

2440 AND 2640 TRACTORS



OPERATORS MANUAL 2440 AND 2640 TRACTORS

OMR62127 J8 English

JOHN DEERE TRACTOR WORKS
OMR62127 J8

LITHO IN THE U.S.A.
ENGLISH





To the Purchaser

IMPORTANT WARRANTY INFORMATION

The warranty on this tractor appears on your copy of the purchase order which you should have received from your dealer when making your purchase. This warranty provides you the assurance that John Deere will back its products where defects appear within the warranty period. In some circumstances, John Deere also provides field improvements, often without charge to the customer, even if the product is out of warranty.

Warranty and field improvements are a part of John Deere's product support program for customers who operate and maintain their equipment as described in this manual. Should the equipment be abused, or modified to change its performance beyond the original factory specifications, the warranty will become void and field improvements may be denied. Setting fuel delivery above specifications or otherwise overpowering machines will result in such action.



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.

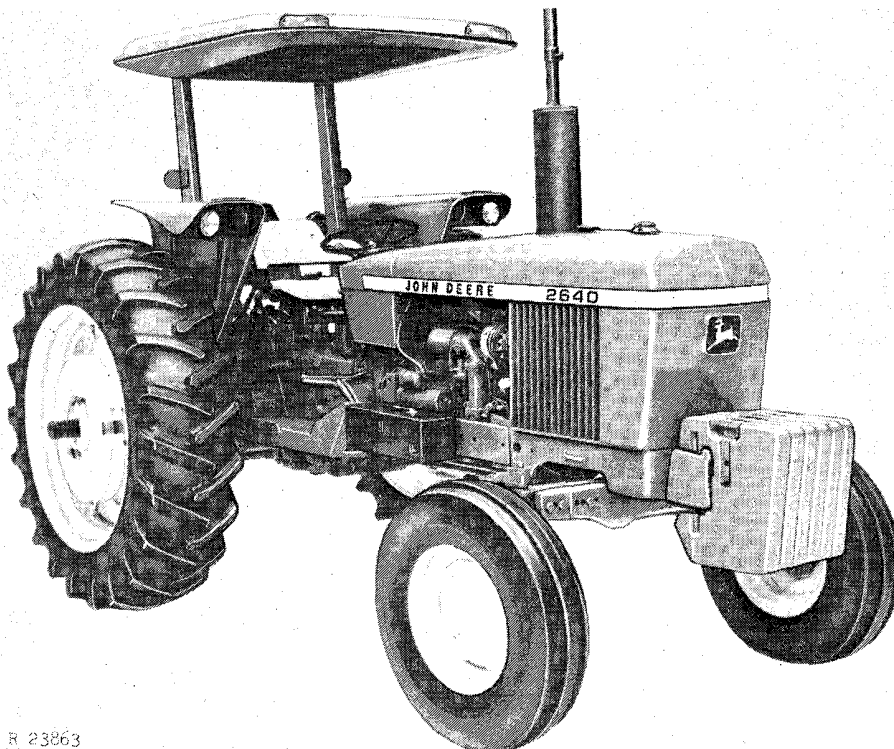


Worldwide symbols are used to assist identification and operation. In this manual, an identifying symbol is placed by the instructions like the example at left for the symbol on the engine oil pressure gauge. The cylinder block in the symbol represents the engine, the drop signifies oil, and the arrows indicate pressure. Regardless of the language used in a nation, this symbol means engine oil pressure without translation.

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

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

Record your tractor serial numbers on page 72. Provide this information to your dealer when ordering parts.



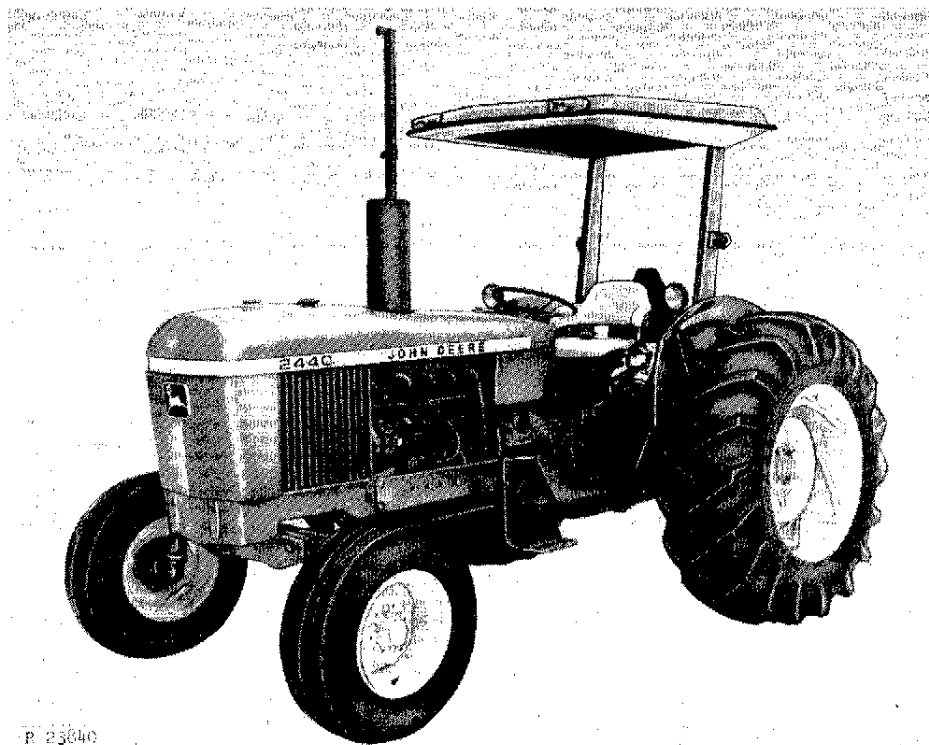
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John Deere 2640 Tractor



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John Deere 2440 Tractor

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Hello dear friend!

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The full manual is available for immediate download.

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Safety

! Power take-off guards, shields, and other safety features are built into the tractor whenever possible. However, investigation of thousands of accidents shows that careless use of machinery causes a high percentage of accidents. You can avoid many accidents by observing the rules for safety given here. Study these rules carefully and insist that they be followed by those working with you and for you.

All power equipment should be operated only by those who are responsible and delegated to do so.

Provide a first-aid kit for use in case of accident.

Reduce speed before turning sharply or applying brakes. Couple the brake pedals together when traveling at high speeds. Brake both wheels simultaneously when making an emergency stop. Always drive slowly over rough ground. Drive at speeds slow enough to insure your safety.

Always keep the tractor in gear when going down steep hills or grades.

Never tow the tractor at high speed.

