JOHN DEERE 2510 ROW-CROP AND HI-CROP TRACTORS

JOHN DEERE

OPERATORS MANUAL

JOHN DEERE 2510 ROW-CROP AND
HI-CROP TRACTORS

OMR38407 G8 English

JOHN DEERE WATERLOO WORKS
OMR38407 G8

LITHO IN THE U.S.A. (REVISED)
ENGLISH

TO THE PURCHASER

Your versatile new John Deere Tractor meets the exacting requirements of modern farming.

Operating ease and comfort, hydraulic power when and where you need it, the ability to match engine power and transmission speed to any job, outstanding economy and dependability, modern styling, and simplicity of lubrication and service are all special features of this great tractor.

We are confident this modern tractor, combined with equally advanced John Deere tools and implements, will help you to farm better, easier, and more profitably.

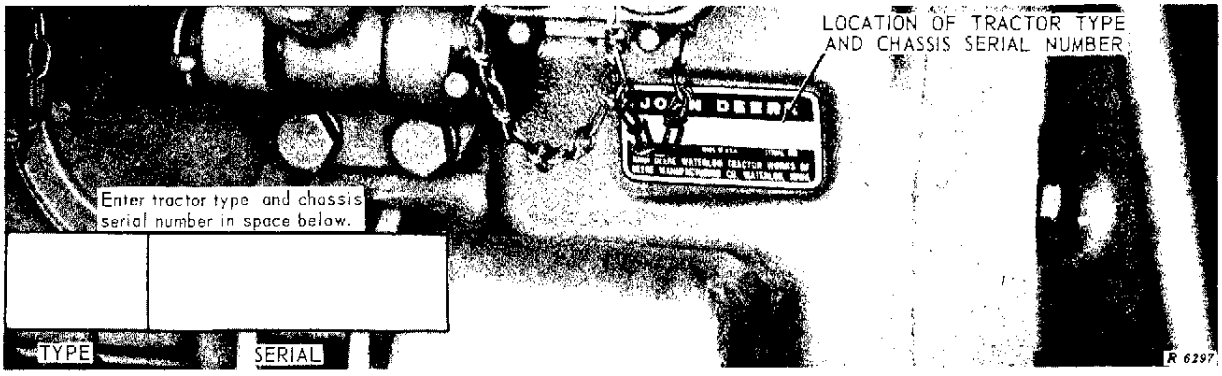
At the time the tractor was delivered, the John Deere dealer discussed with you its safe operation and proper care. However, before putting the tractor to work, read this manual. It contains complete instructions for operating the tractor, caring for it, and taking full advantage of its many time- and labor-saving features. After reading the manual, keep it in a convenient place for quick and easy reference if questions arise concerning operation, lubrication, or service.

Information concerning warranty on this equipment appears on your copy of the Delivery Receipt which you should have received from your dealer when the equipment was delivered to you.

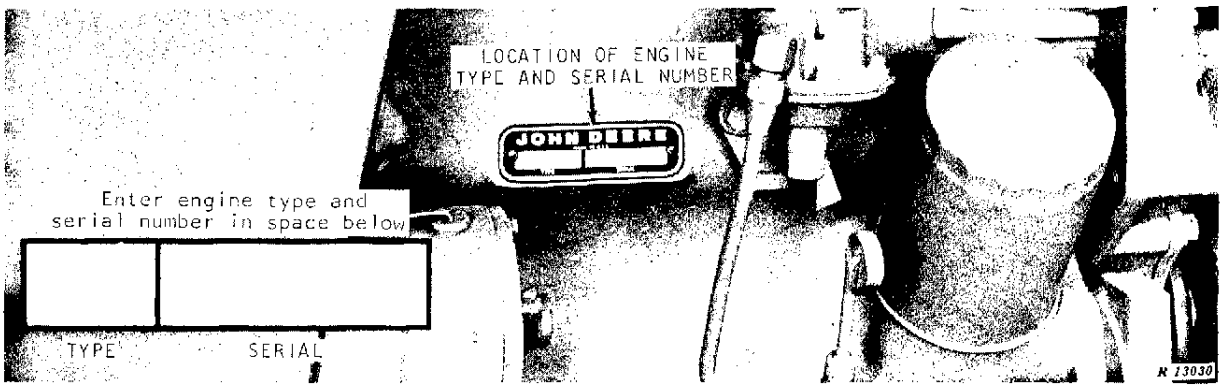
Your John Deere dealer wants to help you get the most value from your tractor. His skilled servicemen can handle every job efficiently. These men are trained in modern service methods; they have all necessary tools and equipment. If new parts are needed, only genuine John Deere parts will be installed. These parts are exact duplicates of the originals, made from the same patterns and of the same high-quality materials.

