

# **JOHN DEERE 4000 AND 4020 TRACTORS (SERIAL NO. 250,001- )**



## **OPERATORS MANUAL JOHN DEERE 4000 AND 4020 TRACTORS (SERIAL NO. 250,001- )**

OMR48273 H1    English

**JOHN DEERE TRACTOR WORKS  
OMR48273 H1**

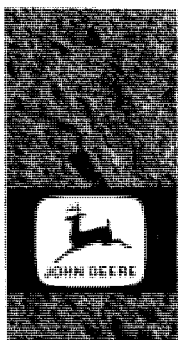
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# CONTENTS

|                                            | Page |
|--------------------------------------------|------|
| SPECIFICATIONS . . . . .                   | 2    |
| CONTROLS AND INSTRUMENTS . . . . .         | 4    |
| OPERATION . . . . .                        | 5    |
| SAFETY RULES . . . . .                     | 44   |
| FUELS AND LUBRICANTS . . . . .             | 46   |
| LUBRICATION AND PERIODIC SERVICE . . . . . | 50   |
| SERVICE . . . . .                          | 61   |
| TRACTOR CAB . . . . .                      | 78   |
| TRACTOR STORAGE . . . . .                  | 82   |
| TROUBLE SHOOTING . . . . .                 | 83   |
| INDEX . . . . .                            | 90   |

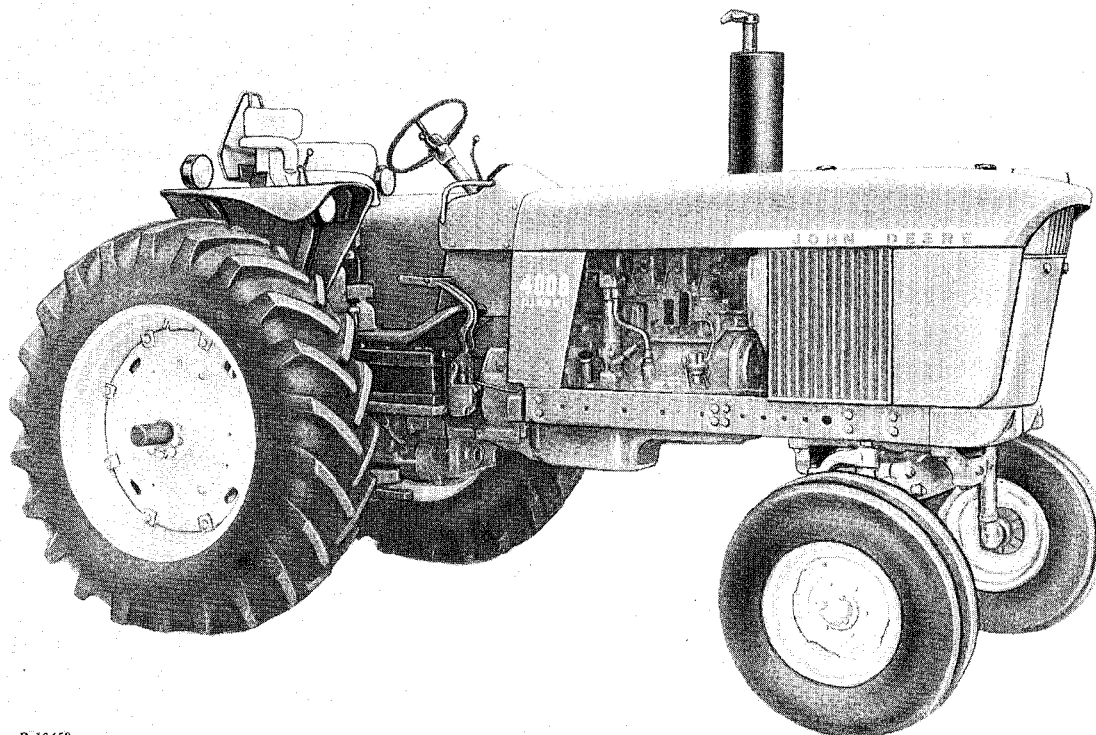


# SPECIFICATIONS

|                                           | Diesel                    | Gasoline                           | LP-Gas                |
|-------------------------------------------|---------------------------|------------------------------------|-----------------------|
| <b>HORSEPOWER (Measured at the PTO):</b>  |                           |                                    |                       |
| 4020 with Syncro-Range Transmission ..... | 94.88 h.p.*               | 96.66 h.p.*                        | 96 h.p.**             |
| 4020 with Power Shift Transmission .....  | 95.83 h.p.*               | 95.66 h.p.*                        | 95 h.p.**             |
| 4000 Tractor .....                        | 96.89 h.p.*               | 96 h.p.**                          |                       |
| <b>ENGINE:</b>                            |                           |                                    |                       |
| Type .....                                |                           | 6-cylinder, in-line, valve-in-head |                       |
| Engine speeds:                            |                           |                                    |                       |
| Normal slow idle .....                    | 800 rpm                   | 800 rpm                            | 800 rpm               |
| Working range .....                       | 1500 to 2200 rpm          | 1500 to 2200 rpm                   | 1500 to 2200 rpm      |
| Maximum transport speed .....             | 2500 rpm                  | 2500 rpm                           | 2500 rpm              |
| Bore and stroke .....                     | 4-1/4 in. x 4-3/4 in.     | 4-1/4 in. x 4-1/4 in.              | 4-1/4 in. x 4-1/4 in. |
| Displacement .....                        | 404 cu. in.               | 362 cu. in.                        | 362 cu. in.           |
| Compression ratio .....                   | 17.0 to 1                 | 7.75 to 1                          | 9.0 to 1              |
| Firing order .....                        | 1-5-3-6-2-4               | 1-5-3-6-2-4                        | 1-5-3-6-2-4           |
| Intake valve clearance .....              | 0.018 in.                 | 0.015 in.                          | 0.015 in.             |
| Exhaust valve clearance .....             | 0.018 in.                 | 0.028 in. (hot)                    | 0.028 in. (hot)       |
| Injection pump timing .....               | TDC                       |                                    |                       |
| Distributor timing (at 2000 rpm) .....    |                           | 20° BTDC                           | 25° BTDC              |
| Distributor point gap .....               |                           | 0.022 in.                          | 0.022 in.             |
| Spark plug gap .....                      |                           | 0.025 in.                          | 0.015 in.             |
| <b>ELECTRICAL SYSTEM:</b>                 |                           |                                    |                       |
| Electrical system voltage .....           | 12 volts                  | 12 volts                           | 12 volts              |
| Batteries (see page 72) .....             | Two (connected in series) | One                                | One                   |

\*Maximum observed horsepower at 2200 engine rpm in official tests.

\*\*Factory observed horsepower.



R 16459

John Deere 4000 Row-Crop Tractor with Diesel Engine and Syncro-Range Transmission

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Hello dear friend!

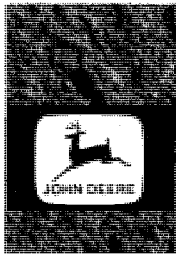
Thank you very much for reading.

Enter the link into your browser.

The full manual is available for immediate download.

