JOHN DEERE
2030
TRACTOR

JOHN DEERE

OPERATORS MANUAL

JOHN DEERE 2030
TRACTOR

OMR50675 H1 English

JOHN DEERE WATERLOO WORKS
OMR50675 H1

LITHO IN THE U.S.A.
ENGLISH

To the Operator

This new tractor 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 service.

Read the Contents to learn where each section is located. Use the alphabetical index on pages 80 and 81 for fast reference.

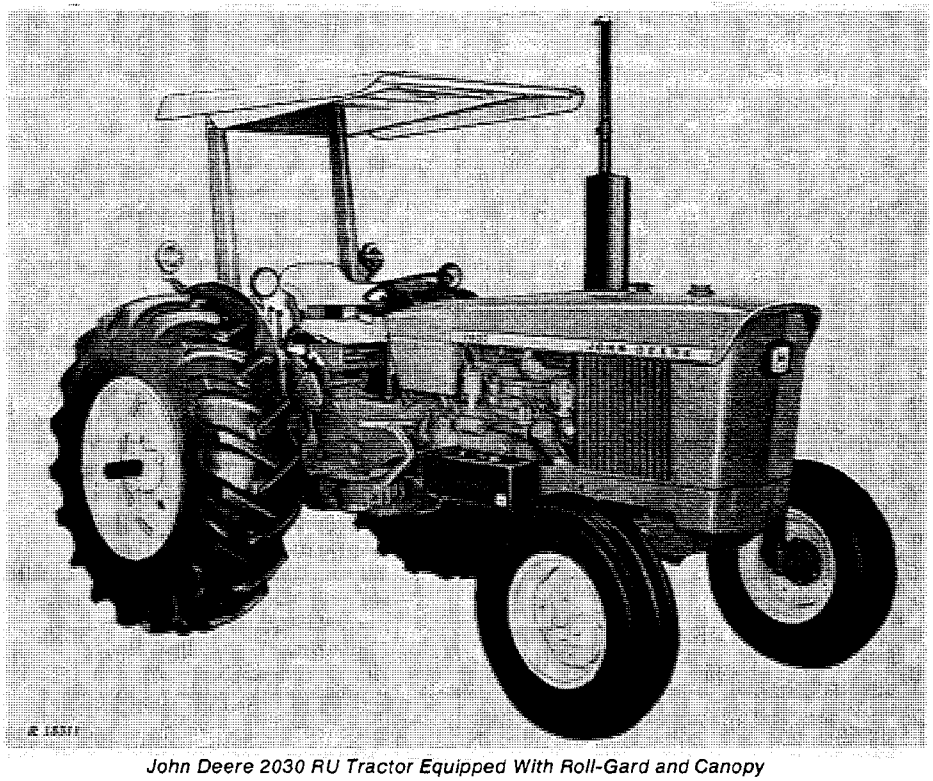
"Right-hand" and "left-hand" sides are determined by facing in the direction of tractor forward travel.

Record the serial numbers in the spaces provided on page 78. Your dealer needs this information to give you prompt, efficient service when you order parts. If your tractor requires replacement parts, go to your John Deere dealer where you can obtain Genuine John Deere parts—accept no substitutes.

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

This safety alert symbol indicates 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.

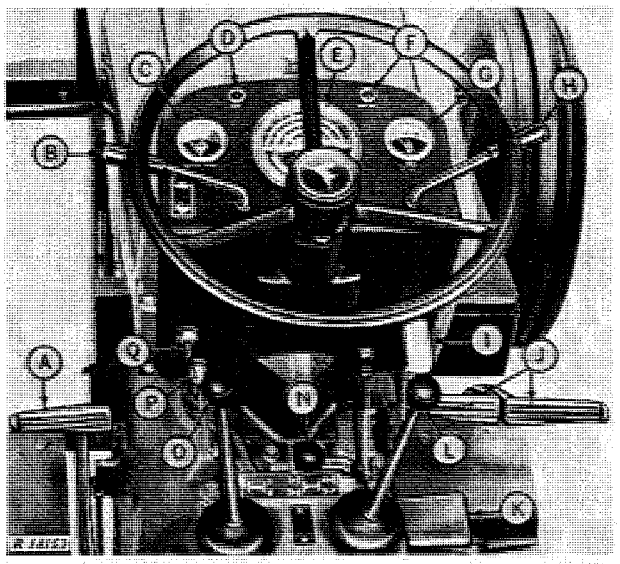
Contents



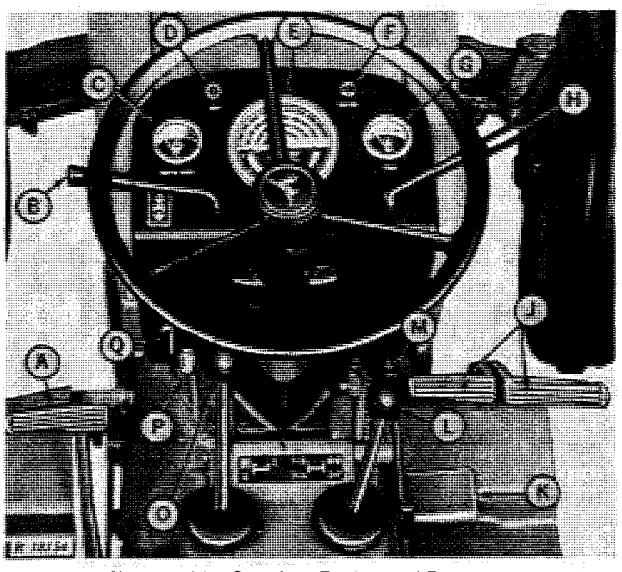
John Deere 2030 RU Tractor Equipped With Roll-Gard and Canopy

Controls and Instruments

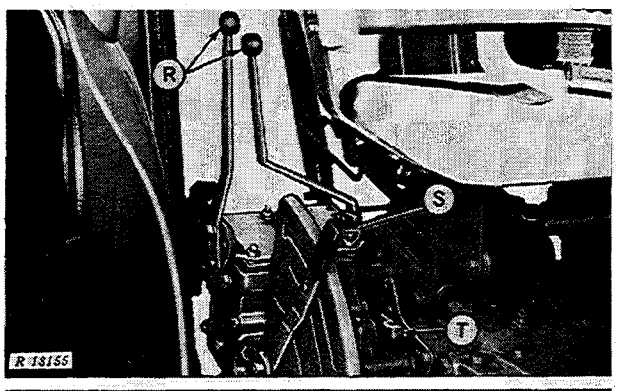
Before attempting to operate your new tractor, become familiar with the location and purpose of its controls and instruments. Additional information will be found on the page number following the control or instrument. Worldwide graphic symbols are used to assist identification and operation.

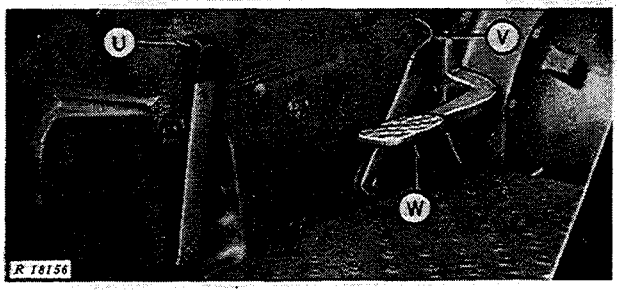


Tractor With Diesel Engine and Hi-Lo Shift



Tractor With Gasoline Engine and Reverser





A—Clutch Pedal (Page 10)
B—Hi-Lo or Reverser Lever (Page 10)
C—Coolant Temperature Gauge (Page 7)
D—Alternator Indicator Light (Page 4)
E—Speed-Hour Meter (Page 42)
F—Oil Pressure Indicator Light (Page 4)
G—Fuel Gauge
H—Hand Throttle (Page 6)
I—Ether Starting Fluid Adapter (Diesel—Page 4)
J—Brake Pedals (Page 12)
K—Foot Throttle (Page 6)
L—Gear Shift Lever (Page 9)
M—Choke (Gasoline-Page 4)
N—Independent PTO Lever (Page 34)
O—Range Shift Lever (Page 9)
P—Light Switch (Page 21)
Q—Key Switch (Page 3)
R—Remote Cylinder Operating Levers (Page 28)
S—Rockshaft Control Lever (Page 22)
T—Rockshaft Selector Lever (Page 22)
U—Mid PTO Lever (Page 34)
V—Rear PTO Lever (Page 34)
W—Differential Lock Pedal (Page 11)

Operation

Complete instructions for operating your tractor safely and efficiently are given on the following pages. By following these directions carefully, you can be sure that you are taking full advantage of the many features built into your tractor.