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

When pulling heavy towed loads at road speeds, use extreme caution and avoid hard applications of the tractor brakes at high speeds. When descending steep grades, select a sufficiently low gear to maintain control with minimum braking.

Keep a firm grip on the steering wheel at all times when the tractor is moving.

Drive slowly on hillsides and curves to minimize danger from tipping.

Do not drive near the edge of a ditch or gully.

Be careful to prevent the tractor from tipping sideways if it strikes a hole, ditch, or other irregularity, especially when operating on hillsides.

When driving out of a ditch or gully or up a steep hillside, engage the clutch slowly. Be prepared to disengage the clutch promptly should the front wheels rise off the ground. Observe the same precautions if the rear wheels become mired in soft ground or drop in a hole. Back the tractor out of these situations.

When hitching a heavy, towed load to the tractor, always hitch to the drawbar. When using a chain, be sure to take up slack in the chain slowly.

**A Careful Operator
IS THE BEST INSURANCE
AGAINST AN ACCIDENT**

Only one person—the operator—should be permitted on the tractor when it is in operation. Never allow a person to ride on drawbar or hitch.

When hitching drawn equipment to the drawbar, back the tractor past the clevis. Then move forward so that, in making the connection, the tractor will be moving away from the equipment.

Before dismounting, stop the tractor, place the transmission in park, lower implements to the ground, and shut off the engine.

Never attempt to start or operate the tractor except from the operator's station.

Never operate the tractor engine in a closed building.

A protective Roll-Gard with seat belt is available for your tractor. A canopy that fits on top of the Roll-Gard is also available.

Under almost all operating conditions:

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

When operating the tractor on a road, use accessory lights and devices for adequate warning to the operators of other vehicles. In this regard, check local governmental regulations. Various safety lights and devices are available from your John Deere dealer.

In areas where flashing lights are prohibited by local regulations, be sure the flasher for warning lamps is disconnected.

When meeting a vehicle on a road at night, dim the tractor headlights. Be sure the lights are adjusted so they will not blind the operator of an oncoming vehicle.

Since loose clothing might catch in moving parts, always keep sleeves, jackets, and other clothing relatively tight.

Always make sure the engine is stopped, the PTO is disengaged, and the PTO shaft is stopped before attempting to connect or adjust the implement hitch or power take-off hook-up or before attempting to clean out a PTO-driven implement.

Remove the PTO master shield only when necessary. Always install the PTO guard on the power take-off when the PTO is not being used. When the PTO is being used, be sure all PTO shields are in place on the tractor and the implement.

Do not oil, grease, adjust, or repair the tractor or implement while it is in motion or while the engine is running—unless specifically recommended.

Poor maintenance or improper adjustment of the tractor or implement may result in a hazardous situation. Follow the recommended procedures and do not ignore items requiring maintenance or tightening.

Before making adjustments on engine or electrical system, disconnect battery ground cable from each battery. This prevents sparks which create a dangerous fire and explosion hazard and may cause damage or personal injury.

Before using booster batteries, read instructions under "additional battery" on page 8. To avoid sparks if a battery needs recharging, turn battery charger off before making connections or disconnections.

Add coolant to the radiator only when the engine is stopped or idling slowly. To avoid being scalded when the pressure-type filler cap is removed, turn the cap slightly to the stop to relieve pressure before removing the cap.

Use caution in handling ether starting fluid or any type of tractor fuel. Never refuel the tractor when the engine is hot or running. Do not smoke while using starting fluid, filling the fuel tank, or servicing the fuel system.

It is a good practice to have a fire extinguisher nearby. Be sure that the extinguisher is properly maintained, and be familiar with its proper use.

Escaping hydraulic oil or diesel fuel 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.

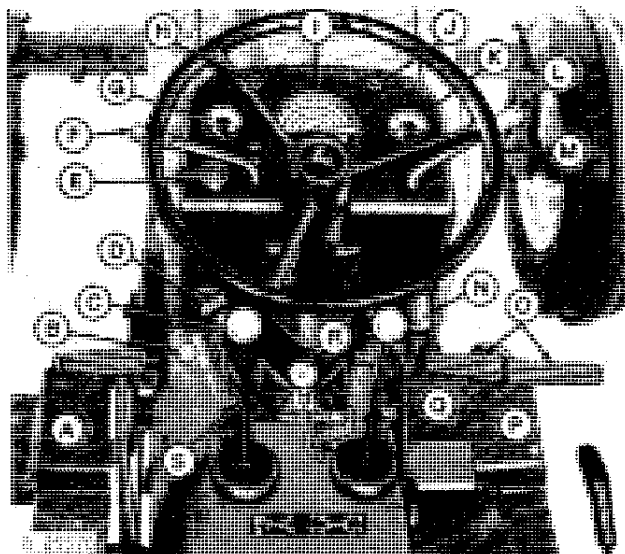
Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks.

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

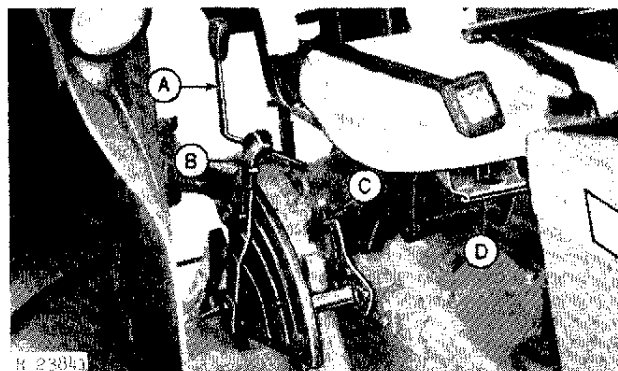


Controls and Instruments

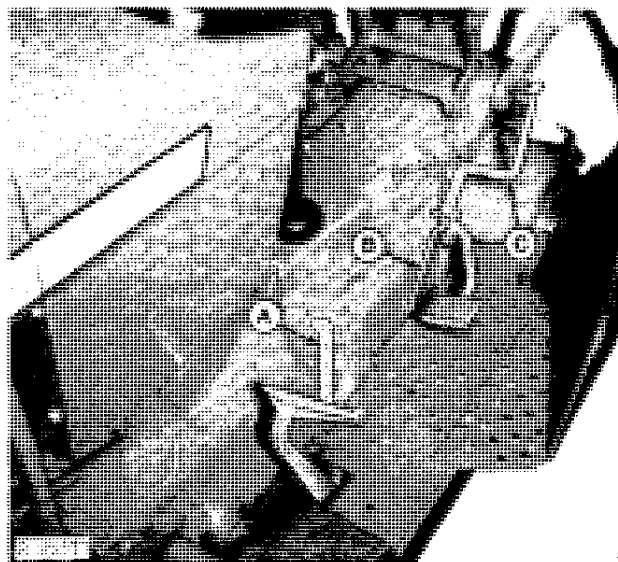
Before attempting to operate your new tractor, become familiar with the location and purpose of its controls and instruments. Additional information will be found on the page number following the control or instrument. Worldwide graphic symbols are used to assist identification and operation.