When in need of new parts, be prepared to furnish your dealer with the tractor type, complete tractor chassis serial number, and complete engine serial number. For ready reference, locate and record the above information in the spaces provided in the illustrations below.

As a member of the National Safety Council, we are privileged to use the Green Cross for Safety to designate not only our interest in Safety, but to emphasize and call attention to the safety precautions in this manual.

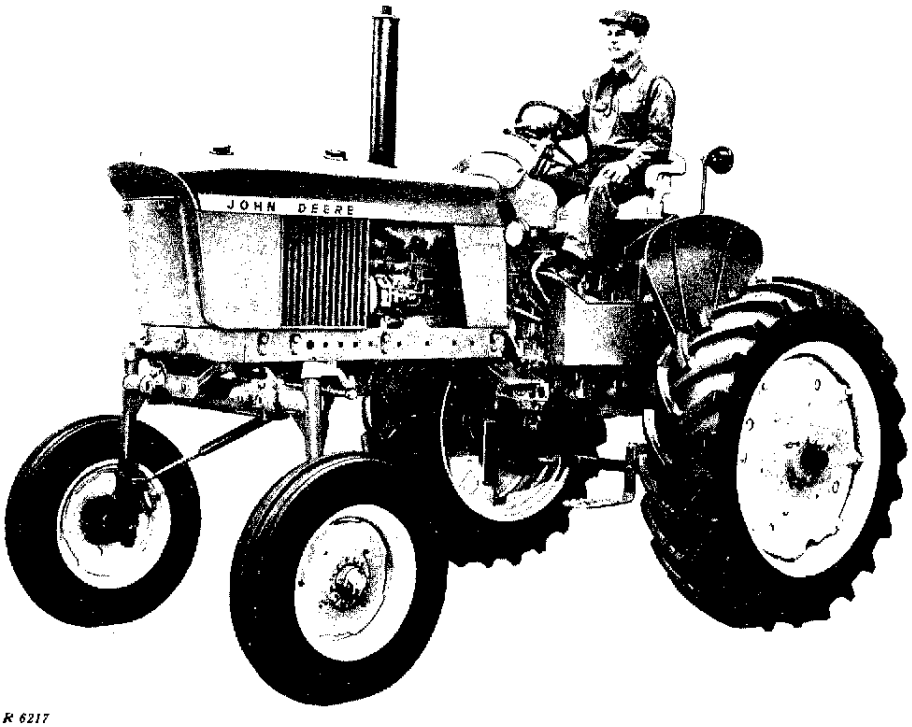


Record Tractor Chassis Serial Number



Record Engine Serial Number

CONTENTS



R 6217

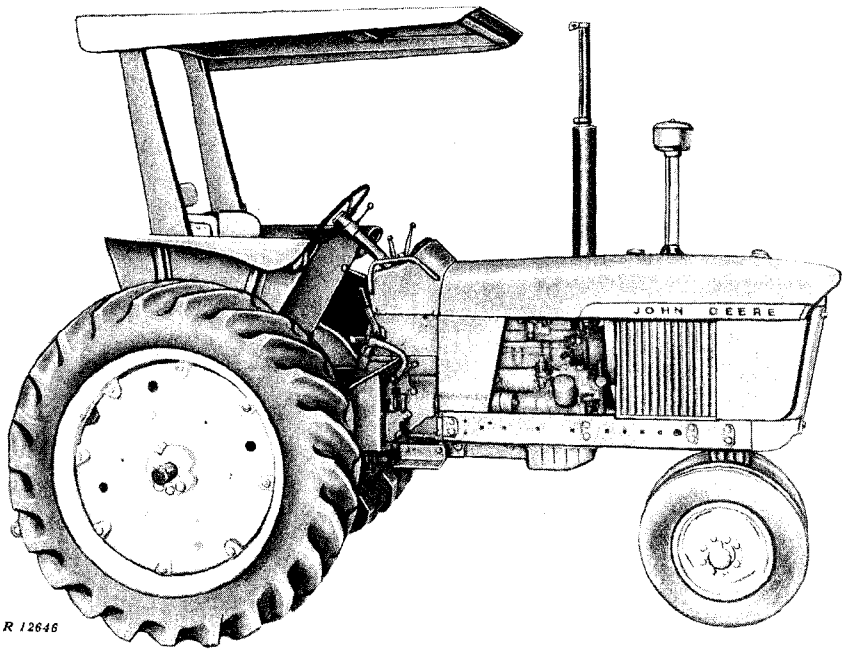
John Deere 2510 Hi-Crop Tractor with Diesel Engine and Power Shift Transmission