PRESTARTING CHECKS

Perform the following checks and services before starting the engine or operating tractor for the first time each day:

Check the engine crankcase oil level—see page 47.

Check the radiator coolant level—see page 48.

Drain sediment from fuel filter sediment bowl (diesel)—see page 48.

Inspect air pre-cleaner (if equipped).

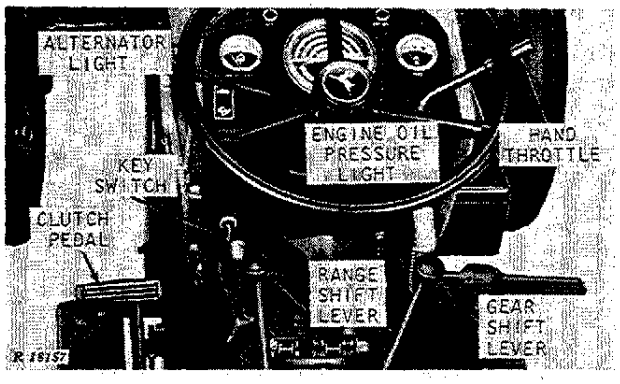
Make sure the fuel shut-off valve on the fuel tank is open. See page 55.

Lubricate front axle. See page 48.

CAUTION: Before starting the tractor engine, be sure there is plenty of ventilation. Never operate the tractor in a closed shed or garage.

OPERATING THE ENGINE

STARTING THE DIESEL ENGINE



Diesel Engine Starting Controls

NOTE: If the prevailing temperature is 32°F. or lower, it may be necessary to use a cold weather starting aid to start the engine (page 4).

Perform the Prestarting Checks listed above.

(1) Place range shift lever in park (P), and depress the clutch pedal to reduce drag on the engine.

(2) Place the hand throttle in the 1200 rpm position, approximately one-third of its travel downward.

(3) Turn the key switch clockwise to the first position. The alternator and oil pressure indicator lights should glow. If any light fails to glow, turn off the key switch and determine the cause.

(4) Turn the key switch all the way to the right to start the engine. Do not operate the starter for more than 30 seconds at a time. To do so may overheat the starter. If the engine does not start the first time, wait for a minute or two before trying again. If it does not start after four attempts, see "Trouble Shooting."

If the key switch is released before the engine starts, wait until the starter and the engine stop before trying again. This will prevent possible damage to the starter.

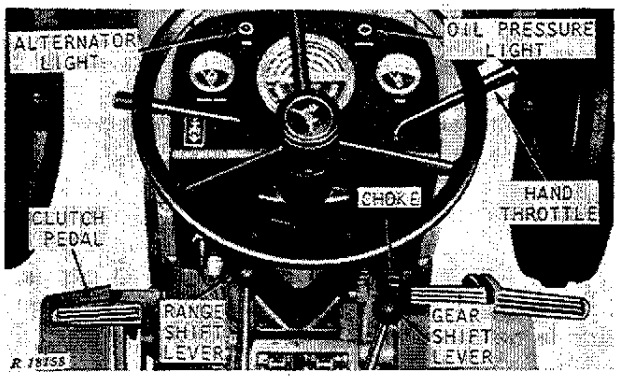
Before starting a tractor by towing, see page 10.

IMPORTANT: Never attempt to start a tractor with Hi-Lo Shift or reverser by towing or pushing, as the clutches may be damaged.

(5) As soon as engine starts, release key switch and adjust engine speed to approximately half throttle. The engine oil pressure indicator light and the alternator indicator light should go out. If the lights do not go out after the engine has been running for 10 seconds, the engine should be shut off at once and the cause of difficulty determined.

(6) Release clutch pedal. In cold weather, warm engine and transmission for 5 minutes by operating engine at half throttle. Do not allow engine to operate at slow idle speed during engine warm-up. Observe gauges.

STARTING THE GASOLINE ENGINE



Gasoline Engine Starting Controls

NOTE: If the prevailing temperature is 32°F. or lower, it may be necessary to use a cold weather starting aid to start the engine.

Perform the Prestarting Checks listed on page 3.

(1) Place range shift lever in park (P), and depress the clutch pedal to reduce drag on the engine.

(2) Place the hand throttle in slow idle position.

(3) Pull choke knob completely out and turn the key switch clockwise to the first position. The alternator and oil pressure indicator lights should glow. If any light fails to glow, turn off the key switch and determine the cause.

(4) Turn the key switch all the way to the right to start the engine. If the engine is warm, push the choke knob in after a few revolutions. To prevent overheating the starter, do not operate the starter for more than 30 seconds at a time. Then wait a minute or two before trying again. If the engine does not start after four such attempts, see "Trouble Shooting."

If the key switch is released before the engine starts, wait until the starter and the engine stop before trying again. This will prevent possible damage to the starter.

IMPORTANT: Never attempt to start a tractor with Hi-Lo Shift or reverser by towing or pushing, as the clutches may be damaged.

Before starting a tractor by towing, refer to page 10.

(5) If the engine is cold, push the choke knob in after the engine starts. In cold weather it may be necessary to leave the choke partially on for the first few minutes.

(6) After the engine starts, the indicator lights should go out. If any light continues to glow after the engine has been running 10 seconds, stop the engine and determine the cause.

(7) Release clutch pedal. In cold weather, warm engine and transmission for 5 minutes by operating engine at half throttle. Do not allow engine to operate at slow idle speed during engine warm-up. Observe gauges.

COLD WEATHER STARTING AIDS

For cold weather starting, the tractor may be equipped with an ether starting fluid adapter, additional battery, engine coolant heater, or a hydraulic pump shut off screw.

These aids are effective at low temperatures, only when the engine is otherwise operating satisfactorily. They will not correct such deficiencies as low battery charge, crankcase oil of heavy viscosity, and high electrical resistance which may prevent the engine from starting.

Ether Starting Fluid Adapter (Diesel)

This adapter is used to inject atomized starting fluid into the engine air intake system. Pressurized cans of starting fluid are available from your John Deere dealer.

Injecting Starting Fluid

CAUTION: Ether starting fluid is highly flammable. Do not use near fire, sparks, or flames. Read the cautionary information on the container.

To use the can of starting fluid, remove the safety cap and plastic spray button from the can. Remove the cap from the adapter and position the can under the adapter.

To inject a shot of starting fluid, momentarily push up on the can.

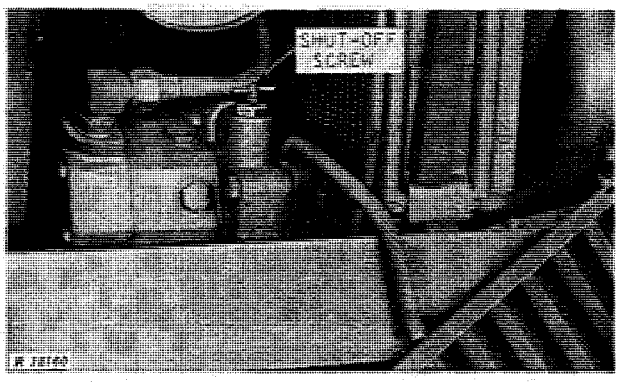
IMPORTANT: To avoid damage, turn engine with starter one or two revolutions before injecting starting fluid. Inject starting fluid only while the engine is turning.