- A—Clutch Pedal (Page 12)
- B—Engine Stop Knob (Pages 5 and 9)
- C—Key Switch (Page 5)
- D—Light Switch (Page 23)
- E—Turn Signal Lever (Page 23)
- F—Hi-Lo or Reverser Lever (Pages 12 and 13)
- G—Coolant Temperature Gauge (Page 9)
- H—Alternator Indicator Light (Page 5)
- I—Speed-Hour Meter (Page 42)
- J—Oil Pressure Indicator Light (Page 5)
- K—Fuel Gauge
- L—Hand Throttle (Page 8)
- M—Steering Wheel
- N—Ether Starting Fluid Adapter (Page 6)
- O—Brake Pedals (Page 14)
- P—Foot Throttle (Page 8)
- Q—Gear Shift Lever (Page 12)
- R—Independent PTO Lever (Page 37)
- S—Range Shift Lever (Page 12)



- A—Remote Cylinder Operating Levers (Page 31)
- B—Rockshaft Control Lever (Page 25)
- C—Rockshaft Selector Lever (Page 25)
- D—Seat Latch (Page 10)



- A—Mid PTO Lever (Page 37)
- B—Rear PTO Lever (Page 37)
- C—Differential Lock Pedal (Page 14)



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 48.)

Check the radiator coolant level. (See page 48.)

Check fuel filter. If water or sediment is present, remove it. (See page 54.)

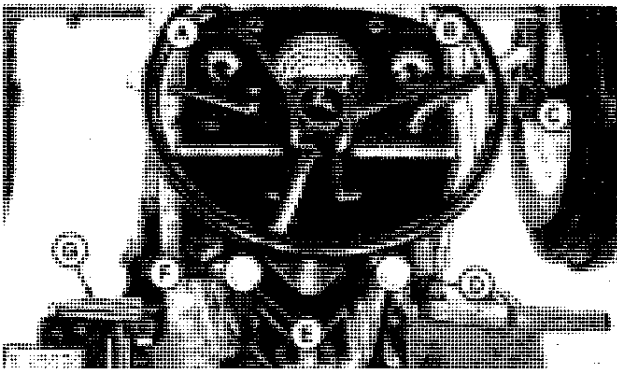
Make sure the fuel shut-off valve on the fuel tank is open. (See page 54.)

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 building.

OPERATING THE ENGINE

STARTING THE ENGINE



A—Alternator Light
B—Oil Pressure Light
C—Hand Throttle
D—Gear Shift Lever

E—Range Shift Lever
F—Key Switch
G—Clutch Pedal

Engine Starting Controls

NOTE: If temperature is below 32°F (0°C), it may be necessary to use a cold weather starting aid to start the engine. (See page 6.)

Perform the Prestarting Checks listed above.



(1) See that the transmission is in PARK (see worldwide symbol at left), the PTO is disengaged, the rockshaft control lever is in lowered position, the remote cylinder operating levers are in neutral, and the engine stop knob is pushed all the way in.

Before the starter will operate, the range shift lever (E) must be in PARK or neutral.

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

(3) Turn the key switch (F) clockwise to the first position.



The alternator indicator light (A) and the oil pressure indicator light (B) should glow. If either light fails to glow, turn off the key switch and determine the cause.

STARTING THE ENGINE—Continued

CAUTION: Before starting the engine, make sure there is plenty of ventilation. Never operate the engine in a closed building.

(4) Turn the key switch all the way to the right to start the engine. Do not operate the starter more than 30 seconds at a time. To do so may overheat the starter. If the engine does not start the first time, wait at least two minutes 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 turning 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. Doing so may damage the clutches.

Before starting the tractor by towing, see page 13.

(5) As soon as engine starts, release key switch. 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 10 seconds, the engine should be shut off at once and the cause 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.

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

Ether Starting Fluid Adapter



A—Adapter

B—Key Switch

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.

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 (A) and position the can under the adapter.

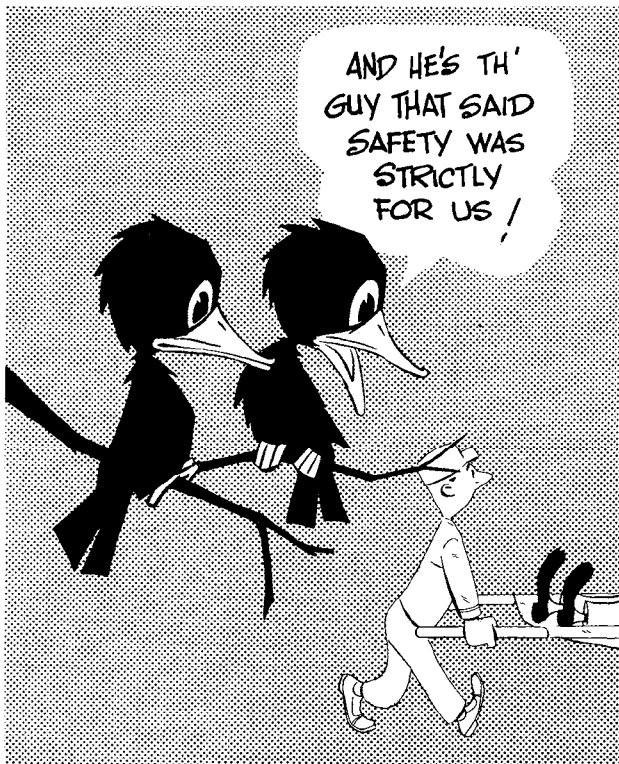
To inject a shot of starting fluid, momentarily push up on the can.

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.

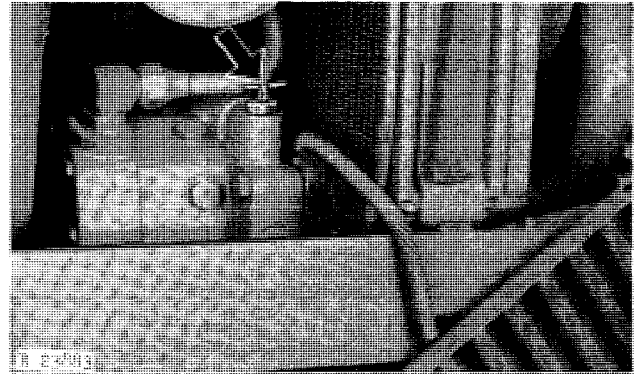
Be sure to install the cap on the adapter when it is not in use. This will prevent dust from being drawn into the engine.