SPECIFICATIONS

HORSEPOWER:*	Diesel	Gasoline
Observed at PTO (Syncro-Range)	54.96 h.p.	53.74 h.p.
Observed at PTO (Power Shift)	50.66 h.p.	49.57 h.p.
ENGINE:		
Type	4-cylinder, in-line, valve-in-head	
Engine speeds:		
Idle for engine shut-off	.....	**425 rpm
Normal slow idle	800 rpm	800 rpm
Working range	1500 to 2500 rpm	1500 to 2500 rpm
Bore and stroke	3.86 in. x 4.33 in.	3.86 in. x 3.86 in.
Displacement	202 cu. in.	180 cu. in.
Compression ratio	16.3 to 1	7.5 to 1
Firing order	1-3-4-2	1-3-4-2
Intake valve clearance	0.014 in.	0.014 in.
Exhaust valve clearance	0.018 in.	0.022 in.
Injection pump timing	TDC	.....
Distributor timing (2500 rpm engine speed)	.....	"S" mark
Distributor point gap	.....	0.020 in.
Spark plug gap	.....	0.025 in.
ELECTRICAL SYSTEM:		
Starter and alternator voltage	12 volts	12 volts
Lights and accessory voltage	12 volts	12 volts
12-volt battery, 78-plate, 75 amp-hour	Two	One

**Maximum horsepower observed in official tests at 2500 engine rpm.*

***Disregard if carburetor is equipped with electrical fuel shut-off solenoid.*



John Deere 2510 Row-Crop Tractor with Diesel Engine and Power Shift Transmission, Equipped with Roll-Gard and Canopy

COOLING SYSTEM:
- Type . . . . . Pressurized with centrifugal pump
- Engine temperature control . . . Heavy-duty thermostat

LUBRICATION SYSTEM . . . . . Force-feed pressurized type with full-flow oil filter

CAPACITIES:

Fuel tank . . . . Diesel and gasoline	--	26 U.S. gals.
Crankcase (includes filter)	--	7 U.S. qts.
Transmission-hydraulic system:		
Syncro-Range . . . . . Dry system	--	11 U.S. gals.
At service intervals	--	8 U.S. gals.
Power Shift . . . . . Dry system	--	14 U.S. gals.
At service intervals	--	11 U.S. gals.
Cooling system	--	14 U.S. qts.
Hi-crop final drive housings	--	1-3/4 U.S. qts.
Belt pulley	-	2-1/2 U.S. pints

SYNCRO-RANGE TRANSMISSION:
- Type . . . . . Syncro-Range, constant mesh
- Gear selections . . . . . 8 forward and 2 reverse
- Shifting . . . . . 4 stations, synchronized shifting within stations

POWER SHIFT TRANSMISSION:
- Type . . . . . Planetary gears, hydraulically actuated wet disk clutches and brakes
- Gear selections . . . . . 8 forward and 4 reverse
- Shifting . . . . . Hydraulic, powershifting controlled by speed selector

POWER TAKE-OFF:
- Type . . . . . Independent PTO with front and rear power take-off. Stub shafts used for rear PTO speed conversion on dual speed PTO.
- Speed (2100 engine rpm) . . . . . Front—1000 rpm
  Dual speed rear—540 or 1000 rpm
  Single speed rear—1000 rpm

Specifications and design subject to change without notice.