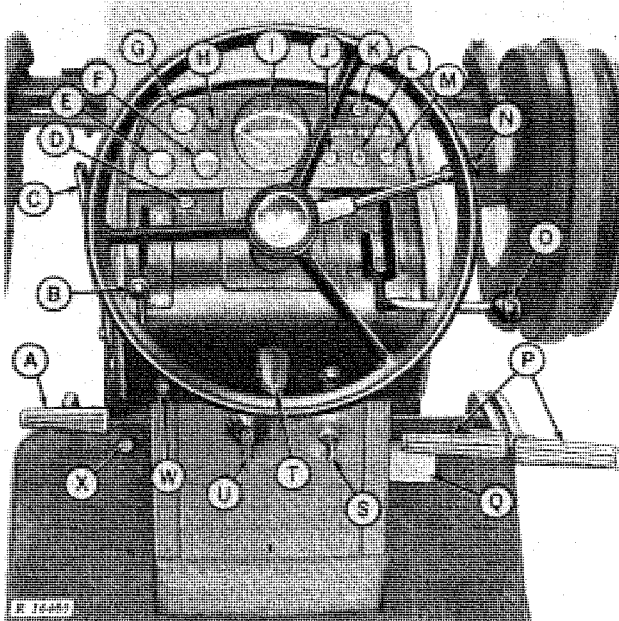
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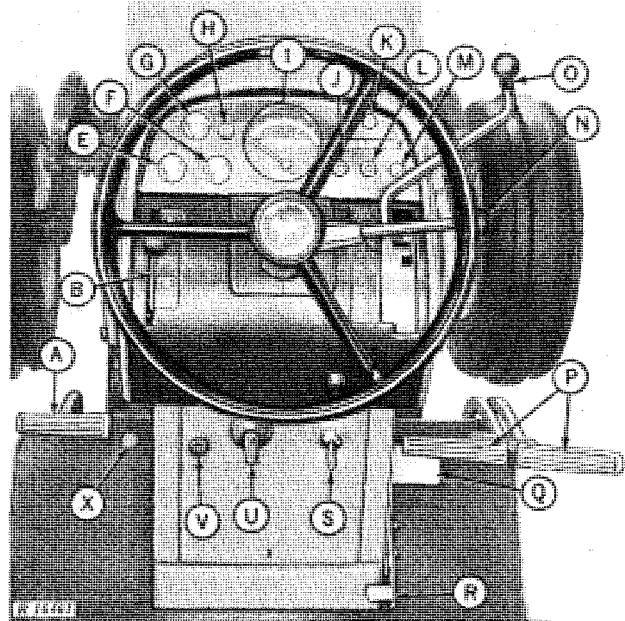
# CONTROLS AND INSTRUMENTS

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. See the inside back cover of this manual.

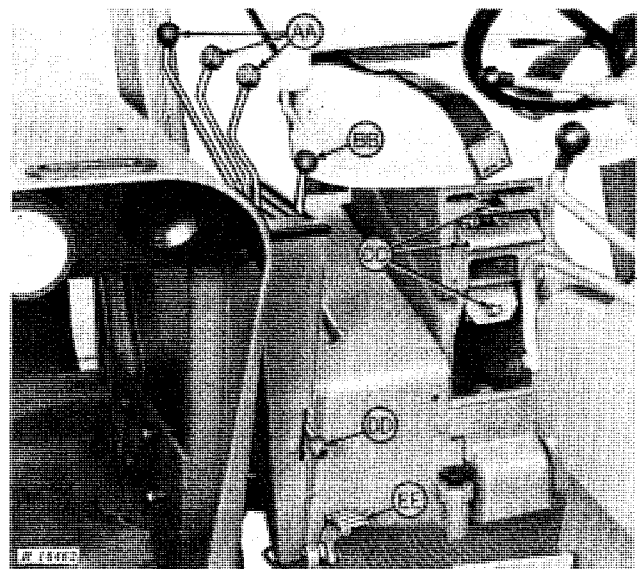


*Tractor with Diesel Engine and Power Shift Transmission*

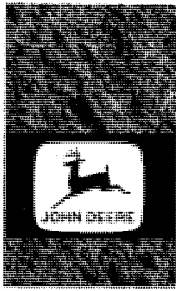
- A - Clutch Pedal (Syncro-Range Tractors, page 13)
- B - Power Take-Off Clutch Lever (page 41)
- C - Engine Disconnect Lever (Power Shift Tractors, page 8)
- D - Transmission Oil Filter Indicator Light (Power Shift Tractors, page 13)
- E - Transmission Oil Temperature Gauge (page 13)
- F - Coolant Temperature Gauge
- G - Fuel Gauge
- H - Speed Indicator Knob (page 12)
- I - Speed-Hour Meter (pages 12 and 50)
- J - Alternator Indicator Light (pages 5 and 6)
- K - Hi-Beam Indicator Light (page 24)
- L - Air Cleaner Indicator Light (pages 5 and 6)
- M - Oil Pressure Indicator Light (pages 5 and 6)
- N - Hand Throttle (page 9)
- O - Shift Lever (Syncro-Range Tractors, page 13)
- P - Brake Pedals (page 16)
- Q - Foot Throttle (page 9)
- R - Starting Pedal (page 9)
- S - Key Switch (pages 5, 6, and 10)
- T - Ether Starting Fluid Adapter (Diesel Tractors, page 7)
- U - Light Switch (page 25)
- V - Engine Choke Knob (Gasoline Tractors, page 6)
- W - Disconnect Lever Latch (Power Shift Tractors, page 8)
- X - Dimmer Switch (page 25)



*Tractor with Gasoline Engine and Syncro-Range Transmission*



- AA - Remote Cylinder Operating Levers (page 36)
- BB - Rockshaft Control Lever (page 27)
- CC - Seat Controls (page 11)
- DD - Rockshaft Selector Lever (page 28)
- EE - Differential Lock Pedal (page 16)



# 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.

## OPERATING THE ENGINE

### PRESTARTING CHECKS

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

- (1) Check the engine crankcase oil level - see page 54.
- (2) Check the radiator coolant level - see page 54.
- (3) If tractor has a precleaner, check the collector bowl - see page 55.
- (4) Grease the wide-swing drawbar rollers, Hi-Crop rear axles, and the Roll-O-Matic or wide front axle grease fittings - see page 55.
- (5) Grease the front wheel bearings if the tractor has been operated in extremely wet or muddy conditions - see page 55.

### STARTING THE DIESEL ENGINE

*NOTE: If the prevailing temperature is 40 degrees Fahrenheit or lower, it may be necessary to use a cold weather starting aid to start the engine (page 7).*

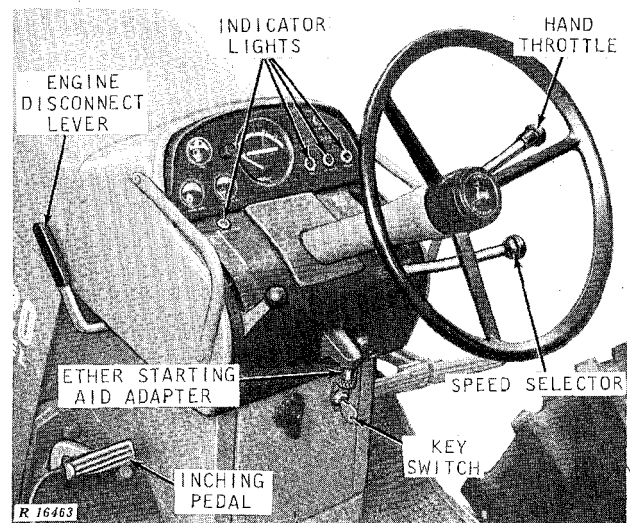
Perform the prestarting checks listed above.