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



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Hydraulic Pump Shut-Off



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 destroying the hydraulic pump so it will not build up pressure. To destroy the pump, 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.

Connect a jumper cable to the POSITIVE (+) post of a 12-volt booster battery and to the POSITIVE (+) post of the tractor battery. Connect one end of the other jumper cable to the negative post of the booster battery and to a good ground on the tractor frame away from the battery. Never connect jumper cables to pipes or thin sheet metal.

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 than 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 idling longer than 10 minutes, it is usually best to stop the engine.

ENGINE SPEEDS

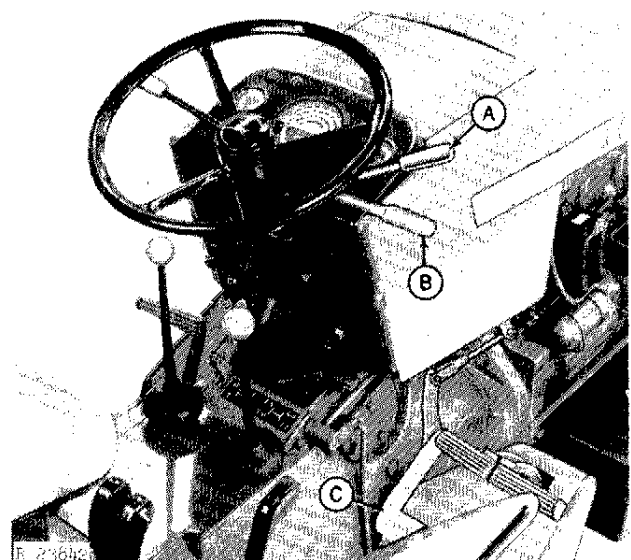
The tractor engine is designed to operate at working speeds ranging from 1500 to 2500 rpm. The engine can be operated at any speed in the working range to meet various operating conditions. Operate the engine at 2100 rpm to obtain the ASAE Standard PTO speeds.

IMPORTANT: Never exceed 2415 engine rpm when PTO is engaged.

Normal slow idle speed is approximately 800 rpm.

The engine speed of 2500 rpm is the speed when under full load. At light or no load condition, the speed may rise to approximately 2660 rpm. (See page 50 for no-load engine speeds.)

Hand Throttle



A—800 rpm position
B—2500 rpm position

C—Foot Throttle

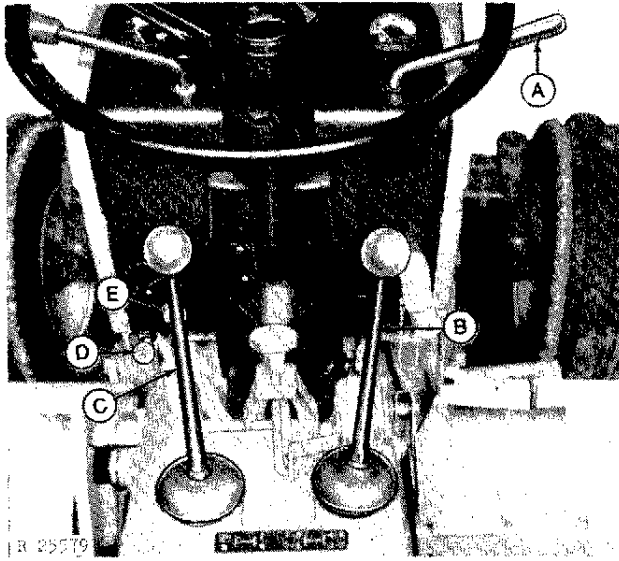
Use the hand throttle to select any desired engine speed between slow idle and fast idle. Push hand throttle lever upward to reduce engine speed; pull lever downward to increase engine speed.

Foot Throttle

The foot throttle (C) 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



A—Hand Throttle
B—Gear Shift Lever
C—Range Shift Lever
D—Engine Stop Knob
E—Key Switch

Engine Stopping Controls

Stop the engine as follows:

Move the gear shift lever (B) into any gear position (not neutral); then place the range shift lever (C) 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.

After idling the engine a few minutes, move the hand throttle (A) to the slow idle position and pull the engine stop knob (D) all the way out. After the engine stops, release the stop knob. The knob should move all the way in. Turn the key switch (E) off.

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

Before dismounting, be sure all equipment is lowered to the ground, the light switch and other accessory switches are off, and the transmission is in PARK.

BREAKING IN THE ENGINE



If the coolant temperature rises to the warning zone 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 facilitate break-in, avoid prolonged periods of engine idling during the first 100 hours of service.

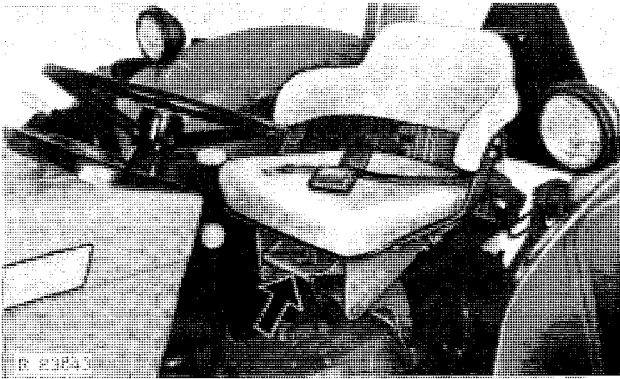


OPERATING THE TRACTOR

SEAT

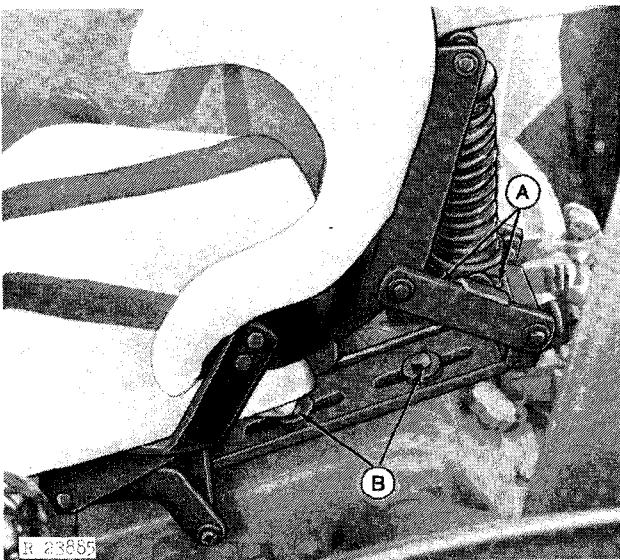
Your tractor is equipped with a deluxe cushioned seat. The seat is adjustable for the operator's height and weight, and it folds back for standing.

Moving Seat to Upper Rear Position



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.