HYDRAULIC SYSTEM:
- Type . . . . . Closed center, constant pressure. Includes power steering, power brakes, and implement control
- Maximum pressure . . . . . 2250 psi

BRAKES . . . . . Hydraulically power actuated, disk-type, operating in oil

GROUND SPEEDS . . . . . See page 12

FRONT TIRES**
- Row-crop . . . . . 6.00 - 16, 6-ply
- Hi-crop . . . . . 7.50 - 20, 6-ply

REAR TIRES**
- Row-crop . . . . . 13.6 - 38, 6-ply
- Hi-crop . . . . . 13.6 - 38, 6-ply

FRONT WHEEL TREAD . . . . . See page 16

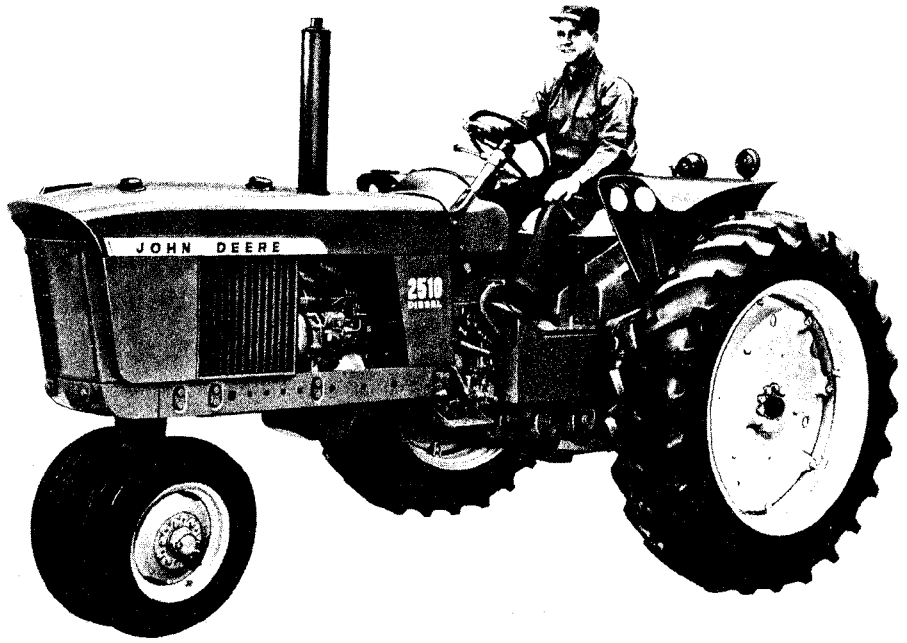
REAR WHEEL TREAD:
- Regular and offset wheels . . . . . See page 18

DIMENSIONS	Row-Crop	Hi-Crop
Wheel base	90 in.	92.8 in.
Over-all length	140 in.	140 in.
Height to steering wheel	74.4 in.	89.9 in.
Width (regular axle)	86.2 in.	95.4 in.
Turning radius	108 in.	148 in.

SHIPPING WEIGHT (With equipment for average field service, less fuel and ballast.) Subtract 255 lbs. if tractor has Syncro-Range transmission:

	Row-Crop	Hi-Crop
Diesel	6350 lbs.	7380 lbs.
Gasoline	6200 lbs.	7230 lbs.