(1) Make sure the fuel shut-off valve on the bottom of the fuel tank is open—see page 62.

(2) See that the shift lever or speed selector is in "PARK" position, the PTO clutch is disengaged, the rockshaft control lever is in "lowered" position, and the remote cylinder operating levers in neutral. Depress the clutch pedal or the inching pedal.

(3) PLACE THE HAND THROTTLE IN THE 1200 RPM POSITION, approximately one-third of its travel downward.

(4) Turn the key switch clockwise to the first position. The alternator and oil pressure indicator lights should glow. Turning the key switch further to the start position should cause the air cleaner indicator light to glow. On Power Shift tractors the transmission oil filter indicator light should glow. If any light fails to glow, turn off the key switch and determine the cause.



*Diesel Starting Controls*

(5) 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 "Troubleshooting."

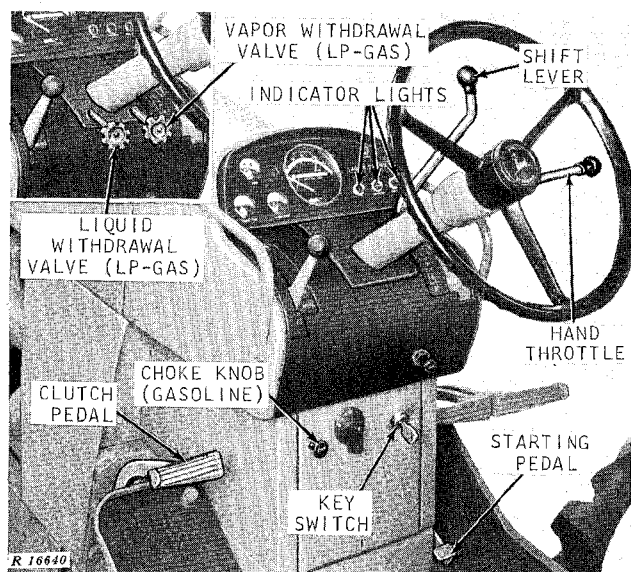
If the key switch is released before the engine starts, wait until the starter and the engine stop before trying again. This will prevent possible damage to the starter.

Before the starter will operate, the shift lever or the speed selector lever must be in "PARK" or neutral.

(6) After the engine starts, the indicator lights should go out. The transmission oil filter indicator light may continue to glow when the oil is cold. If any other light continues to glow after the engine has been running 10 seconds, stop the engine and determine the cause.

If the Power Shift engine disconnect clutch was disengaged, engage the clutch immediately after starting the engine. This will prevent damage to the tractor.

## STARTING THE GASOLINE ENGINE



Starting Controls on Gasoline and LP-gas Tractors

Perform the Prestarting checks on page 5.

(1) Make sure the fuel shut-off valve on the bottom of the fuel tank is open—see page 62.

(2) See that the shift lever or speed selector is in "PARK" position, the PTO clutch is disengaged, the rockshaft control lever is in the "lowered" position, and the remote cylinder operating levers in neutral. Depress the clutch pedal or the inching pedal.

(3) Move the hand throttle all the way up. Depress the starting pedal to close the carburetor throttle. This prevents hard starting that might occur if the carburetor throttle were open.

(4) PULL THE ENGINE CHOKE KNOB OUT.

*NOTE: At low temperatures it may be necessary to use a cold weather starting aid (page 7).*

(5) Turn the key switch clockwise to the first position. The alternator and oil pressure indicator lights should glow. Turning the key switch further to the start position should cause the air cleaner indicator light to glow. On Power Shift tractors the transmission oil filter indicator light should glow. If any light fails to glow, turn off the key switch and determine the cause.

(6) 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.

Before the starter will operate, the shift lever or the speed selector lever must be in "PARK" or neutral.

(7) 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.

(8) After the engine starts, the indicator lights should go out. The transmission oil filter indicator light may continue to glow when the oil is cold. If any other light continues to glow after the engine has been running 10 seconds, stop the engine and determine the cause.

If the Power Shift engine disconnect clutch was disengaged, engage the clutch immediately after starting the engine. This will prevent damage to the tractor.

## STARTING THE LP-GAS ENGINE

Perform the Prestarting checks on page 5.

(1) See that the shift lever or speed selector is in "PARK" position, the PTO clutch is disengaged, the rockshaft control lever is in the "lowered" position, and the remote cylinder operating levers in neutral. Depress the clutch pedal or the inching pedal.

(2) Move the hand throttle all the way up. Depress the starting pedal to close the carburetor throttle. This prevents hard starting that might occur if the carburetor throttle were open.

(3) Open the VAPOR withdrawal valve slowly. If the valve is opened too fast, it may cause the excess flow valve (inside the withdrawal valve) to close and prevent normal flow of vapor. If this happens, close the vapor withdrawal valve and open it more slowly. Engine will not start on liquid fuel.

(4) Turn the key switch clockwise to the first position. The alternator and oil pressure indicator lights should glow. Turning the key switch further to the start position should cause the air cleaner indicator light to glow. On Power Shift tractors the transmission oil filter indicator light should glow. If any light fails to glow, turn off the key switch and determine the cause.

(5) Turn the key switch all the way to the right to start the engine. Before the starter will operate, the shift lever or the speed selector must be in "PARK" or neutral.

(6) Do not move hand throttle from the slow idle position until the engine fires regularly. If the temperature is 20° F. or lower, it may be necessary to slowly move the hand throttle downward AFTER the engine has fired. Release the starter when it no longer is turning the engine.

Operating the starter for more than 30 seconds at a time may overheat the starter. If the engine does not start the first time, wait for a minute or two before trying it again. If it does not start after four attempts, see "Troubleshooting."

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.

(7) After the engine starts, the indicator lights should go out. The transmission oil filter indicator light may continue to glow when the oil is cold. If any other light continues to glow after the engine has been running for 10 seconds, stop the engine and determine the cause.

If the Power Shift engine disconnect clutch was disengaged, engage the clutch immediately after starting the engine. This will prevent damage to the tractor.

(8) Operate the engine on vapor until the cooling system is warm. Then slowly open the liquid withdrawal valve and close the vapor valve. Opening the liquid withdrawal valve too fast may cause the excess flow valve to close and prevent normal flow of liquid. If this happens, close the withdrawal valve and open it more slowly.



R 2206

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

## COLD WEATHER STARTING AIDS

For cold weather starting, the diesel tractor may be equipped with an ether starting fluid adapter. The Power Shift transmission tractor may be equipped with an engine disconnect lever. Other starting aids are available from your John Deere dealer.

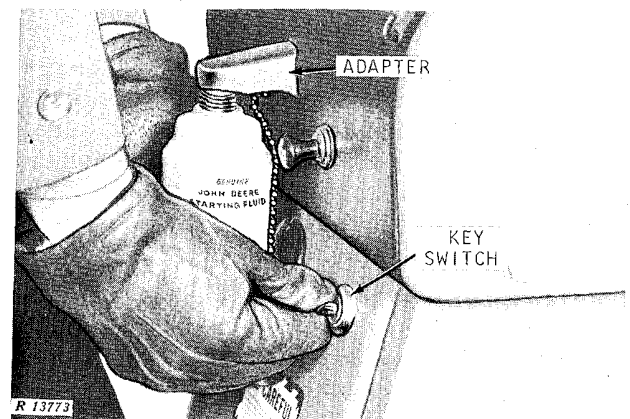
These aids are effective at low temperatures, only when the engine is otherwise operating satisfactorily. They will not correct such deficiencies as low battery charge, crankcase oil of heavy viscosity, and high electrical resistance which may prevent the engine from starting.