Relax pressure on the can between shots of starting fluid. Stop injecting fluid after the engine starts. If the engine begins to die during the first few minutes of operation, inject another shot of fluid. When the engine is operating satisfactorily, remove the can from the adapter and replace the safety cap on the can to avoid accidental discharge.

Be sure to install the cap on the adapter when it is not in use. This will prevent dust from being drawn into the engine.

Store starting fluid in a cool, dry, and protected area to prevent accidental discharge. Keep the starting fluid away from extreme heat or cold.

Hydraulic Pump Shut-Off



Hydraulic Pump Shut-Off Screw

If the tractor has a hydraulic pump shut-off screw (available from your John Deere dealer), the cranking speed may be increased during cold weather by destroking the hydraulic pump so it will not build up pressure. To do so, turn the shut-off screw in (clockwise) until resistance is felt. Turn screw in one more turn.

After the engine has started, back the shut-off screw out all the way (turn the screw counterclockwise). The pump will now build up pressure.

NOTE: Oil will leak past the shut-off screw if it is not backed out all the way against the internal stop.

Electric Coolant Heater

A 1000-watt, 115-volt electrical coolant heater can be installed on the engine. See your dealer for additional information.

CAUTION: To avoid shock or hazardous operation, always use a three-wire heavy-duty electrical cord equipped with three-wire connectors. If a two-to-three contact adapter is used at the wall receptacle, always connect the green wire to a good ground.

Additional Battery

Starting the engine in cold weather can be made easier by connecting an additional 12-volt battery in parallel with the 12-volt battery or batteries on the tractor.

CAUTION: Gas given off by batteries is explosive. To avoid injury or battery damage, avoid sparks near the batteries.

Use jumper cables to connect the positive (+) terminal of the booster battery to the positive (+) terminal of the tractor battery and the negative (−) terminal of the booster battery to negative (−) terminal of the tractor battery.

IMPORTANT: Reversed polarity booster battery connections may damage the alternator or electrical wiring.

See your John Deere dealer for booster batteries.

TRACTOR WARM-UP PERIOD

Always be sure the tractor is warmed up properly before operating under a full load.

A good way to do this is first to idle the engine at about 1500 rpm for 5 minutes and then operate it at about 1900 rpm for another 5 minutes.

It is good practice to operate the tractor for the first 30 minutes in a lower gear then is normally required for the load. This gives the oil a chance to circulate freely and prevents undue wear on engine or transmission parts.

ENGINE IDLING

Avoid unnecessary engine idling. Prolonged engine idling may cause the engine coolant temperature to fall below its normal range. This in turn causes crankcase oil dilution, due to incomplete fuel combustion, and permits formation of gummy deposits on valves, pistons, and piston rings. It also promotes rapid accumulation of engine sludge and unburned fuel in the exhaust system.

When the tractor is to remain idle for a considerable length of time, stop the engine.

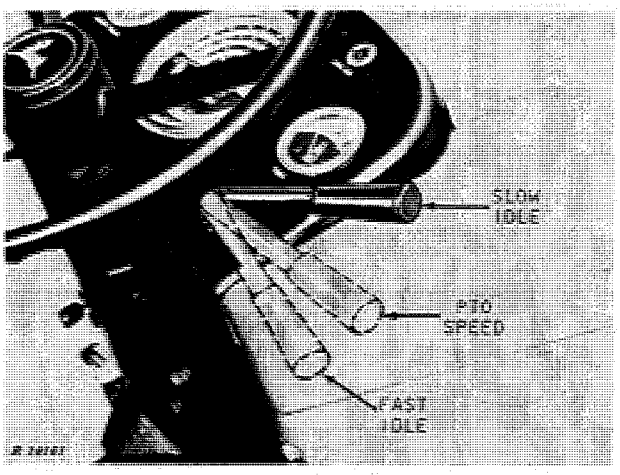
ENGINE SPEEDS

The engine is designed to operate under load at speeds ranging from 1500 to 2500 rpm. These are variable governed speeds, and the engine can be operated at any speed between the two extremes to meet various working conditions. Maximum continuous power at full load is obtained at 2500 rpm.

Operate the engine at 2100 rpm to obtain SAE standard PTO speeds. Use this speed when operating the power take-off.

Normal slow idle speed is approximately 800 rpm (diesel) or 600 rpm (gasoline).

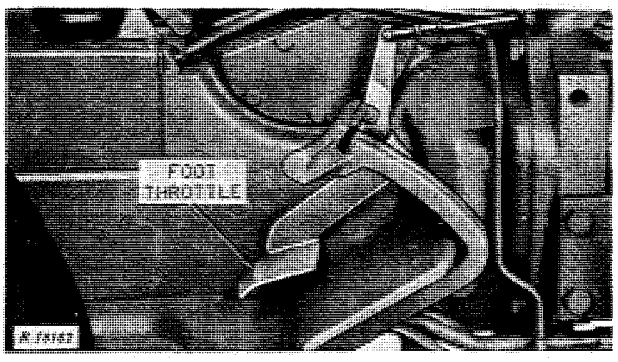
Using Hand Throttle



Range of Hand Throttle Positions

Use the hand throttle to select any desired engine speed between slow idle and fast idle. Push hand throttle lever upward to reduce engine speed; pull lever downward to increase engine speed.

Using Foot Throttle

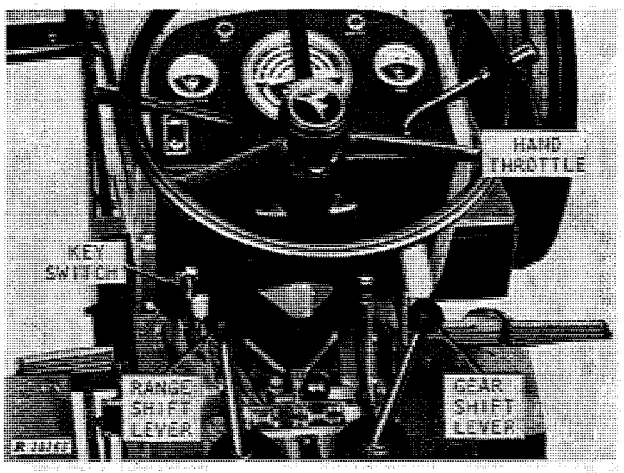


Foot Throttle

The foot throttle is used to obtain engine transport speeds or to raise engine speed momentarily. When the foot throttle is pushed all the way downward, the engine operates at 2800 rpm fast idle speed.

NOTE: The foot throttle should not be used to increase the normal engine working speed.

STOPPING THE ENGINE



Engine Stopping Controls

Stop the engine as follows:

Move the gear shift lever into any gear position. Then place the range shift lever in park (P) position. This will lock the gears and hold the tractor in place.

Run the engine at 1500 rpm for a short time before stopping it. Sudden stopping of a hot engine may allow some parts to overheat momentarily and possibly cause damage.

Diesel Engines

After idling the engine for a few minutes, move the hand throttle up to the slow idle position and turn the key switch off.

Gasoline Engines

After idling the engine for a few minutes, run the engine at approximately 1200 rpm. Stop the engine by turning the key switch off.

Both Engines

After stopping the engine, remove the key from the switch to prevent tampering and unauthorized operation. Removing the key also prevents battery discharge if the switch is accidentally left in the "on" position.

IMPORTANT: Key switch should be kept in vertical (OFF) position at all times when engine is stopped. Failure to do so will run down batteries and may cause overheating of ignition resistor (gasoline).