***Additional tires available for special purposes.*

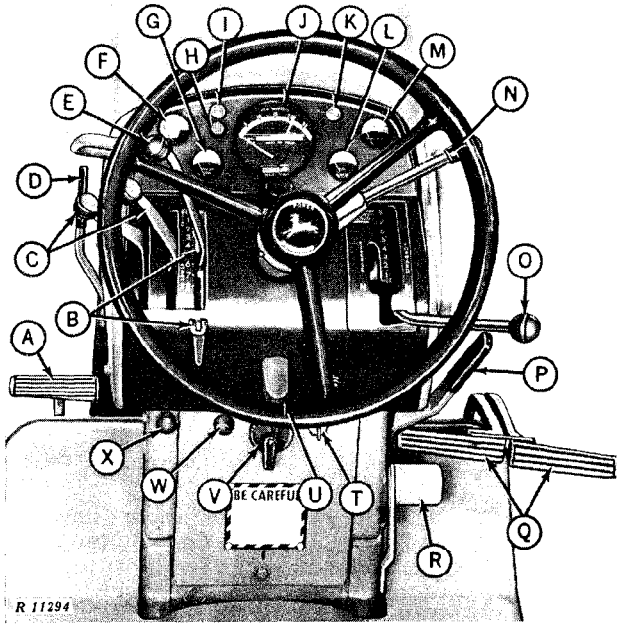


R 6216

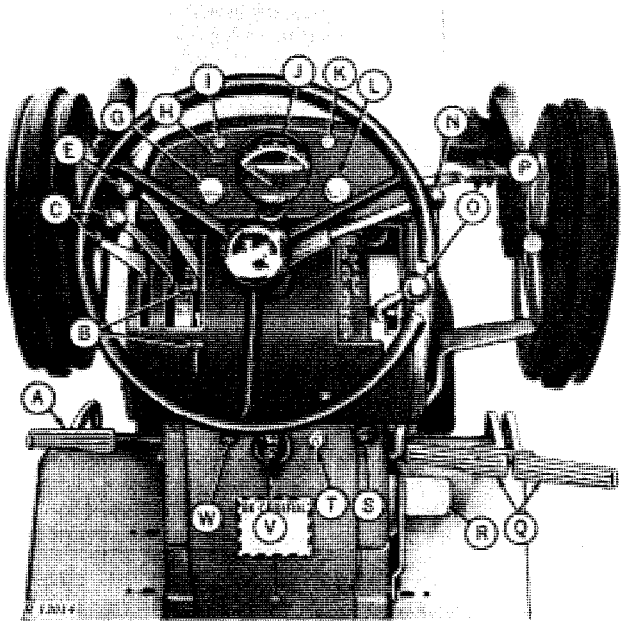
John Deere 2510 Row-Crop Tractor with Diesel Engine, Power Shift Transmission, and Roll-O-Matic

CONTROLS AND INSTRUMENTS

Before attempting to operate your new tractor, become familiar with the location and purpose of its controls and instruments. Study the next few pages carefully, regardless of your previous tractor experience.

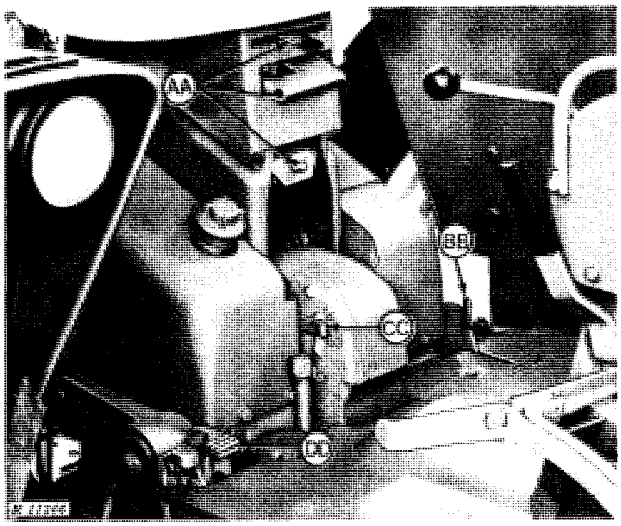


Tractor with Diesel Engine and Power Shift Transmission



Tractor with Gasoline Engine and Syncro-Range Transmission

A – Clutch Pedal (Syncro-Range Tractors, page 14)
Inching Pedal (Power Shift Tractors, page 12)
B – Rockshaft Control Lever Stop and Lock (page 25)
C – Remote Cylinder Operating Levers (page 32)
D – Engine Disconnect Lever (Power Shift Tractors, page 8)
E – Rockshaft Control Lever (page 25)
F – Transmission Oil Pressure Gauge (Power Shift Tractors, pages 8 and 13)
G – Coolant Temperature Gauge
H – Speed Indicator Knob (page 12)
I – Alternator Indicator Light (pages 5 and 6)
J – Speed-Hour Meter (pages 12 and 45)
K – Oil Pressure Indicator Light (pages 5 and 6)
L – Fuel Gauge
M – Transmission Oil Temperature Gauge (Power Shift Tractors, page 13)
N – Hand Throttle (page 9)
O – Shift Lever (Syncro-Range Tractors, page 14)
Speed Selector (Power Shift Tractors, page 12)
P – Power Take-Off Clutch Lever (page 37)
Q – Brake Pedals (page 16)
R – Foot Throttle (page 9)
S – Engine Choke Knob (Gasoline Tractors, page 6)
T – Key Switch (pages 5, 6, and 10)
U – Ether Starting Fluid Adapter (Diesel Tractors, page 7)
V – Light Switch (page 23)
W – Starter Switch (pages 5 and 6)
X – Lever Latch Knob (Power Shift Tractors, page 8)



AA – Seat Controls (page 11)
BB – Tow Lever (Power Shift Tractors, page 15)
CC – Rockshaft Selector Lever (page 26)
DD – Differential Lock Pedal (page 15)

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 49.