### ETHER STARTING FLUID ADAPTER (Diesel Tractors)

A diesel tractor may be equipped with this adapter which 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 and position the can under the adapter.



Injecting Starting Fluid

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.

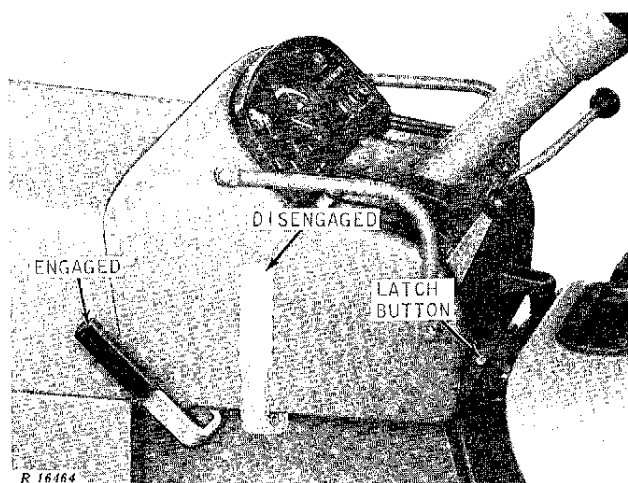
Relax pressure on the can between "shots" of starting fluid. Stop injecting fluid after the engine starts. If the engine begins to die during the first few minutes of operation, inject another "shot" of fluid. When the engine is operating satisfactorily, remove the can from the adapter. Replace the safety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

## 8 Operation - Engine

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.

### ENGINE DISCONNECT LEVER (Power Shift Tractors)



Engine Disconnect Lever

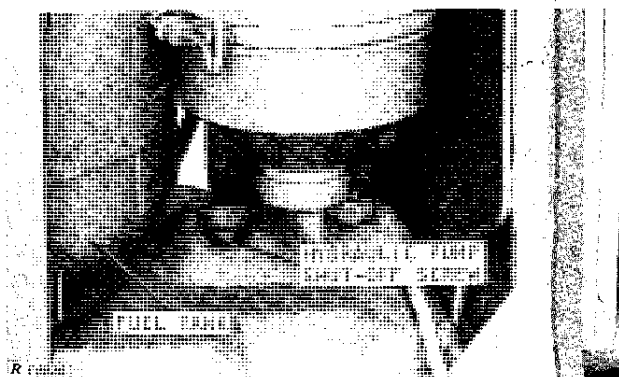
During cold weather, the starter speed on Power Shift tractors equipped with an engine disconnect clutch may be increased by disengaging the clutch so that the transmission will not turn. To do so, pull the lever rearward until it is latched in the disengaged position.

Immediately after starting the engine, engage the lever by pulling it slightly rearward. Push in on the latch button and allow the lever to move forward to the engaged position.

**IMPORTANT:** Operating the engine with the engine disconnect lever disengaged will damage the tractor. Be sure to engage it as soon as the engine starts. Never attempt to start a Power Shift tractor by towing or pushing.

### SHUTTING OFF HYDRAULIC PUMP

If the tractor has a hydraulic pump shut-off screw, the starter speed may be increased during



Hydraulic Pump Shut-Off Screw

cold weather by shutting off the hydraulic pump so it will not build up pressure. This will also prevent inadvertant operation of the Power Front Wheel Drive.

Turn the shut-off screw in (clockwise) one turn with a screwdriver. Then turn the screw in by hand until resistance is felt. Turn the screw in one more turn. After the engine has started, use a screwdriver to back the shut-off screw all the way out (turn it counterclockwise). The pump will now build up pressure.

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

### CRANKCASE OIL AND COOLANT HEATERS

To facilitate cold weather starting, a 240-watt, 115-volt electrical crankcase oil heater may be installed in the engine oil pan at the lower front right-hand corner.

An in-block coolant heater on the left side of the engine will warm the engine coolant to reduce oil drag and shorten the warmup period.

Under normal conditions, 4 to 5 hours of heater operation may be required at temperatures between 0° F. and 20° F. or 6 to 8 hours at temperatures below 0° F.



**CAUTION;** To avoid shock or hazardous operation, always use a 3-wire heavy-duty electrical cord equipped with 3-wire connectors. If a 2- to 3-contact adapter is used at the wall receptacle, always connect the green wire to a good ground.

### ADDITIONAL BATTERY

Cold weather starting can be made easier by connecting an additional 12-volt battery in parallel with the 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.

To avoid sparks, make sure all electrical switches or accessories are turned off and make the last connection or the first disconnection at some point away from 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 that is connected to the starter. 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.

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

See your John Deere dealer for additional booster battery information.

### 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 idle for a considerable length of time, stop the engine.

### ENGINE SPEEDS

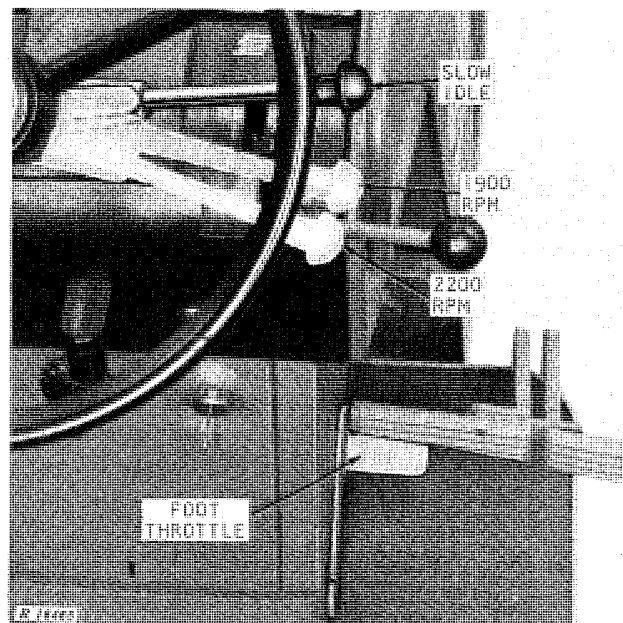
The tractor engine is designed to operate at working speeds ranging from 1500 to 2200 rpm. The engine can be operated at any speed in the working range to meet various operating conditions. Operate the engine at 1900 rpm to obtain the ASAE standard PTO speeds.

Normal slow idle is approximately 800 rpm.

In addition, engine speeds may be varied up to 2500 rpm to save you time when traveling on highways or on smooth-surfaced roads.

The engine speeds of 1900, 2200, and 2500 rpm are speeds when under full load. At light- or at no-load conditions, the speeds may rise to approximately 2150, 2400, and 2650 rpm respectively. See page 59 for no-load engine speeds.

### USING HAND THROTTLE



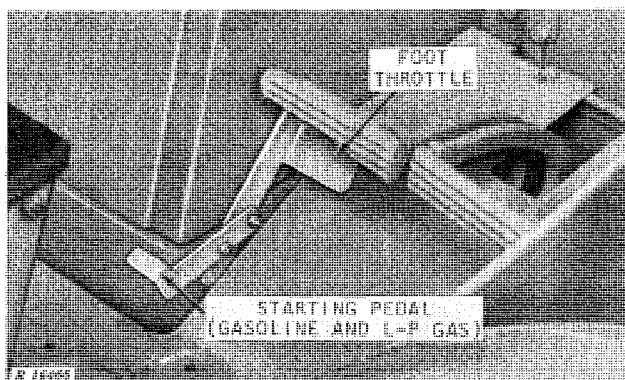
Range of Hand Throttle Positions

Use the hand throttle to select slow idle or any of the variable governed working speeds from 1500 to 2200 engine rpm.