Adjusting for Height and Weight of Operator



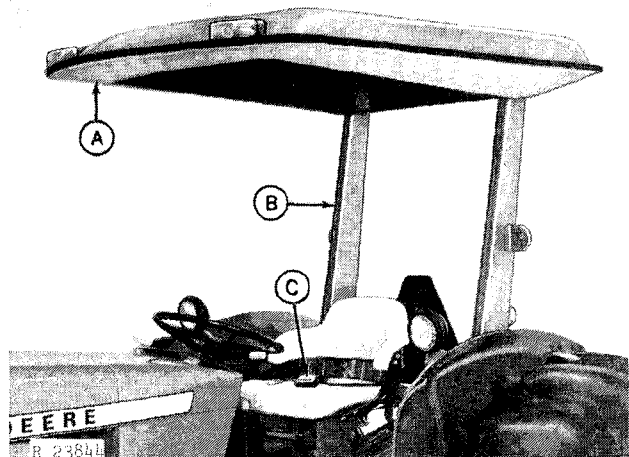
A—Weight Adjustment

B—Height Adjustment

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

The deluxe seat is adjustable for operators weighing from 100 to 300 pounds (45 to 135 kg). To adjust, move the seat to the upper rear position to take tension off the spring. Loosen the wing nuts (A) under the weight adjustment link, and move slide to desired weight position. Tighten wing nuts and return seat to the normal position.

ROLL-GARD, SEAT BELT, AND CANOPY



A—Canopy
B—Roll-Gard

C—Seat Belt

A protective Roll-Gard (B) with seat belt (C) is available for your tractor. A canopy (A) that fits on top of the Roll-Gard is also available.

See page 64 for additional information.



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 (sixteen forward and eight reverse speeds if tractor has the Hi-Lo shift option). The wide range of speeds, together with the variable speed engine, allow the operator to balance load and speed to maximum economy, and give the operator 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.

TRACTOR GROUND SPEED IN MILES PER HOUR (KILOMETRE PER HOUR)

NOTE: The travel speeds shown are for tractors with 16.9-28 or 18.4-30** rear tires. Speeds would be 4% slower with 13.6-38 tires, 3% slower with 14.9-28* tires, 3% faster with 15.5-38 tires, 9% slower with 16.9-24 tires, 5% slower with 16.9-30 tires, and 2% faster with 18.4-26 tires. Differential drive ratio is different for tractors equipped with 30 or 38-inch rims.

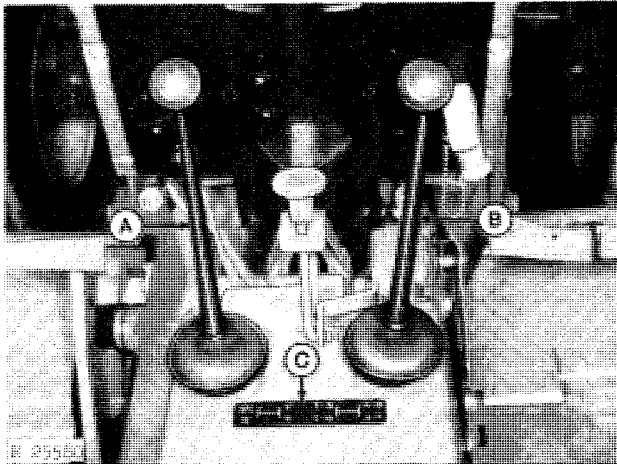
Gear	Collar Shift Transmission						2500 rpm
	Lo of Hi-Lo Shift Option			Hi of Hi-Lo Shift Option			
	1500 rpm	2100 rpm	2500 rpm	1500 rpm	2100 rpm	2500 rpm	
2440 Tractor							
1st	0.7 (1.2)	1.0 (1.6)	1.2 (1.9)	0.9 (1.5)	1.3 (2.1)	1.5 (2.5)	
2nd	1.0 (1.7)	1.4 (2.3)	1.7 (2.8)	1.3 (2.1)	1.8 (3.0)	2.2 (3.5)	
3rd	1.5 (2.5)	2.1 (3.4)	2.6 (4.1)	1.9 (3.1)	2.7 (4.4)	3.2 (5.2)	
4th	2.1 (3.4)	3.0 (4.8)	3.6 (5.7)	2.7 (4.4)	3.8 (6.1)	4.5 (7.3)	
5th	2.8 (4.6)	4.0 (6.4)	4.7 (7.6)	3.6 (5.8)	5.0 (8.1)	6.0 (9.7)	
6th	4.0 (6.5)	5.7 (9.1)	6.7 (10.8)	5.1 (8.3)	7.2 (11.6)	8.6 (13.8)	
7th	6.0 (9.6)	8.4 (13.5)	9.8 (16.1)	7.6 (12.3)	10.7 (17.2)	12.7 (20.4)	
8th	8.4 (13.5)	11.7 (18.9)	14.0 (22.5)	10.7 (17.2)	14.9 (24.0)	17.8 (28.6)	
R1	0.8 (1.4)	1.2 (1.9)	1.4 (2.3)	1.1 (1.7)	1.5 (2.4)	1.8 (2.9)	
R2	1.2 (1.9)	1.7 (2.7)	2.0 (3.2)	1.5 (2.5)	2.1 (3.4)	2.5 (4.1)	
R3	1.8 (2.9)	2.5 (4.0)	3.0 (4.8)	2.3 (3.6)	3.2 (5.1)	3.8 (6.1)	
R4	2.5 (4.0)	3.5 (5.6)	4.1 (6.7)	3.2 (5.1)	4.4 (7.1)	5.3 (8.5)	
2640 Tractor							
1st	0.7 (1.2)	1.0 (1.7)	1.2 (2.0)	0.9 (1.5)	1.3 (2.1)	1.6 (2.5)	
2nd	1.1 (1.7)	1.5 (2.4)	1.8 (2.8)	1.3 (2.1)	1.9 (3.0)	2.2 (3.6)	
3rd	1.6 (2.5)	2.2 (3.5)	2.6 (4.2)	2.0 (3.2)	2.8 (4.5)	3.3 (5.3)	
4th	2.2 (3.5)	3.1 (4.9)	3.6 (5.8)	2.8 (4.5)	3.9 (6.2)	4.6 (7.4)	
5th	2.6 (4.2)	3.6 (5.8)	4.3 (6.9)	3.3 (5.3)	4.6 (7.4)	5.5 (8.8)	
6th	3.7 (5.9)	5.2 (8.3)	6.2 (9.9)	4.7 (7.6)	6.6 (10.6)	7.9 (12.6)	
7th	5.5 (8.8)	7.7 (12.4)	9.2 (14.7)	6.7 (11.2)	9.8 (15.7)	11.6 (18.7)	
8th	7.7 (12.3)	10.7 (17.2)	12.8 (20.5)	9.8 (15.7)	13.7 (22.0)	16.3 (26.1)	
R1	0.9 (1.4)	1.2 (2.0)	1.4 (2.3)	1.1 (1.7)	1.5 (2.4)	1.8 (2.9)	
R2	1.2 (2.0)	1.7 (2.7)	2.0 (3.3)	1.6 (2.5)	2.2 (3.5)	2.6 (4.2)	
R3	1.8 (2.9)	2.5 (4.1)	3.0 (4.8)	2.3 (3.7)	3.2 (5.2)	3.8 (6.2)	
R4	2.5 (4.1)	3.5 (5.7)	4.2 (6.8)	3.2 (5.2)	4.5 (7.2)	5.4 (8.6)	

Maximum travel speed at 2800 rpm (obtained with foot throttle) is 19.8 mph (32.0 km/h) for the 2440 and 18.2 mph (29.3 km/h) for the 2640. For standard PTO speed, run the engine at 2100 rpm.