(2) Check the radiator coolant level—see page 49.

(3) If tractor has a pre-cleaner, check the collector bowl—see page 49.

(4) Check the fuel pump sediment bowl—see page 50.

(5) Grease the wide-swing drawbar rollers, Hi-Crop rear axles, and the Roll-O-Matic or wide front axle grease fittings—see page 50.

(6) Grease the front wheel bearing if the tractor has been operated in extremely wet or muddy conditions—see page 50.

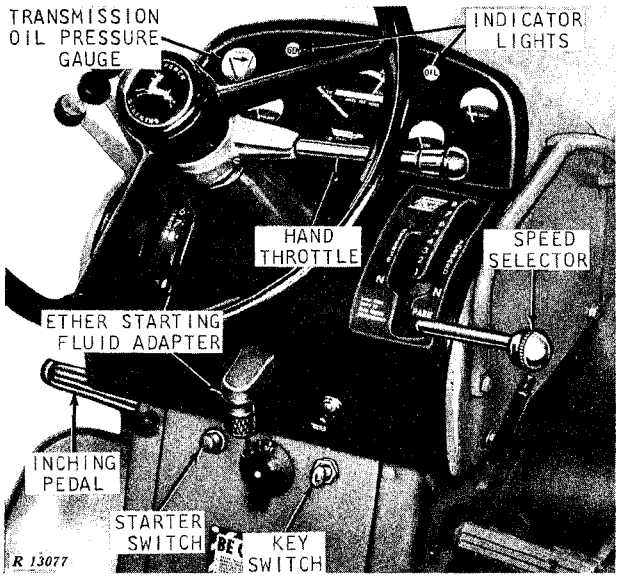
(7) Make sure the fuel shut-off valve on the bottom of the fuel tank is open—see page 58.

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) If your tractor has a Syncro-Range transmission, move the shift lever into "PARK" position and depress the clutch pedal. If your tractor has a Power Shift transmission, move the selector lever into "PARK" position and depress the inching pedal.



Diesel Starting Controls

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

(3) Turn the key switch clockwise to the on position. Both indicator lights should glow. If either light fails to glow, turn off the key switch and determine the cause.

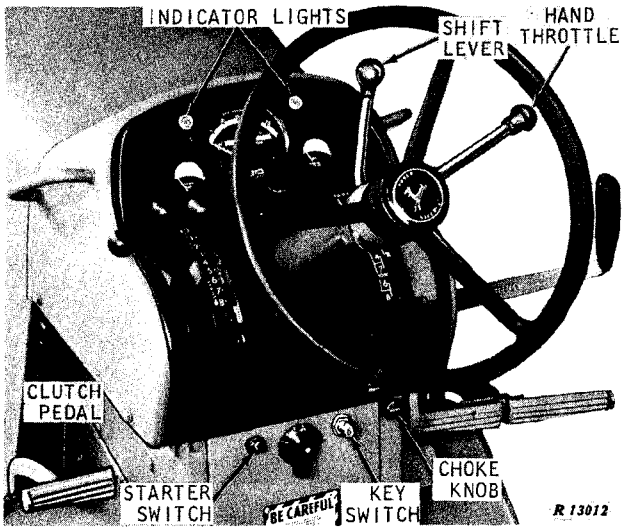
(4) Press on the starter switch to start the engine. Do not press on the starter switch for more than 30 seconds at a time. To do so may overheat the starter. If the engine does not start the first time, wait for a minute or two before trying again. If it does not start after four attempts, see "Trouble Shooting" (page 73).

If the starter 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.

(5) After the engine starts, both indicator lights should go out. If either light continues to glow after the engine has been running 10 seconds, stop the engine and determine the cause. When the engine is running, always leave the key switch in the "ON" position so that the indicator lights will function.

