open flame when refueling any engine.

When transporting the harvester 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.



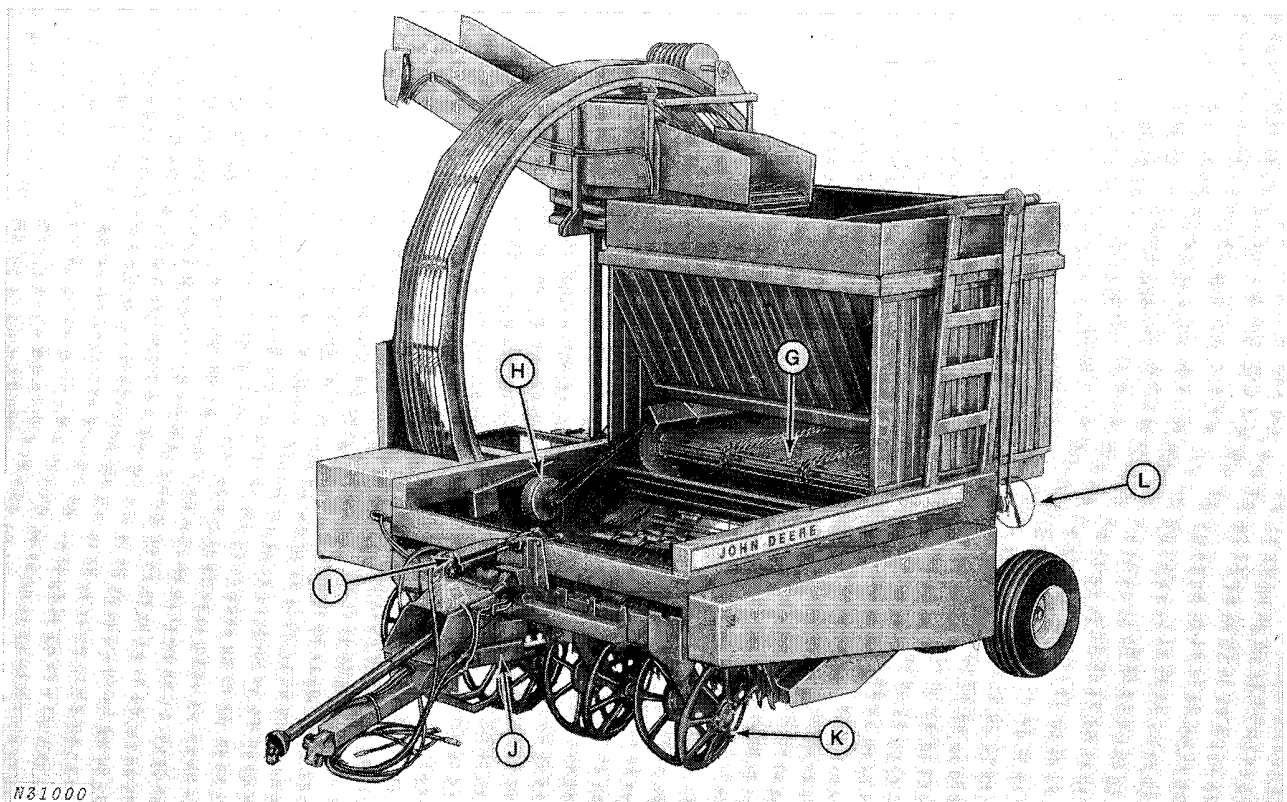
**be careful.....
avoid accidents**



A - Truck or Tank Conveyor
B - Stripper

C - Rotary Conveyor
D - Height Extension Attachment

E - Tandem Wheels
F - Row Finder



G - Unloading Conveyor
H - Electromagnetic Clutch

I - Lift Cylinder
J - Angling Cylinder

K - Digger Wheel
L - Hand Wheel



Operation

HOW THE BEET HARVESTER WORKS

General Description

The 4310 Beet Harvester is a tank-type harvester which will harvest three 20 to 40-inch (0.50 to 1.02 m) rows or four 20 to 30-inch (0.50 to 0.76 m) rows of topped beets.

The tank has an 8,000 (3 629 kg) pound beet storage capacity, providing maximum storage time between unloadings in high-yield beet crops.

The basic components of the harvester include the frame and wheels, lifter wheels, lifter wheel paddles, potato chain primary conveyor or optional star wheel cleaning bed, grab rolls, rotary conveyor, truck or tank conveyor, and tank bottom unloading conveyor.

Main Frame

The heavy-gauge steel box frame of the harvester is supported at the front by the tractor drawbar when coupled. This transfers part of the operating load to the tractor rear wheels for increased flotation and improved traction. When the harvester is not hooked to the tractor, it is supported at the front by the lifter wheels.