Push the throttle up to obtain the slow idle speed of 800 rpm. To obtain the 1900 rpm load speed, pull the throttle downward to the first stop. Placing the throttle halfway between slow idle and 1900 rpm gives the 1500 rpm speed. Engine speeds between 1500 and 1900 rpm may be selected by moving the lever between these two positions.

To obtain working speeds above 1900 rpm, pull out on the knob at the end of the hand throttle. With the knob pulled out, pull the throttle downward as far as it will go. This is the 2200 rpm load speed position. Engine speeds between 1900 and 2200 rpm may be selected by moving the lever between these two positions.

## USING FOOT THROTTLE



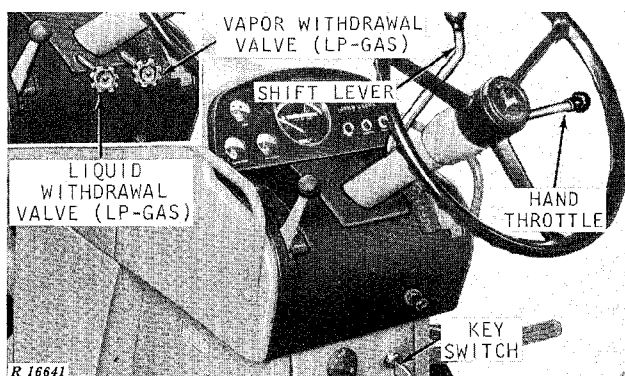
Foot Throttle

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 2500 rpm load speed.

Gasoline and LP-gas tractors have a combination foot throttle and starting pedal. Depress the front pedal to increase engine speed. Depress the rear starting pedal to close the carburetor throttle when starting the engine.

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

## STOPPING THE ENGINE



Stopping Controls

Place the shift lever or speed selector in "PARK" and allow the engine to idle a few minutes. Sudden stopping of a hot engine may allow some parts to overheat momentarily and cause possible damage.

## DIESEL ENGINES

Turn the key switch counterclockwise to the off position to stop the engine.

## GASOLINE ENGINES

With the engine running at approximately 1200 rpm, turn the key switch off to stop the gasoline engine.

## LP-GAS ENGINES

Close the withdrawal valves and let the engine run until ALL the fuel is exhausted from the lines and the engine stops. Then, turn the key switch off.

**CAUTION:** The engine will not start on liquid fuel. Never leave the tractor with the withdrawal valves open. The fuel system can be damaged if liquid fuel is left in the fuel lines with the withdrawal valves closed.

## ALL ENGINES

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 (clockwise) or the accessory (counterclockwise) 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 the "PARK" position.

## BREAKING IN THE ENGINE

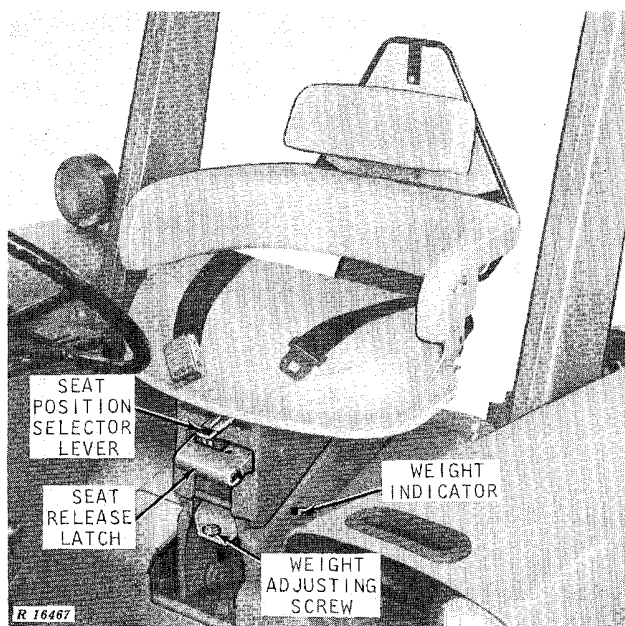
**NOTE:** If the coolant temperature rises to the warning range, operate in a lower gear to reduce the load on the engine. Be sure to follow the special break-in lubrication instructions given on page 50.

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

During the first 20 hours, do not use the foot throttle. To facilitate break-in, avoid prolonged periods of engine idling for the first 100 hours of service.

## OPERATING THE TRACTOR

### SEAT



Seat Controls

The deluxe foam-padded suspension seat contains a steel compression spring and shock absorber to provide "Float-Ride" comfort.

Use only warm water and a mild soap to clean the seat cushions. Never use stronger solvents.

### MOVING SEAT TO UPPER REAR POSITION

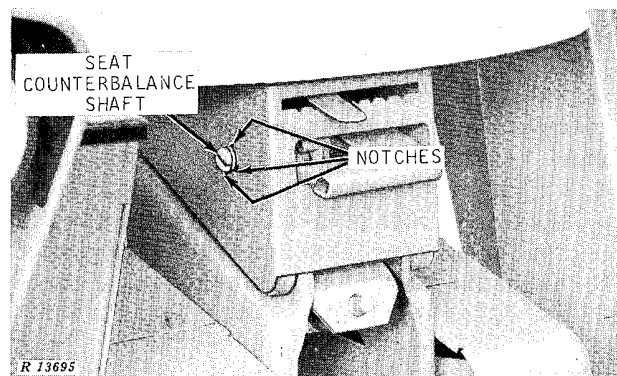
To move the seat up and back, stand up and lift the seat release latch. A counterbalance spring will move the seat to the upper rear position. Sit down to return the seat to the normal preset operating position.

### ADJUSTING FOR HEIGHT AND WEIGHT OF OPERATOR

The seat can be adjusted to the height of the operator. With the seat in the upper rear position, shift the seat position selector lever between "short" and "tall" until the controls can be operated comfortably when you are seated.

The tension of the steel compression spring can be adjusted to conform to your weight. This enables the seat to "float" when you are traveling over rough ground. To make this adjustment, turn the weight-adjusting screw clockwise or counterclockwise until the indicator in the left-hand side of the seat conforms to your weight.

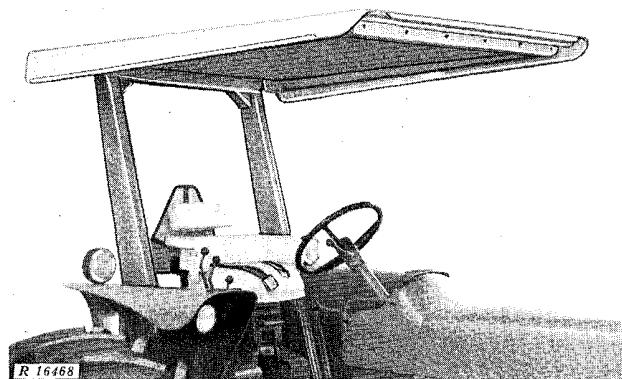
### ADJUSTING COUNTERBALANCE SPRING



Seat Counterbalance Shaft

If the seat does not move fully to the rear when unlatched, adjust the counterbalance spring. With the seat in the upper rear position, insert a screwdriver in the counterbalance shaft slot. Push in to unlatch the shaft and turn the shaft counterclockwise. Align the latch in the end of the shaft with one of the pair of notches. Pull the screwdriver outward so the latch will engage the notches.