*2440 tractors only;

**2640 tractors only

SHIFTING GEARS



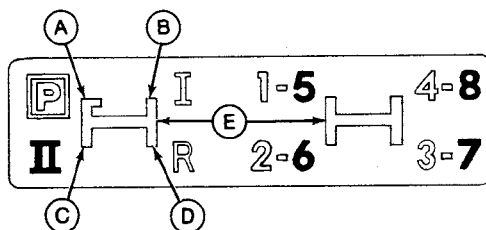
A—Range Shift Lever
B—Gear Shift Lever

C—Shift Pattern

Gear shifting is controlled by a range shift lever (A) and a gear shift lever (B).

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

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 or 5th, 6th, 7th, and 8th gears when the range shift lever is in high range position. (See shift pattern below.) When the range shift lever is in reverse range, reverse gears comparable to 1st, 2nd, 3rd, and 4th can be obtained. On tractors with a reverser, the range shift lever does not have an R position.



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A—Park
B—Low Range
C—High Range

D—Reverse Range
E—Neutral

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.

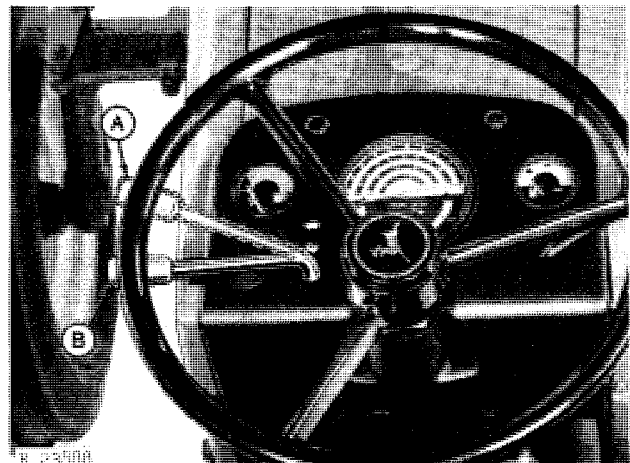
When shifting from one gear to another or one range to another, fully stop the tractor and depress the clutch before moving the shift lever.

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.

HI-LO SHIFT

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



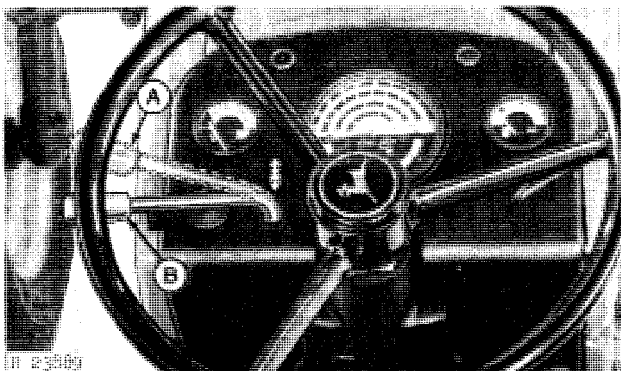
A—Low

B—High

Shifting from Hi to Lo decreases the ground travel speed 21.4 percent and provides up to 27.3 percent increase in pull power in any of the transmission speeds. Shifting the Hi-Lo provides approximately the same speed and pull power change as manually shifting one gear in the transmission.

REVERSER

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



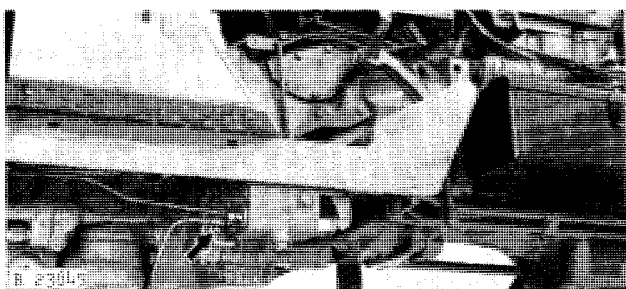
A—Forward

B—Reverse

The reverser control lever is located at the left side of the instrument panel. When the lever is in the forward position (A), the tractor is in direct drive. When the lever is pulled rearward (B), 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 higher than forward speeds. Therefore, use care when changing 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.

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.

HIGH SPEED DRIVING

Use 8th gear to save time when driving on highways or other smooth roads. But - BE CAREFUL! On rough ground, shift to a lower gear for safety.

CAUTION: Fast driving causes many accidents. Couple the brake pedals together and always drive at a safe speed. Do not allow tractor to coast downhill. Always keep clutch engaged and transmission in gear.

PARKING THE TRACTOR

To park the tractor, completely stop the tractor. Move the gear shift lever into any gear position (not neutral). Then move the range shift lever into park (P) position.

To shift from park, first move the range shift lever slightly to the left, and then pull the lever back into neutral.

If the tractor is parked on a steep incline, place the gear shift lever in the 1-5 gear position to facilitate shifting out of park.

TOWING THE TRACTOR

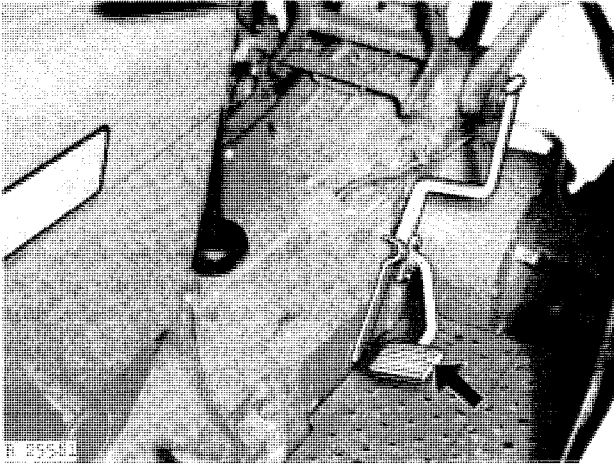
CAUTION: Never tow the tractor at a speed greater than 15 miles per hour (24 kilometres per hour).