Wheels and Tires

The rear of the harvester is supported by four wheels and tires. The two single tires are 12.5L x 15 6-ply, tubeless implement; the tandem tires are 12.5L x 16 8-ply tubeless implement. The single wheel frames are attached with leveling plates to compensate for side tilt under various loading and field conditions. Wheel spacing is adjustable to accommodate the different row spacings. A third single wheel can be added for increased flotation.

The tandem wheels "walk-over" obstacles and reduce bouncing when working in rough ground.

Lifter Wheels and Paddles

The 29-inch (737 mm) solid-rim lifter wheels penetrate the soil just far enough to gently lift the beets out of the ground. The gap between each pair of wheels can be increased in 1/4-inch (6 mm) increments with spacers (attachment) to accommodate a large variety of beet sizes.

The revolving steel paddles at the rear of the lifter wheels knock off dirt as they flip the beets onto the cleaning bed. The paddles also clean mud and dirt from the lifter wheels. Rear pedestal scrapers for additional wheel cleaning and fan wheel fillers to prevent loss of small beets are available as attachments.

Potato Chain Primary Conveyor

The potato chain conveyor consists of three side-by-side 32-inch (810 mm) potato chains, with an incline from the front to the back. The separations between the chain links are large enough to sift out dirt and rocks while retaining small beets — as the beets are carried up and back to the grab rolls.

Cleaning Bed (Optional)

The star wheel cleaning bed consists of four shafts with 36 star wheels each and one shaft with 36 hexagon plates. As these shafts rotate, carrying the beets back to the grab rolls, dirt and rocks are sifted out. Rubber spacers between wheels and plates allow them to spread sufficiently to work large clods and rocks through the bed.

Grab Rolls and Delivery System

The four large spiral grab rolls also remove dirt, mud, or trash as they move the beets into the rotary conveyor. Further cleaning is provided by the open areas in the wheel and truck-or tank-conveyor as the beets are delivered to the tank or truck. Delivery is controlled by the operator with the reversible hydraulic drive motor which operates the conveyor drive chain.

Tank

The tank bottom unloading conveyor is actuated by an electromagnetic clutch, moving the beets down across a baffle plate onto the rear set of grab rolls, to the rotary conveyor, and truck-or tank-conveyor.

In extremely muddy conditions, the operator can recycle all of the beets over the grab rolls for maximum cleaning before loading them into the truck.

PREPARING THE BEET HARVESTER

General Preparations

Before starting the harvester in the field, read the "operation" section of this manual carefully and check the proper function of each control and field adjustment. Review these instructions each year to learn what they can accomplish to meet the wide range of field conditions. This will allow you to obtain the highest satisfaction and best results possible with your harvester. Check the following items before taking the harvester to the field:

1. Tractor to be used meets requirements specified for use with the harvester.
2. Hookup requirements conform to those noted on page 6 when harvester is attached to tractor.
3. Hydraulic system (including row finder if used) is correctly connected and installed. (See page 7.)
4. Electrical control and wiring properly installed and connected. (See page 33.)
5. Harvester is equipped and adjusted for the anticipated field conditions.
6. Inspect and operate the harvester as indicated in the following "Daily Inspection".

Daily Inspection

Careful inspection and maintenance of the harvester before starting work each day will prevent needless delays and break-downs in the field. Make the following checks and adjustments:

1. Perform the lubrication services (pages 25-28).
2. Inspect and adjust all drive and conveyor chains to proper tension and alignment.
3. Check and tighten loose bolts and connections.
4. Check tire inflation. Correct air pressure is 36 psi (2.5 bar) (2.5 kg/cm²).
5. Remove dirt, weeds, or vines from chains, shafts, and other working components.

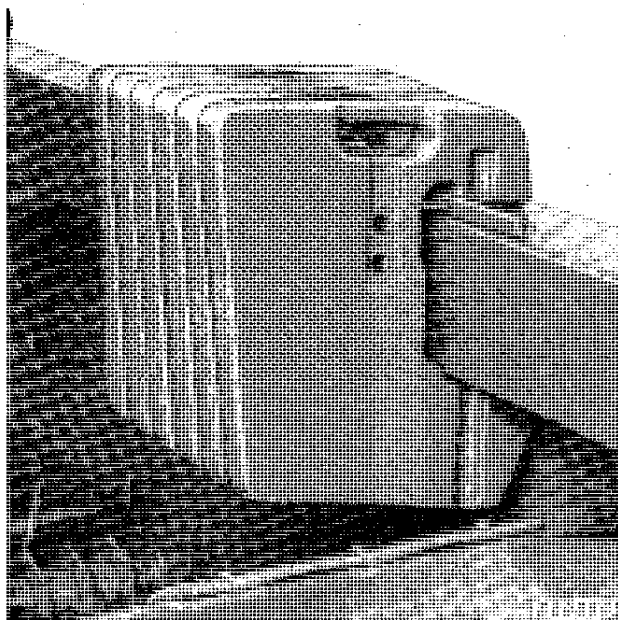
6. Check lifter wheels for straightness, spacing, and for loose bearings. Repair and adjust as necessary.