### ROLL-GARD, SEAT BELT, AND CANOPY



Roll-Gard, Seat Belt, and Canopy

A protective Roll-Gard with seat belt may be ordered as special equipment for your tractor. A canopy that fits on top of the Roll-Gard is also available. See page 77 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.

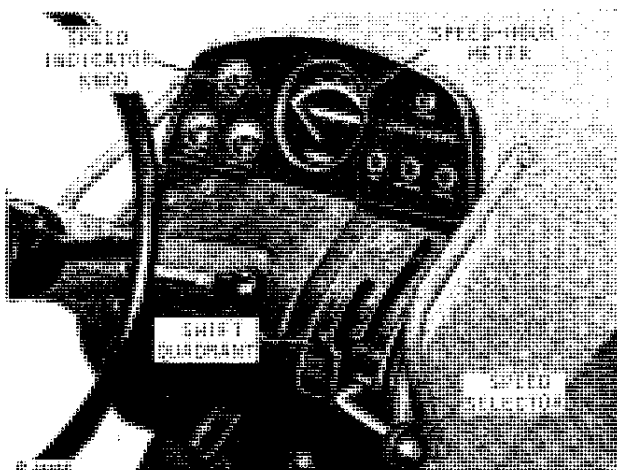
### SELECTING GROUND SPEED

Both transmissions provide eight forward speeds for each of the throttle positions that may be used. The Syncro-Range transmission has two reverse speeds, and the Power Shift transmission has four. These combinations enable the operator to balance speed and power for maximum economy and allow him flexibility to meet varying working conditions. For example, at a given ground speed the operator may choose to work in a low gear at high engine speed for maximum reserve power or in a higher gear at a lower engine speed for maximum fuel economy.

Examples of the ground speeds at which the tractor will travel are shown below. Engine working speeds may be varied between 1500 rpm and 2200 rpm, and engine transport speeds may be varied up to 2500 rpm. Tractor ground speeds shown in the chart are only for engine speeds of 1500, 1900, 2200, and 2500 rpm.

Turn the speed indicator knob on the instrument panel until the gear selected shows on the speed indicator. The speed-hour meter pointer will now indicate the tractor ground speed in miles per hour.

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 expense.



Speed Indicator Knob and Speed Selector

### POWER SHIFT TRANSMISSION

#### SHIFTING

The Power Shift transmission can be shifted "on the go" or when the tractor is stopped by moving the speed selector to the desired gear. It is not necessary to use the inching pedal when starting out or when shifting.

To move the tractor forward, move the speed selector from neutral to the desired gear in the right-hand or forward side of the quadrant. Progressive shifting (one gear at a time) will result in smoother speed change.

### TRACTOR GROUND SPEED IN MILES PER HOUR

**NOTE:** Ground speeds are for row-crop and standard tractors with 18.4-34 tires (29.6 inches loaded radius). 13.6-38 tires are 3.7% slower; 15.5-38, 4% slower; 16.9-34, 4.7% slower; 16.9-38, 3% faster; 18.4-38, 5.9% faster; and 23.1-30, 1% faster. Hi-Crop tractor ground speeds are approximately 4% faster.

| Gear        | Hand Throttle Operating Range |             |              |             |              |             | Maximum Foot Throttle Speed |             |
|-------------|-------------------------------|-------------|--------------|-------------|--------------|-------------|-----------------------------|-------------|
|             | 1500 rpm                      |             | *1900 rpm    |             | 2200 rpm     |             | 2500 rpm                    |             |
|             | Syncro-Range                  | Power Shift | Syncro-Range | Power Shift | Syncro-Range | Power Shift | Syncro-Range                | Power Shift |
| 1st         | 1.3                           | 1.2         | 1.6          | 1.5         | 1.9          | 1.8         | 2.1                         | 2.0         |
| 2nd         | 2.1                           | 1.7         | 2.6          | 2.2         | 3.0          | 2.5         | 3.4                         | 2.9         |
| 3rd         | 2.7                           | 2.7         | 3.4          | 3.4         | 4.0          | 3.9         | 4.5                         | 4.5         |
| 4th         | 3.5                           | 3.5         | 4.4          | 4.4         | 5.1          | 5.1         | 5.8                         | 5.8         |
| 5th         | 4.3                           | 4.5         | 5.5          | 5.7         | 6.4          | 6.6         | 7.2                         | 7.5         |
| 6th         | 5.7                           | 5.8         | 7.2          | 7.3         | 8.3          | 8.5         | 9.5                         | 9.6         |
| 7th         | 7.4                           | 7.7         | 9.3          | 9.7         | 10.8         | 11.2        | 12.2                        | 12.8        |
| 8th         | 12.0                          | 12.8        | 15.2         | 16.2        | 17.6         | 18.7        | 20.0                        | 21.3        |
| 1st reverse | 2.6                           | 1.4         | 3.3          | 1.8         | 3.9          | 2.1         | ....                        | ....        |
| 2nd reverse | 4.2                           | 2.0         | 5.3          | 2.6         | 6.2          | 3.0         | ....                        | ....        |
| 3rd reverse | ....                          | 3.1         | ....         | 4.0         | ....         | 4.6         | ....                        | ....        |
| 4th reverse | ....                          | 4.1         | ....         | 5.1         | ....         | 5.9         | ....                        | ....        |

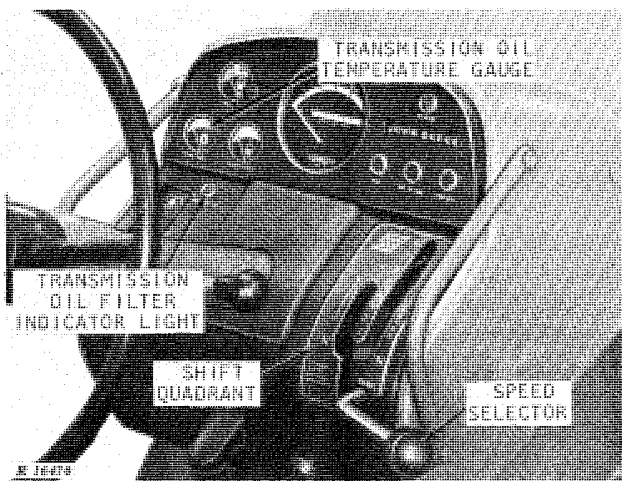
\*1900 engine rpm gives the ASAE standard PTO speed.

To reverse the tractor, move the speed selector rearward progressively (one gear at a time) to neutral. Then, move the lever to first gear in the left-hand or reverse side of the quadrant. A hand rail beside the speed selector may be used as an aid to shifting when traveling over rough ground.

Use the inching pedal when making emergency stops, when hitching to an implement, or whenever slower clutch engagement is required.

Reduce engine speed prior to making sudden extreme speed changes.

## OPERATION



Transmission Instruments and Speed Selector

When operating a tractor with Power Shift transmission, check the transmission oil temperature gauge and the transmission oil filter indicator light for satisfactory transmission operation.