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.

DIFFERENTIAL LOCK



Your tractor is 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 repeatedly slip, then get traction, then slip again, hold the pedal in the engaged position.

IMPORTANT: To prevent damage to the final drive, do not engage the differential lock when the tractor is stopped and one wheel is spinning.

A hand lever is attached to the differential lock pedal. You can use the hand lever to engage the differential lock while keeping your foot free for the clutch pedal.

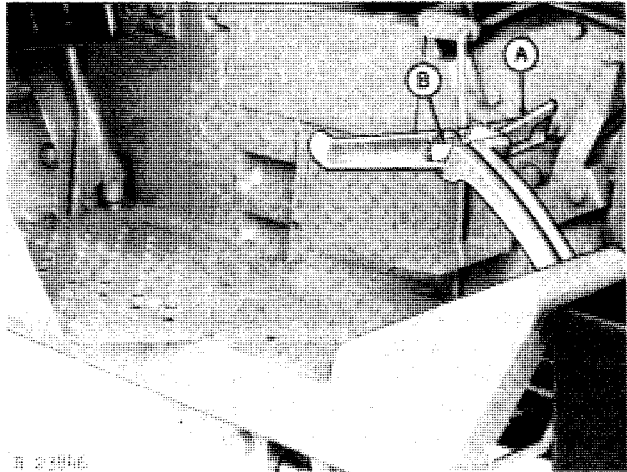
POWER STEERING

The tractor is 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.

To assist in making sharp turns, apply the brakes individually. 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.



A—Position for Individual Brakes
B—Position for Both Brakes

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

TOWED LOADS

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

HYDRAULIC OIL SUPPLY

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

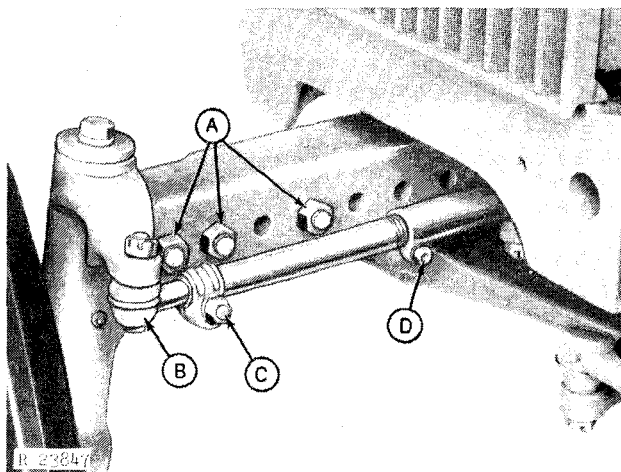
FRONT WHEEL TREAD

Your tractor may be equipped with a heavy-duty, straight, or swept-back adjustable front axle. The chart on page 15 lists the wheel tread ranges for different types of front axles.

Axle Type	Tire Size	Wheel Treads
Swept-back	6.00-16	49 to 74 inches
	7.5L-15	(1.24 to 1.88 m)*
	7.50-16	79 inches (2.00 m) maximum with wheels reversed
	27/9.5-15	50 to 75 inches (1.27 to 1.90 m)*
Extra wide straight	6.00-16	60 to 88 inches
	7.5L-15	(1.52 to 2.24 m)**
	7.50-16	93 inches (2.36 m) maximum with wheels reversed
Heavy-duty straight adjustable	7.5L-15	53 to 73 inches
	7.50-16	(1.35 to 1.85 m)**
	9.5L-15	
	11L-15	55 to 75 inches (1.40 to 1.91 m)**

*Adjustable in 1.89-inch (4.8 cm) steps.

**Adjustable in 2-inch (5.1 cm) steps.



A—Axle Bolts
B—Tie Rod End

C—Outside Tie Rod Clamp
D—Inside Tie Rod Clamp

To adjust the front axle tread, raise the front end of tractor just enough to remove the tractor weight from tires. Remove the axle bolts (A) and the outside tie rod clamp bolts (C).

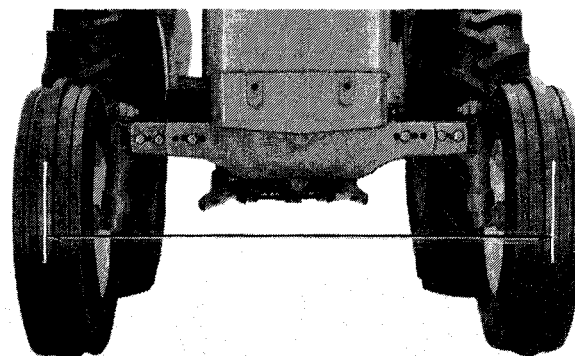
Slide the axle knees in or out to desired position. Be sure that axle knee and tie rod end (B) are moved the same distance to keep the wheels in correct position. The outside tie rod clamp bolt can be installed in clamp only when "half-circle" notches on bottom side of tie rod end are in line with hole in clamp. The half-circle notches are spaced 1-inch (2.5

cm) apart to correspond with the 1-inch (2.5 cm) bolt hole spacing in axle. Heavy-duty front axles use a two-inch (5 cm) spacing on the tie rod end to correspond with the two-inch (5 cm) bolt hole spacing in axle. Normally, both axle knees should be positioned an equal distance from the center line of tractor.

After axle knees have been moved to the desired position, install axle bolts using a 4-inch (10 mm) bolt spacing in maximum tread width position, and a 6-inch (15 cm) bolt spacing in all other positions. Tighten axle bolts to 300 ft-lbs (406 Nm) torque, and tighten the outside tie rod clamp bolts to 55 ft-lbs (75 Nm) torque. Check toe-in adjustment.

IMPORTANT: Do not separate axle knees beyond limits given in tread chart at left. 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.

Toe-In Adjustment



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Toe-In Measurement

Toe-in of the front wheels should be 1/8 to 3/8 inch (3 to 9 mm).

To check toe-in, steer the front wheels straight ahead. 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 (3 to 9 mm) less than rear measurement.

To adjust, loosen both clamps on each tie 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 tie rod clamps to 35 ft-lbs (47 Nm) torque and outer tie rod clamps to 55 ft-lbs (75 Nm) torque.

Front Wheel Retainers

Periodically check the tightness of the front wheel-to-hub cap screws. If necessary, retighten wheel-to-hub screws evenly to 100 ft-lbs (136 Nm).

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.