7. Check potato chains for excessive slack, interference, or wear; replace or adjust if required.

8. Inspect and service the tractor as recommended in your tractor operator's manual. Pay particular attention to the hydraulic and electrical systems.

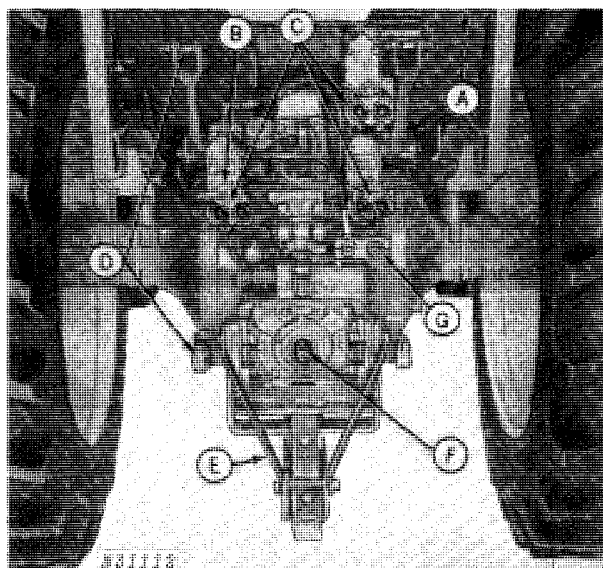
9. Operate the harvester for several minutes; stop and readjust drive and conveyor chains as necessary.

Beet Harvester Ballast



In extremely dry and hard ground conditions, install five to ten tractor Quik-Tatch weights on the left-hand side of the harvester. (Order R51680.)

PREPARING THE TRACTOR



- A - To Electrical Outlet
- B - Metering Valve Set in 1 O'Clock Position
- C - Three Remote Cylinder Outlets
- D - 3-Point Hitch Removed
- E - Drawbar Support
- F - 1000 RPM PTO
- G - Power Beyond Outlet

General Requirements

The 4310 Beet Harvester is to be used with tractors having 94 to 150 horsepower (70 to 120 kW) and equipped with 1000 rpm power take-off. Three remote cylinder outlets (C) and power beyond and controls are required for hydraulic override when row finder is installed. A 12-volt electrical system is required to operate electromagnetic clutch.

IMPORTANT: Tractors with horsepower greater than specified may damage harvester.

Wheels and Tires

Dual tractor rear wheels are recommended for use with the harvester. Set the tractor wheels for the desired row spacing so the wheels straddle or are centered between the rows as nearly as possible. See your tractor operator's manual for correct tire inflation pressure and instructions for wheel ballast where required.

Sway Blocks

Remove the sway blocks to allow installation of the drawbar support. (See your tractor operator's manual).

3-Point Hitch

Remove draft and lift links (D). (See your tractor operator's manual.) Center link may be removed if desired.

Electrical Outlet Receptacle

If the electrical outlet receptacle was removed from the tractor, reinstall it as described on pages 39 and 40.

Drawbar

Install the drawbar support (E). Refer to "assembly" instructions, page 39, for details of a typical installation.

Remove drawbar clevis if equipped.

IMPORTANT: To prevent possible damage to the PTO shaft, tractor drawbar should be adjusted according to SAE Standards for PTO driven equipment (See your tractor operator's manual). The SAE Standard establishes the distance between the PTO shaft and the hitch pin hole provided in the tractor drawbar.

Power Take-Off

IMPORTANT: The beet harvester is designed to operate from a 1000 rpm PTO only. To prevent possible damage to the harvester, do not couple to 540 rpm PTO. Remove the power take-off guard and install it on the guard retainer. If tractor is equipped with 540 rpm PTO, convert to 1000 rpm. (See your tractor operator's manual.)



CAUTION: If the master shield is removed for any reason, be sure it is reinstalled before operating the PTO.

Front Ballast

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 at recommended speeds. Additional front ballast may be required for satisfactory field operation due to sudden or extreme forces on the harvester such as may occur when removing the harvester from the ground and turning at row ends, or during field transport over very rough ground.

Metering Valve Arms

The metering valve arms (B) may be set to provide varying amounts of hydraulic oil flow to the remote cylinders and the loading conveyor hydraulic motor. (See your tractor operator's manual).

To provide approximately 100 rpm for the loading conveyor driven shaft under no-load conditions, set the metering valve for that outlet at about the 1 o'clock position.

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