If the indicator pointer on the temperature gauge goes into the red zone, stop the tractor and clean all dirt and trash from the grille screens and the transmission-hydraulic oil cooler core (page 70). Check and if necessary, fill the transmission-hydraulic system to its proper oil level (page 57). A clogged filter can also cause overheating. See page 59. If the difficulty continues, call your dealer. Do not operate the tractor when the temperature indicator pointer is in the red zone.

Should the transmission oil filter indicator light flicker on and off when using a hydraulic

function at engine speeds above 2200 rpm, change the transmission oil filter element (front element). Under normal conditions, change the filter at the next refueling and servicing. The amount of safe operating time with the light flickering depends on how fast the filter is clogging.

Change the filter IMMEDIATELY if any of the following symptoms are noted: the indicator lamp glows continuously, high transmission oil temperature, slipping of the transmission, or slow hydraulic function response particularly with single acting cylinders. DO NOT allow the transmission to slip.

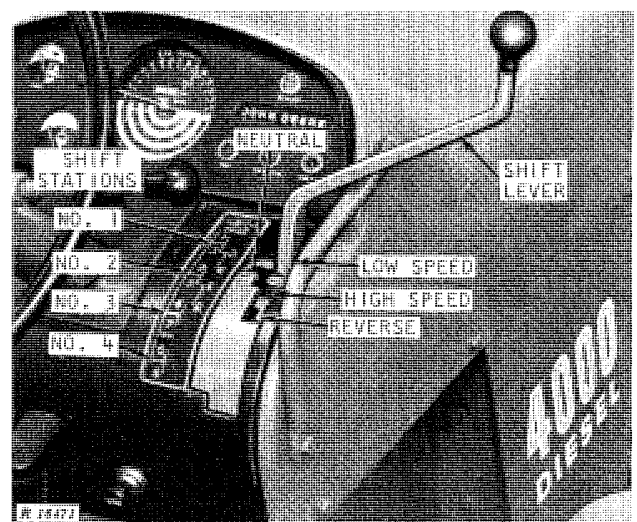
## SYNCRO-RANGE TRANSMISSION

Do not operate the tractor when the transmission oil temperature is too high.

*NOTE: To prevent unnecessary wear, never "ride" the clutch or brake pedals by resting the feet on the pedals.*

## SHIFTING BETWEEN STATIONS

The shift quadrant has four shift stations. Stations No. 1 and 2 have two forward speeds and one reverse speed. Stations No. 3 and 4 have two forward speeds only.



Synco-Range Transmission Shift Lever in 1st Gear

With the tractor stopped and the clutch pedal depressed, move the shift lever to a neutral position at the left side of the quadrant. Then

## 14 Operation - Tractor

move the shift lever to the station that has the desired speed. Move the lever to the right and into the speed desired.

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

### SHIFTING WITHIN STATIONS

With the clutch pedal depressed, the transmission can be shifted from one forward speed to the other forward speed within the same station while the tractor is in motion. For instance, you can shift between 1st and 3rd gears, 2nd and 5th gears, 4th and 7th gears, and 6th and 8th gears without stopping the tractor.

A 4020 Tractor may be shifted from a forward speed to a reverse speed in the same station without stopping the tractor. However, to avoid injury or damage, do so only at slow ground speeds.

**IMPORTANT:** Stop a 4000 Tractor before shifting from a forward speed to a reverse speed to prevent damage to the transmission.

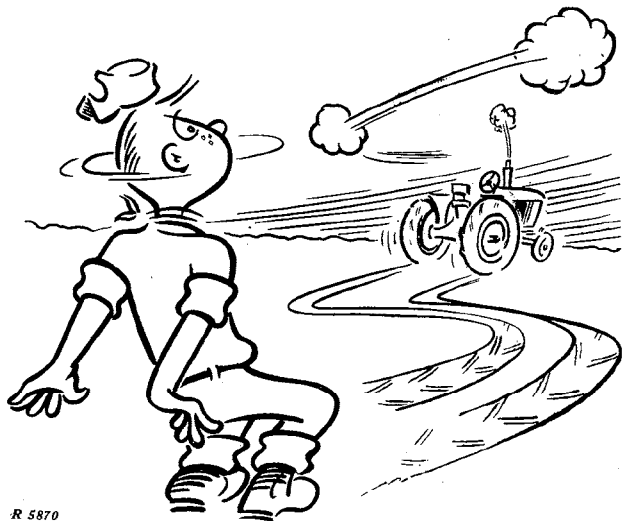
### PARKING THE TRACTOR

**CAUTION:** Be sure the tractor is stopped before placing the shift lever or speed selector in the "PARK" position.

### SYNCHRO-RANGE TRACTORS

On Synchro-Range tractors, move the shift lever to a neutral position at the left side of the quadrant. Then push the shift lever all the way forward into "PARK."

To shift from "PARK" when the tractor is not parked on a steep incline, simply move the shift lever rearward to the station desired. When the tractor is parked on a steep incline it may be necessary to do the following to relieve the load on the transmission park lock. Depress the clutch pedal and pull the shift lever rearward against spring pressure into the No. 1 shift station. Then shift into a forward or reverse gear that will move the tractor UP THE INCLINE. VERY SLOWLY engage the clutch and the transmission will shift out of "PARK."



**CAUTION:** Whenever the tractor is stopped, place the shift lever or speed selector in the "PARK" position BEFORE DISMOUNTING. Never dismount from the tractor when it is in motion.

### POWER SHIFT TRACTORS

On Power Shift tractors, move the speed selector rearward to the right into the "PARK" position shown in the illustration on page 13. Shifting from "PARK" to neutral releases the park locking action.

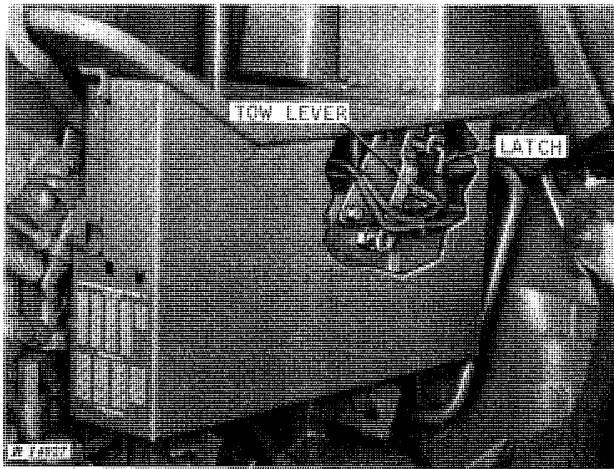
### TOWING THE TRACTOR

**CAUTION:** Never tow the tractor at high speeds. Tow the tractor with the engine running to maintain power operation of steering and brakes.

When towing the tractor, the transmission-hydraulic system should be at the "FULL" mark. If the front end is raised, add one gallon of oil for each six inches the front end is raised. Be sure differential lock is disengaged.

**IMPORTANT:** To prevent transmission damage, always place the tow lever or shift lever in "TOW." Do not attach towing means to front wheel knuckles or steering mechanism.

## POWER SHIFT TRACTORS



Tow Lever on Power Shift Tractor

When towing a tractor with a Power Shift transmission, pull out on the tow lever latch and move the lever forward until the latch will hold the lever in "TOW" position. Place the speed selector in neutral before moving the tractor.

To operate the tractor after towing, place the speed selector in "PARK." Pull out on the tow lever latch and allow the spring to move the lever rearward. If the lever does not latch in the rearward position, try to move the tractor slowly (1st speed) and the spring will move the lever rearward.