BREAKING IN THE ENGINE

If the coolant temperature rises to the warning range on the gauge, shift to a lower gear to reduce the load on the engine. Be sure to follow the special break-in lubrication instructions given on page 42.

With the following exceptions, the engine is ready for normal operation:

During the first 20 hours, do not use the foot throttle or place the hand throttle in speeds above the 2100 rpm load speed position. To faciltate break-in, avoid prolonged periods of engine idling for the first 100 hours of service.

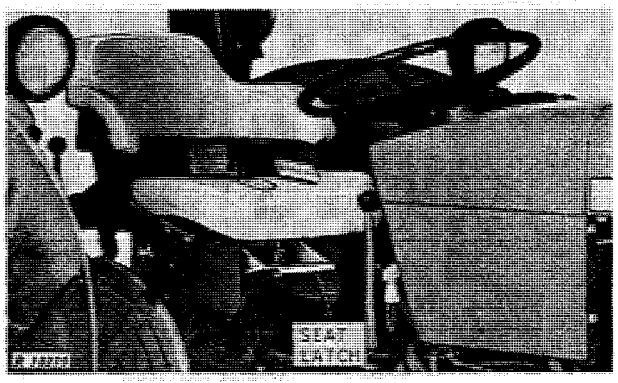
At the end of this 100-hour period, drain oil, replace filter element, and fill the crankcase with new oil as recommended on page 40. Thereafter, drain and refill crankcase every 100 hours of operation.

OPERATING THE TRACTOR

SEAT

Your tractor may be equipped with a pan seat, a regular seat, or a deluxe cushioned seat. All except the pan seat are adjustable for the operator's height, and fold back for standing. The deluxe seat also is adjustable for the operator's weight.

Moving Seat to Upper Rear Position



Deluxe Seat Control

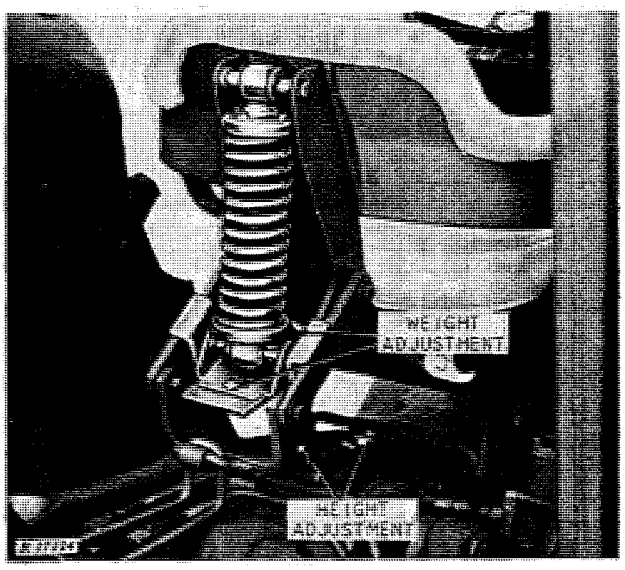
Deluxe Seat. Lift the release latch (shown). Stand up and lift the seat to the upper rear. To return the seat to the normal position, pull the seat forward. Sit down on the seat to lock it in place.

Regular Seat. Lift back of seat and push seat to rear. To return the seat to the normal position, lift the front of the seat and move it forward.

Adjusting for Height and Weight of Operator

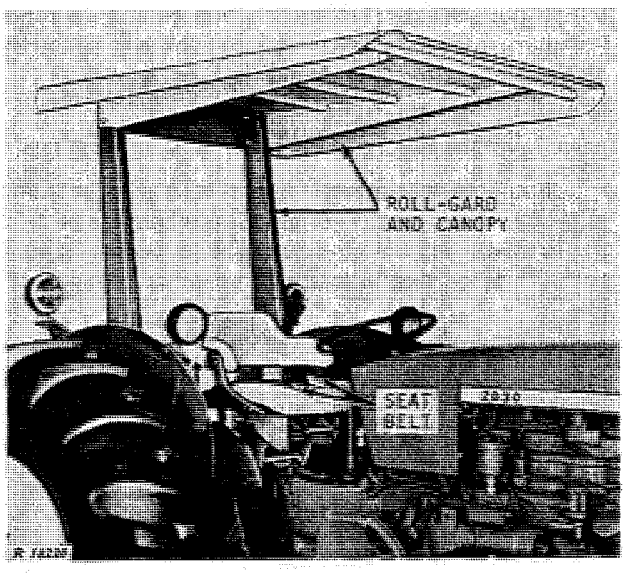
To adjust the seat for operator's height, loosen the cap screws securing the seat to the rockshaft housing or seat support base and slide seat to desired position. Then securely tighten cap screws.

The deluxe seat is adjustable for operators weighing from 100 to 300 pounds. To adjust, move the seat to the upper rear position to take tension off the spring. Loosen the wing nuts under the weight adjustment link, and move slide to desired weight position. Tighten wing nuts and return seat to the normal position.



Adjusting Seat for Operator's Weight and Height (Deluxe Seat Shown)

ROLL-GARD, SEAT BELT, AND CANOPY



Roll-Gard, Seat Belt, and Canopy

CAUTION: Under almost all operating conditions:

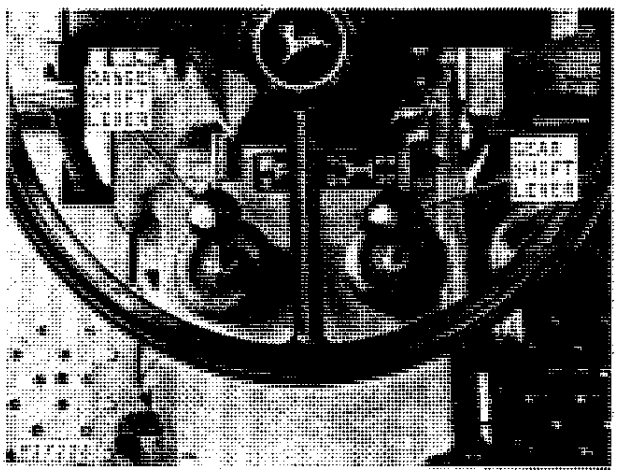
1. **Use of the seat belt with the optional John Deere Roll-Gard is recommended.**
2. **Use of a seat belt without roll-over protective equipment is not recommended.**

SELECTING GROUND SPEED

The tractor has eight forward speeds and four reverse speeds. The wide range of speeds, together with the variable speed engine, allow the operator to balance load and speed for maximum economy, and give him flexibility to meet varying work conditions. For example, for a given travel speed the operator may choose to work in a low gear at a high engine speed or in a higher gear at a lower engine speed. Engine working speeds may be varied anywhere between 1500 and 2500 rpm.

Avoid overloading the tractor. When this occurs, operate in a lower gear. If moving the throttle slightly will change engine speed, the engine is not overloaded or lugging. Overloading causes undue strain on parts, eventually resulting in poor operation and unnecessary repair and expense.

SHIFTING GEARS



Range and Gear Shift Levers

Gear shifting is controlled by a range shift lever and a gear shift lever.

The range shift lever shifts between low, high, and reverse ranges. A park (P) position is also provided.

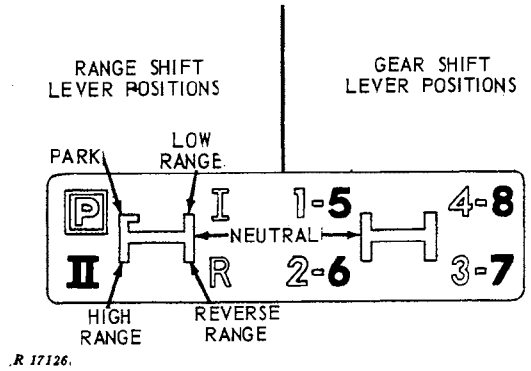
TRACTOR GROUND SPEED IN MILES PER HOUR

NOTE: The travel speeds shown are for RU tractors with 16.9 - 28 rear tires, HU tractors with 13.9 - 36 rear tires, and LU tractors with 16.9 - 24 rear tires. On tractors with the Hi-Lo Shift option, high range speeds are the same as listed in the chart below. Low range speeds are 25.8 percent less than those listed. If tractor is equipped with a reverser, multiply forward speeds by 1.16 to obtain true reverse speeds.