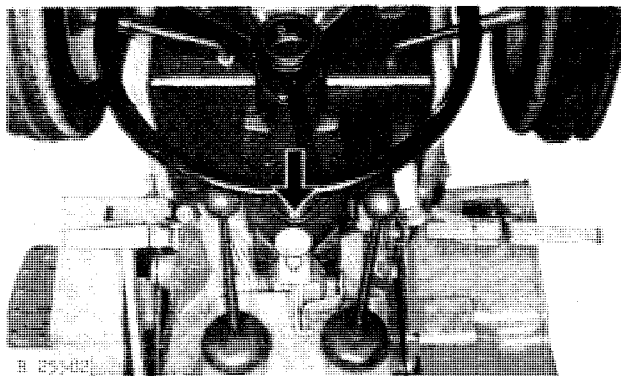
REAR WHEEL TREAD

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

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 charts on the following pages for rear wheel tread specifications.

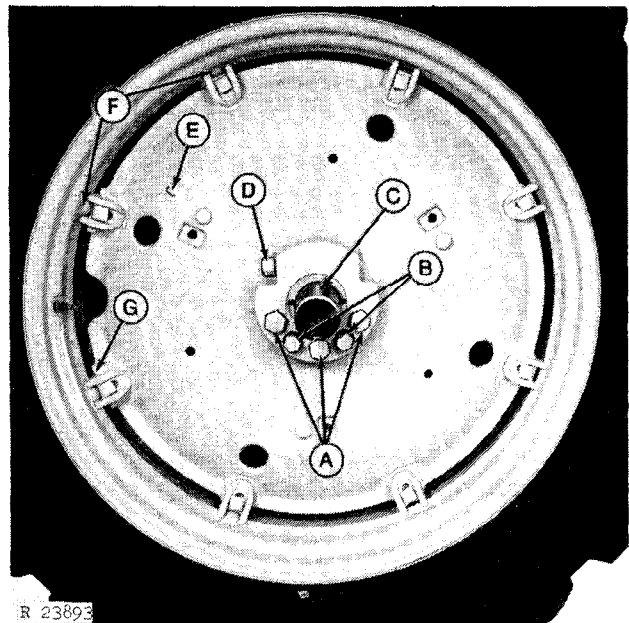
CAUTION: Do not remove fenders to obtain narrower tread settings.



Center of Tractor

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.

Adjusting Wheel on Rack and Pinion Axle



A—Special Bolts
B—Jack Screws
C—Rack
D—Pinion

E—Weight Reference Mark
F—Rim Driving Lugs
G—Wheel Driving Lugs

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

Clean the axle surface with a steel brush to aid in retightening of sleeves.

With the rack on top of the axle, loosen the three special bolts (A) 3/8 inch (10 mm). Loosen the tapered sleeve by turning the two jack screws (B) 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.

If the sleeve does not break loose with a normal amount of pressure (approximately 200 ft-lbs [271 Nm]), strike the end of the axle several times with a heavy hammer. Then evenly retighten the jack screws. Continue this procedure until the sleeve loosens. Do not strike the end of the axle after the sleeve has loosened.



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IMPORTANT: Tires or weights should have at least one inch (2.5 cm) clearance with the fenders. Setting the wheels too close to the rear axle housing may damage the pinion when the hub is tightened. To avoid this, adjust the wheel to the innermost position until the pinion contacts the end of the rack. Then back up until the wheel has moved outward at least 1/8-inch (3 mm) or more if needed for fender clearance. Rack on axle must be up.

After the desired tread is obtained, back the jack screws all the way out against the stop. Do not force. Lubricate the threads and evenly tighten the special bolts to 300 ft-lbs (407 Nm) torque. Retighten bolts several times until all three bolts stay tightened to 300 ft-lbs (407 Nm) torque. The jack screws must be free to turn after the hub is tightened. If necessary, back the jack screws out a little farther and retighten special bolts.

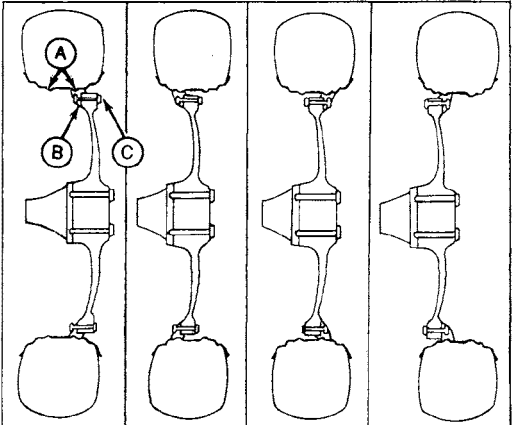
Adjust the other wheel in the same manner. Normally, both wheels are set the same distance from the tractor center line. AFTER driving tractor approximately 20 revolutions of the wheel and BEFORE working, retighten the special bolts to 300 ft-lbs (407 Nm) torque. After working tractor approximately 3 hours and again at 10 hours, retighten the special bolts and keep them tight.

Changing Rim Position on Cast Wheel

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

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 [231 Nm] torque). Be sure the clamps on the wheel driving lugs engage the rim driving lugs. (See illustration on page 16.)

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, **RE-TIGHTEN** the clamps and keep them tight (170 ft-lbs [231 Nm]).



	50" (1.27 m)	58" (1.47 m)	54" (1.37 m)	62" (1.57 m)
(D)	50" (1.27 m)	58" (1.47 m)	54" (1.37 m)	62" (1.57 m)
(E)	50" - 68" (1.27-1.73 m)	56" - 76" (1.42-1.93 m)	55" - 75" (1.40-1.91 m)	63" - 83" (1.60-2.11 m)
(F)	66" (1.68 m)	74" (1.88 m)	70" (1.78 m)	78" (1.98 m)
(G)	65" - 81" (1.65-2.06 m)	73" - 89" (1.85-2.26 m)	72" - 88" (1.83-2.24 m)	80" - 96" (2.03-2.44 m)

A—Rim Rings
B—Clamp
C—Bolt
D—Dish In (Flanged Axle)

E—Dish In (Rack & Pinion Axle)
F—Dish Out (Flanged Axle)
G—Dish Out (Rack & Pinion Axle)

Adjusting Rim Position on Cast Wheel
(Flanged Axle Shown)

NOTE: To prevent interference with the fenders, minimum tread is 54 inches (1.37 m) for 13.6 and 15.5 tires, and 58 inches (1.47 m) for 16.9 and 18.4 tires. With a Roll-Gard installed, minimum tread widths are 4 inches (10 cm) more.

Reversing Cast Wheel on Axle

Rear wheel tread may be changed 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 and maintain the proper direction of tire rotation.

On a flanged axle, tighten the wheel-to-axle screws to 130 ft-lbs (176 Nm) torque. Retighten the wheels after a few hours of service and keep them tight.

On a rack and pinion axle, tighten the special bolts to 300 ft-lbs (407 Nm) torque using the same tightening and retightening procedure described previously.

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