**IMPORTANT:** Towing or pushing will not start the engine of a Power Shift tractor.

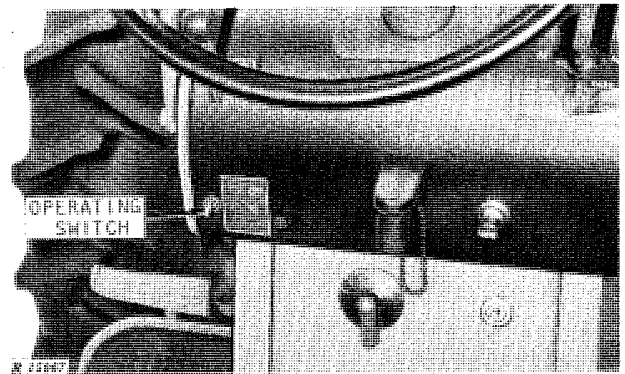
## SYNCHRO-RANGE TRACTORS

The shift quadrant for the Syncro-Range transmission has a "TOW" position. Whenever a Syncro-Range tractor is to be towed, move the shift lever to this position.

## POWER FRONT-WHEEL DRIVE

The Power Front-Wheel Drive has a fixed displacement, axial piston hydraulic motor and a planetary transmission in each front wheel. The tractor main hydraulic pump furnishes hydraulic power for the front wheels.

Use the Power Front-Wheel Drive in poor traction conditions or when needed to improve steering control. The drive can be engaged "on



Power Front-Wheel Drive Operating Switch

the go" or when the tractor is stopped by moving the drive operating switch up to high torque position for maximum pulling power, or down to low torque position when less power is required.

Always move the switch to the center (off) position when the drive is not needed. Do not engage the drive when hitching to drawn equipment. Do not attempt to operate the tractor with the front wheel drive only.

Whenever the inching pedal or the clutch pedal is depressed, a switch disconnects the drive.

When the operating switch is moved up or down, the drive is automatically engaged or disengaged as necessary to synchronize the front drive when the shift lever or speed selector is moved to the various transmission speeds. In low torque switch position the drive will be engaged in 1st through 6th forward speeds and in all reverse speeds. In high torque position, the drive will be engaged in 1st through 4th forward speeds and in all reverse speeds. On tractors prior to serial number 285410, the drive will also be engaged in 7th speed in low torque and 5th speed in high torque.

When a front wheel slips and a "differential lock action" is needed, move the switch down to the low torque position. This connects the hydraulic motors in series.

**CAUTION:** Always place transmission in PARK, lower implements to the ground, and shut engine off before dismounting. Always start the engine from the operator's seat. The transmission must be in PARK and the engine stopped when moving the tow lever of a Power Shift tractor. Shutting off the hydraulic pump as instructed on page 8 will prevent accidental tractor movement by the front wheels.



**Suggest:**

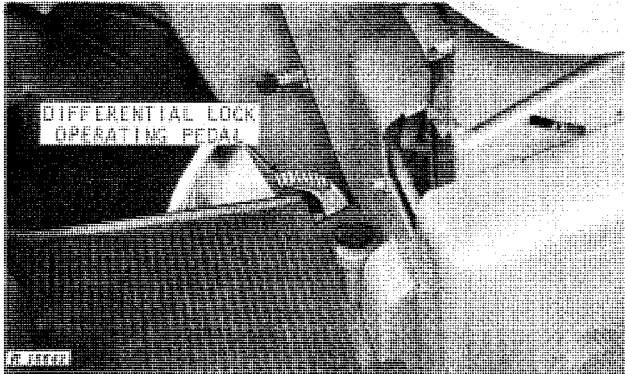
**If the above button click is invalid.**

**Please download this document first, and then click the above link to download the complete manual.**

**Thank you so much for reading**

## DIFFERENTIAL LOCK

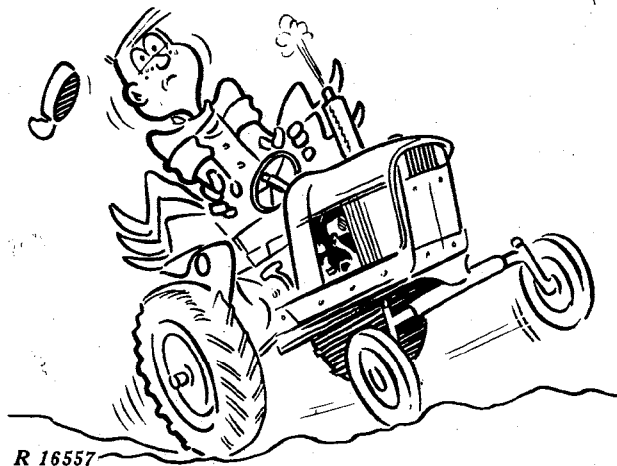
Your tractor may be equipped with a differential lock that will turn both rear wheels at the same speed. This prevents the usual loss of power when one wheel is slipping.



*Differential Lock Operating Pedal*

When one wheel starts to slip or whenever desired, engage the differential lock by depressing the operating pedal located at the right-rear side of the platform. When no longer required and before turning the tractor, disengage the differential lock by depressing one or both brake pedals. The front wheels should be in the straight ahead position when disengaging or engaging the differential lock.

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

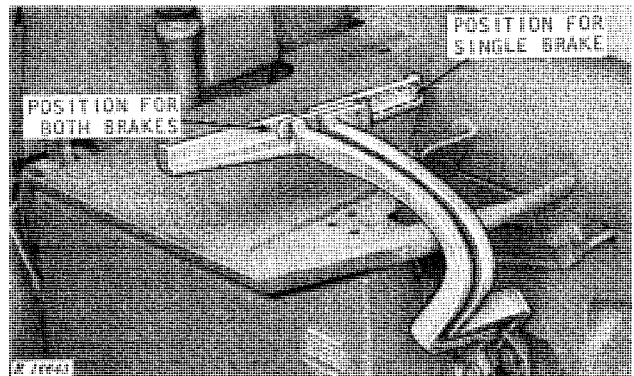


**CAUTION:** Fast driving causes many accidents. Couple the brake pedals together and always drive at a safe speed.

## POWER STEERING AND BRAKES

The tractor is equipped with full hydraulic power steering and power brakes so that a minimum of effort will operate the tractor. The accumulator supplies oil to the brakes for an emergency application immediately after the engine is stopped.

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 as shown and use a light pressure on the pedals.



*Brake Pedals Coupled Together*

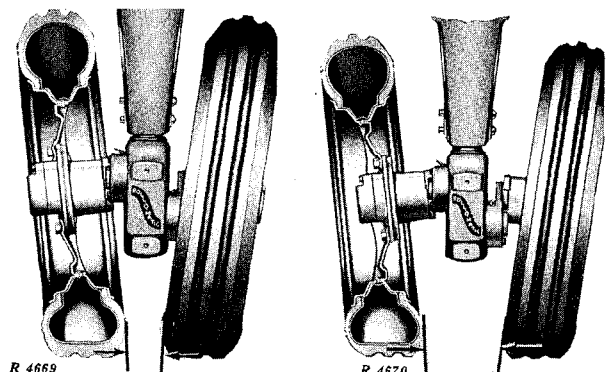
## TOWED LOAD

**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

### DOUBLE FRONT WHEELS

The double front wheel tread may be set at the narrow spacing or at the wide spacing by reversing the dish of the front wheels.



*Double Front Wheels at Narrow Spacing*

*Double Front Wheels at Wide Spacing*

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