	1500 rpm			2100 rpm*			2500		
Gear	**RU**	**HU**	**LU**	**RU**	**HU**	**LU**	**RU**	**HU**	**LU**
1st	.9	.9	.9	1.3	1.2	1.2	1.5	1.5	1.4
2nd	1.3	1.3	1.2	1.8	1.8	1.6	2.1	2.1	2.0
3rd	1.9	1.9	1.8	2.7	2.6	2.4	3.2	3.1	3.0
4th	2.7	2.6	2.4	3.7	3.7	3.4	4.5	4.4	4.1
5th	3.6	3.5	3.3	4.8	4.9	4.6	6.0	5.9	5.5
6th	5.1	5.0	4.6	7.2	7.0	6.5	8.5	8.4	7.8
7th	7.7	7.4	6.8	10.8	10.4	9.2	12.7	12.4	11.5
8th	10.7	10.4	9.7	15.0	14.6	13.9	17.8	17.3	16.2
R1	1.1	1.0	1.0	1.5	1.5	1.3	1.8	1.7	1.6
R2	1.5	1.5	1.4	2.1	2.1	2.0	2.6	2.5	2.3
R3	2.3	2.2	2.1	3.0	3.1	2.9	3.7	3.7	3.4
R4	3.1	3.1	3.0	4.4	4.3	4.1	5.2	5.1	4.8

** 2100 engine rpm gives the SAE rated 540 or 1000 rpm PTO speed. Some PTO-driven machines are operated at other speeds. See the machine operator's manual for detailed instructions.*

The gear shift lever can be used to select 1st, 2nd, 3rd, and 4th gears when the range shift lever is in low range position; it can be used to select 5th, 6th, 7th, and 8th gears when the range shift lever is in high range position. When the range shift lever is in reverse range, reverse gears comparable to 1st, 2nd, 3rd, and 4th can be obtained.



Transmission Shifting Pattern

The shift patterns are marked by a decal on the transmission case shield.

With the tractor stopped and the clutch pedal depressed, move the gear shift lever into the gear desired. Then move the range shift lever into the range desired. Shift levers must be placed fully into position.

When shifting from one gear to another or one range to another, fully stop the tractor before depressing the clutch and moving the shift lever.

Gradually release the clutch pedal to take up the load smoothly.

To prevent unnecessary wear, never "ride" (resting the feet on) the clutch or brake pedals.

HIGH SPEED DRIVING

Use high speed (8th) gear to save time in transport over highways and other smooth roads. But - BE CAREFUL! Fast driving is the cause of many accidents. On rough ground, shift to a lower gear for safety.

PARKING THE TRACTOR

Completely stop the tractor. Move the gear shift lever into any gear position. Then move the range shift lever to park (P) position. To disengage from park, first move the range lever slightly to the left, and then pull lever back into neutral.

TOWING THE TRACTOR

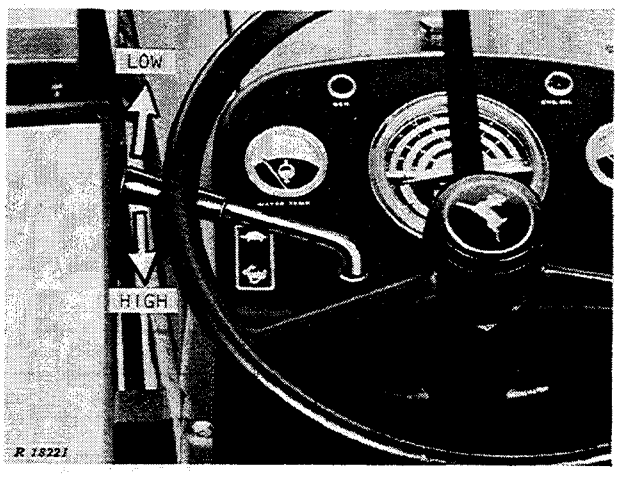
CAUTION: Never tow the tractor at a speed greater than 15 miles per hour.

When towing a disabled tractor, move both the range and gear shift levers to the neutral position. This will prevent undue wear on transmission parts during towing.

Tow tractors (without Hi-Lo or Reverser) for starting in 6th, 7th, or 8th gear only.

IMPORTANT: Do not attempt to start a tractor with Hi-Lo shift or Reverser by towing. Doing so may damage the Hi-Lo or Reverser clutches in a very short distance.

HI-LO SHIFT



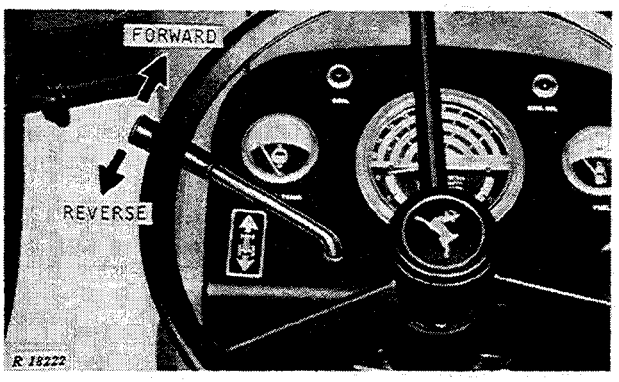
Hi-Lo Shift Lever

The optional Hi-Lo Shift allows the operator to increase or decrease his ground speed and pull power "on the go" without declutching.

Shifting from Hi to Lo decreases the ground travel speed 25.8 percent and provides up to 35 percent increase in pull power in any of the transmission speeds. Shifting from Hi to Lo provides approximately the same speed and pull power change as manually down-shifting one gear on the transmission.

REVERSER

The reverser allows the operator to change the direction of travel "on the go" without clutching or shifting gears.



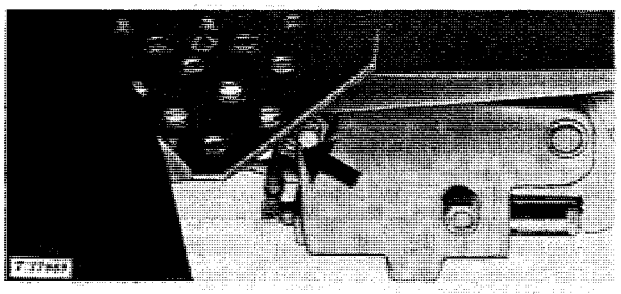
Reverser Control Lever

The reverser control lever is located at the left side of the instrument panel. When the lever is in the forward position, the tractor is in direct drive. When the lever is pulled rearward, the tractor is in reverse drive. It is not necessary to disengage clutch or to shift gears when using the reverser lever.

⚠ CAUTION: The reverser gear ratio is such that reverse speeds are 16 percent higher than their respective forward speeds. Therefore, use care when reversing direction, especially at higher travel speeds.

Reverser Speed-Of-Shift Adjustment

The reverser may be adjusted for a firm rapid shift or for a slower shift.

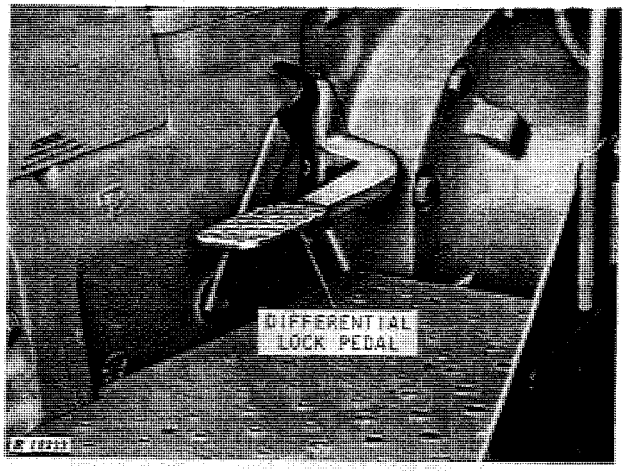


Reverser Speed-Of-Shift Adjusting Screw

The reverser speed-of-shift adjusting screw is located on the rear of the reverser control housing under the right footrest. Turn the adjusting screw clockwise to slow down the shift. Turn the screw counterclockwise to speed up the shift.

NOTE: When the speed-of-shift screw is adjusted properly, the time to complete the shift should be 3/4 to 1-1/4 seconds.

DIFFERENTIAL LOCK



Differential Lock Pedal

Your tractor may be equipped with a differential lock that will turn both rear wheels at the same speed. This prevents the usual loss of power when one wheel is slipping.

⚠ CAUTION: Do not operate the tractor at high speeds or attempt to turn the tractor with the differential lock engaged.

To engage the differential lock, depress the operating pedal located on the left side of transmission case. Unequal traction will keep the lock engaged. When traction is equalized, the pedal will disengage itself by spring action.

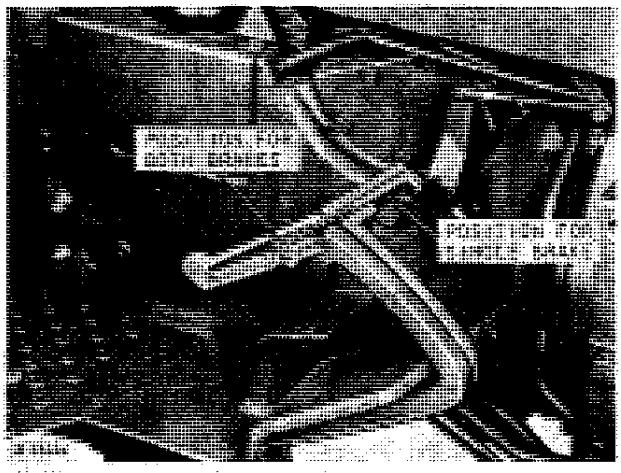
If rear wheels slip, then get traction, then slip again, hold the pedal in the engaged position.

POWER STEERING

The tractor may be equipped with power steering to make steering and control of the tractor easier for the operator. In case of oil pressure failure, the tractor can be steered manually.

HYDRAULIC BRAKES

The tractor is equipped with full hydraulic brakes.



Brake Pedals

To assist in making sharp turns, apply the brakes individually or, to stop the tractor, apply both brakes simultaneously. When traveling at high speeds, couple the pedals together and use a light pressure on the pedals.

⚠ CAUTION: Fast driving causes many accidents. Couple the brake pedals together and always drive at a safe speed.

HYDRAULIC OIL SUPPLY

On tractors without independent PTO avoid prolonged disengagement of the transmission or PTO clutch, which controls transmission oil pump operation. Disengaging the clutch for longer periods reduces the supply of pressure oil for hydraulic functions.

TOWED LOADS

⚠ CAUTION: Towed loads that weigh more than twice the weight of tractor should have brakes. If not, reduce speed and avoid inclines.

FRONT WHEEL TREAD

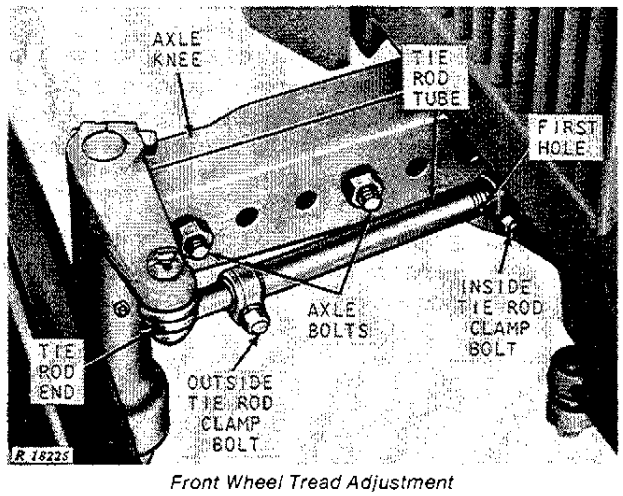
Your tractor may be equipped with an adjustable front axle (heavy duty, straight, or sweptback), or with a fixed-tread heavy duty front axle. The following chart lists the wheel tread ranges for different types of front axles.

Axle Type	Tire Size	Wheel Treads (inches)*
Swept-back (RU)	6.00 - 16	48 to 72-9/16 - 77-11/16 max. with wheels reversed.
	7.5L - 15 7.50 - 16	49-5/8 to 74-3/16 - 77-5/16 max. with wheels reversed.
	9.00 - 10	52 to 69 inches with wheels dished in.
Straight (RU and HU)	6.00 - 16	48 to 74 - 79-1/8 max. with wheels reversed.
	7.5L - 15 7.50 - 16 7.50 - 18	49-5/8 to 75-5/8 - 80-11/16 max. with wheels reversed.
Swept-back (Short Knee)	All (LU and RU)	44 to 61-66 max. with wheels reversed.
Extra wide straight (HU)	6.00 - 16	58-3/8 to 86-3/8 - 91-1/2 max. with wheels reversed.
	7.5L - 15 7.50 - 18	60 to 88-93 max. with wheels reversed.
Extra wide straight (RU)	6.00 - 16	58 to 86-91 max. with wheels reversed.
	7.5L - 15 7.50 - 16	59 to 87-92-1/2 max. with wheels reversed.
Heavy Duty Fixed	7.5L - 15 7.50 - 16	56
	9.5L - 15 ** 11L - 15 **	59
Heavy Duty Adjustable	7.5L - 15 9.5L - 15 ** 11L - 15 ** 7.50 - 16	53 to 73-76 max. with wheels reversed.

** Wheel treads are changed in two-inch steps on regular front axle and four-inch steps on heavy-duty front axle.*

** * Must be used on heavy-duty front axles only.*

Adjustable-Tread Front Axle



Front Wheel Tread Adjustment

To adjust the front axle to give a different wheel tread, raise the front end of tractor just enough to remove the tractor weight from tires. Remove the axle bolts and the outside tie rod clamp bolts.

Slide the axle knees in or out to desired position. Be sure that axle knee and tie rod end are moved the same distance to keep the wheels in correct position. The outside tie rod clamp bolt can only be installed in clamp when "half-circle" notches on bottom side of tie rod end are in line with hole in clamp. The half-circle notches are spaced 1-inch apart to correspond with the 1-inch bolt hole spacing in axle. Heavy-duty front axles use a two-inch spacing on tie rod end to correspond with the two-inch bolt hole spacing in axle. Normally, both axle knees should be positioned an equal distance from the center line of tractor. For maximum service life, the tractor should not be operated for long periods of time with the front wheels reversed, when equipped with the regular front axle.

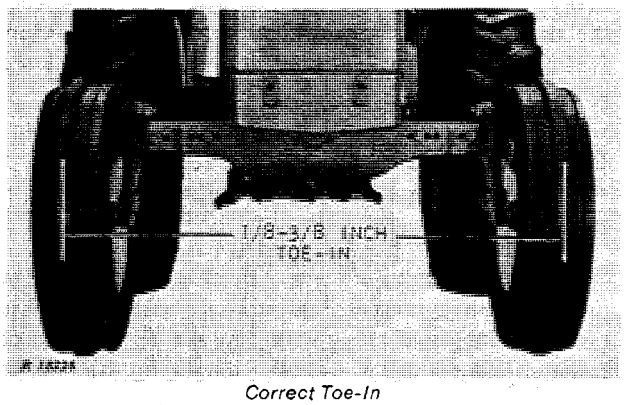
After axle knees have been moved to the desired position, install axle bolts using a 4-inch bolt spacing in maximum tread width position, and a 6-inch bolt spacing in all other positions. Tighten axle bolts to 300 ft-lb torque, and tighten the outside tie rod clamp bolts to 60 ft-lb torque. Check toe-in adjustment.

IMPORTANT: Do not separate axle knees beyond limits given in tread chart on previous page. Do not unscrew threaded portion of tie rod tube beyond second hole. Tractors being operated with heavy front end loads (such as a loader) should not have front wheels reversed.

Fixed-Tread Front Axle

Wheel tread on fixed front axles is determined by the size of tire. Refer to the wheel tread chart on previous page.

Toe-In Adjustment



Correct Toe-In

Toe-in of the front wheels should be 1/8 to 3/8 inch.

To check toe-in, turn the steering wheel until the front wheels point straight ahead, parallel to the center line of the tractor. Measure the distance from tire to tire, first at the front of the tires and then at the rear. Front measurement should be 1/8 to 3/8 inch less than rear measurement.

To adjust, loosen both clamps on each tire rod tube. Turn both tie rod tubes an equal amount until toe-in is correct. Both front wheels must have equal toe-in. Tighten inner and outer tie rod clamps to 55 ft-lb torque.

Front Wheel Retainers

Periodically check the tightness of the front wheel retainer cap screws. If necessary, retighten wheel-to-hub screws evenly to 85 ft-lbs (tires 6.00 -16 or smaller) or 100 ft-lbs (tires larger than 6.00 - 16).

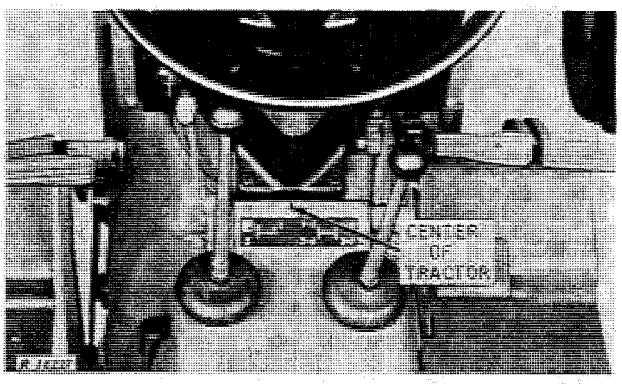
IMPORTANT: During break-in, retighten all front wheel retainers evenly after the first 4 hours and again after 8 hours of operation. Check tightness of retainers frequently during the first 100 hours of operation.

REAR WHEEL TREAD

Rear wheel tread may be varied by changing the rim or wheel position. The method used for changing the wheel tread will depend upon whether the tractor has a rack and pinion or a flanged axle; demountable rim, steel disk, cast, or power adjusted wheels.

The tread ranges also vary with the type of wheel and axle used. Use the chart on the following page for rear wheel tread specifications.

CAUTION: Do not remove fenders to obtain narrower tread settings.



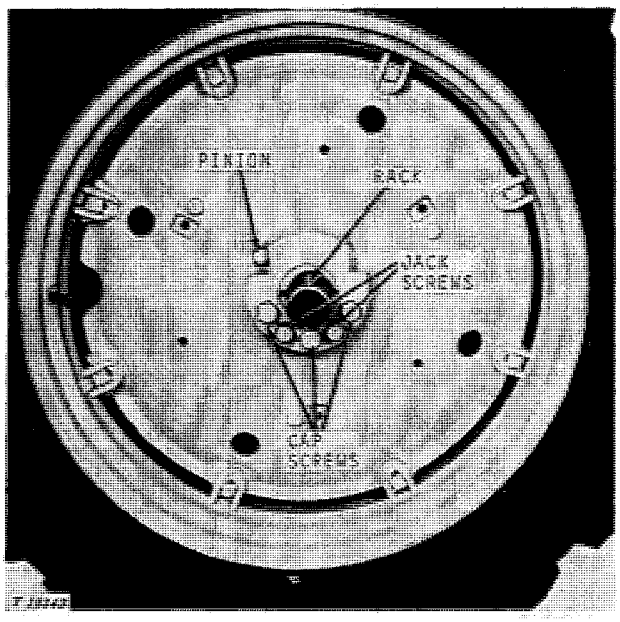
Center of Tractor (Tractor Without Independent PTO Shown)

Measure the distance from the center of the tractor to the center of the rear tire. This distance should be the same for both sides of the tractor, especially on rack and pinion rear axles or power adjusted rear wheels. For tractors with flanged axles, refer to charts given on page 14 and 15.

Tractor	Axle Type	Wheel Type	Possible Tread Range*
RU Models	Flanged	Demountable Rim	48 inches to 76 inches
	Flanged	Steel Disk	60 inches or 64 inches
	Flanged	Cast	50 inches to 78 inches
	Rack and Pinion	Cast	48 inches to 96 inches
	Flanged	Power Adjusted	48 inches to 80 inches
HU Models	Flanged	Cast	50 inches to 78 inches 54 inches to 78 inches (13.6-38 and 15.5-38)
	Rack and Pinion	Cast	50 inches to 96 inches 54 inches to 96 inches (13.6-38 and 15.5-38)
	Flanged	Power Adjusted	56 inches to 80 inches
LU Models	Flanged	Demountable Rim	40 inches to 64 inches
	Flanged	Steel Disk	47 inches or 52 inches

** Due to fender interference, minimum tread width on RU tractors is 50 inches for 13.6 - 28 tires and 52 inches for 16.9 - 24 tires. On HU tractors (with rack and pinion axle) minimum tread is 50 inches for 12.4 - 36 tires and 52 inches for 13.9 - 36 tires. On LU tractors, minimum tread widths are 40 inches for 11.2 - 24 tires and 12.4 - 24 tires, and 48 inches for 14.9 - 24 tires.*

Adjusting Wheel on Rack and Pinion Axle



Rack and Pinion Adjustment

This method of adjustment is accomplished by turning a pinion gear in the wheel hub that engages a rack on the axle. See the illustration. This adjustment may be made with one or two wheel weights installed.

With the rack on the axle up, loosen the three special bolts 3/8 inch. Loosen the tapered sleeve by turning the two jack screws clockwise until the inner edge of the hex. surface is flush with the hub surface. Jack up the tractor and turn the pinion gear to slide the wheel in or out on the axle.

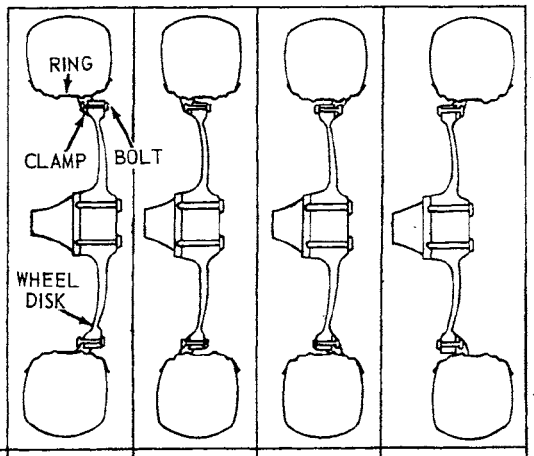
After the desired tread is obtained, back the jack screws all the way out against the stop. Do not force. Lubricate the threads and tighten the special bolts securely (300 ft-lbs torque).

IMPORTANT: Setting the wheel too close to the rear axle housing may damage the pinion when the hub is tightened. Also, be sure that the tire or weights will not rub the tractor. The jack screws must be free to turn after the hub is tightened.

Adjust the other wheel in the same manner. Normally, both wheels are set the same distance from the tractor center line. After a few hours of service, RETIGHTEN the special bolts to required torque and keep them tight.

Changing Rim Position on Wheel (Tractors with Rack and Pinion or Flanged Axle)

The rim is held to the wheel by clamps that engage one of the two raised rings around the inside of the rim. Tread adjustment is varied by bolting the clamps to either side of the wheel or by engaging the clamps to either one of the two raised rings on the rim. This gives four possible rim positions on the wheel.



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DISH IN (Flanged)	50"	58"	54"	62"
DISH IN (Rack & Pin)	52" - 69"	56" - 77"	55" - 76"	63" - 84"
DISH OUT (Flanged)	66"	74"	70"	78"
DISH OUT (Rack and Pin)	61" - 82"	69" - 90"	68" - 89"	76" - 97"

Adjusting Rim Position on Wheel (Flanged Axle Shown)

NOTE: Because of fender interference, minimum tread setting for flanged axle is 52 inches.

To adjust rim position on the wheel, jack up the tractor to relieve weight on the tire. Remove clamps and shift rim or wheel to the desired position. Install the clamps and tighten evenly (170 ft-lbs torque). Be sure the clamps on the wheel driving lugs engage the rim driving lugs (see illustration).

Hammer each bolt head to seat the bolts. Retighten the clamps securely. Adjust both rear wheels in the same manner. After a few hours service, RETIGHTEN the clamps and keep them tight (170 ft-lbs).

Reversing Wheel on Axle (Flanged Axle Only)

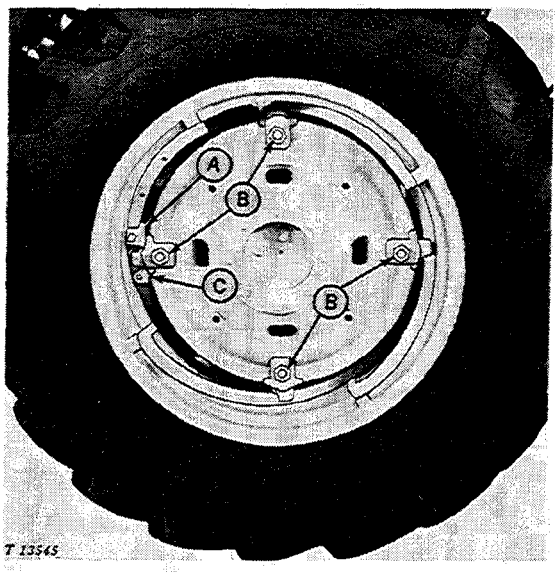
Rear wheel tread may be varied by reversing the dish of the wheels.

Jack up the tractor and remove the complete wheel assembly. Install wheel on opposite axle. This will reverse the dish of the wheel. Tighten wheel-to-axle screws to 130 ft-lbs torque. Be sure to maintain proper direction of tire rotation. After a few hours of service, retighten the wheel and keep it tight.

CAUTION: NEVER operate tractor with a loose wheel, rim, or hub.

Power Adjusted Rear Wheels

Power adjusted rear wheels make it possible to change rear wheel treads by engine power without jacking up the tractor. Tread settings of 52 to 72 inches for tractors with 28-inch rear tires and 56 to 80 inches for tractors with 38-inch rear tires are available in 4-inch steps.



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Power Adjusted Rear Wheels

Adjust tread as follows:

1. Move stop (A) to desired position.

2. Loosen nuts (B) on wheel clamps.

3. Start tractor and shift into forward or reverse gear (to get correct wheel rotation). Brake opposite side and turn wheel until disk spirals on rail and engages stop (A).

4. Move stop (C) against wheel clamp and tighten it securely.

5. Tighten nuts (B) on wheel clamps evenly to 170 ft-lbs torque.

IMPORTANT: Retighten wheel clamps to 170 ft-lbs torque after 8 hours of operation.

6. Adjust tread on second wheel in the same way as above.

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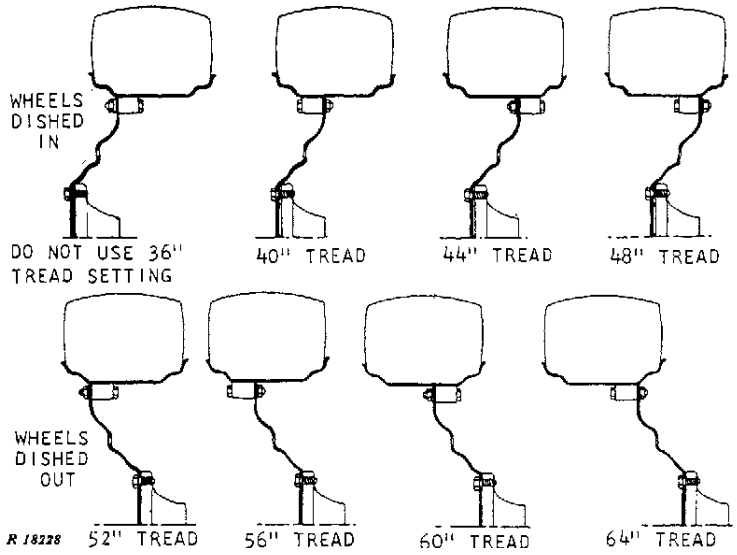
NOTE: If desired, tread adjustment on tractors with 28-inch rear tires can be changed to 56 to 80 inches by reversing wheel on axle. Change wheels from one side of tractor to the other to maintain proper tire rotation. Tighten the wheel disk-to-axle bolts evenly to 130 ft-lbs torque.

Demountable Rim Wheels (LU, RU)

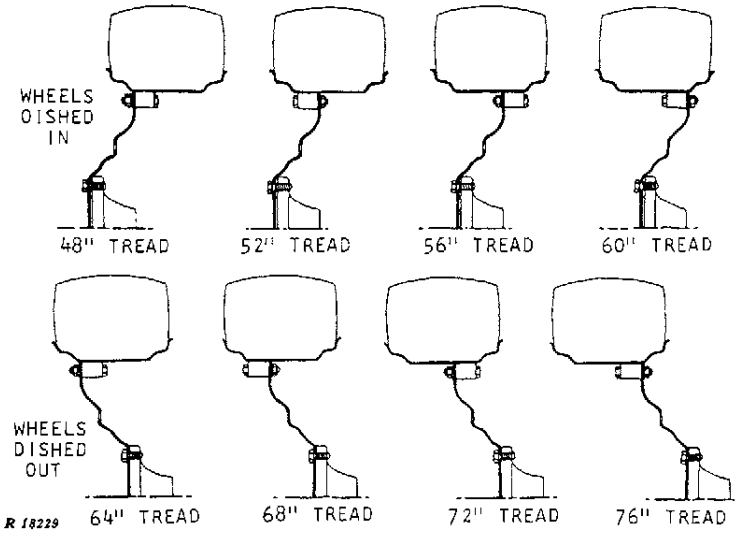
Tread settings in 4-inch steps are obtained by three methods: (1) By dishing the wheel disk inward or outward on the hub, (2) by placing the rim inside or outside the wheel disk, or (3) by reversing the rim.

When reversing the wheel rims, the rims must be changed from one side of the tractor to the other. Tighten the wheel disk-to-axle hub bolts to 100 ft-lb torque, and the rim-to-wheel disk bolts to 170 ft-lb torque.

The relationship of the rear wheel disk and rim in obtaining the different tread settings is shown in the following drawings. Studying these drawings before attempting to change tread settings will save time and unnecessary labor.



Demountable Rim Rear Wheel Tread Settings For LU Tractors



Demountable Rim Rear Wheel Tread Settings For RU Tractors