On tractors with Power Shift transmission, check to see that the transmission oil pressure gauge indicates oil pressure. Operating the engine when gauge shows insufficient pressure may damage the tractor. See pages 8 and 13.

STARTING THE GASOLINE ENGINE



Starting Controls on Gasoline Tractors with Syncro-Range Transmission

Perform the Prestarting checks listed on page 5.

(1) If your tractor has a Syncro-Range transmission, move the shift lever into "PARK" position and depress the clutch pedal. If your tractor has a Power Shift transmission, move the selector lever into "PARK" position and depress the inching pedal.

(2) When the engine is cold, pull the hand throttle down, pull the choke knob out, and push the hand throttle all the way up with the knob out (idle for engine shut-off position).

If the engine is warm, place the hand throttle in the 800 rpm position, all the way up with the knob in.

NOTE: At extremely low temperatures it may be necessary to use a cold weather starting aid (page 8).

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

(4) Press on the starter switch to start the engine. To prevent overheating the starter, do not operate the starter for more than 30 seconds at a time and then wait a minute or two before trying again. If the engine does not start and the choke was not pulled out, momentarily pull the choke knob out while starting the engine. If it does not start after four such attempts, see "Trouble Shooting" (page 73).

If the starter 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.

(5) If the choke was used as recommended in Step 2, push the knob in after the engine starts. During cold weather, it may be necessary to leave the choke partially on for the first few minutes.

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

(6) As the engine begins to run, check to see that both indicator lights go out. If either light continues to glow after the engine has been running faster than 700 rpm for more than 10 seconds, stop the engine and determine the cause.

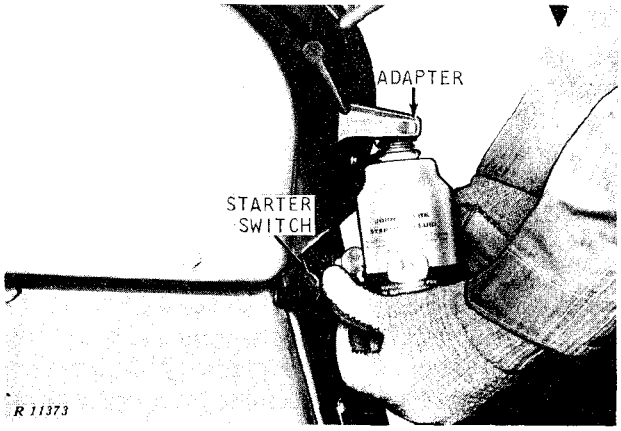
On tractors with Power Shift transmission, check to see that the transmission oil pressure gauge indicates oil pressure. Operating the engine when gauge shows insufficient pressure may damage the tractor. See pages 8 and 13.

COLD WEATHER STARTING AIDS

For cold weather starting, the diesel tractor is equipped with an ether starting fluid adapter. The Power Shift transmission tractor is 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)



Injecting Starting Fluid

The diesel tractor is equipped with this adapter which is used to inject atomized ether starting fluid into the engine air intake system. Pressurized cans of starting fluid are available from your John Deere dealer.

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

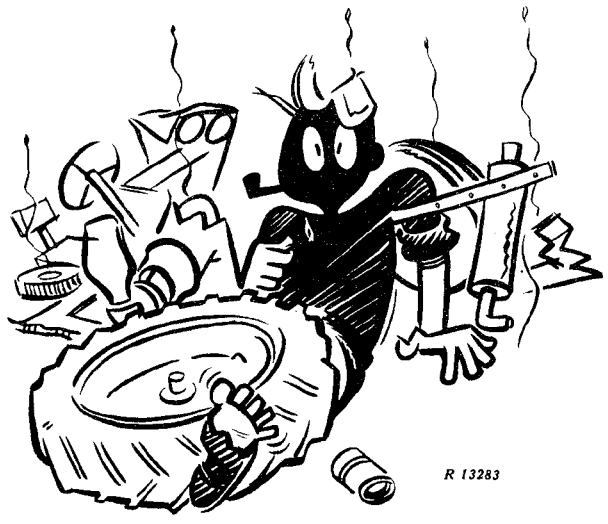
To inject a "shot" of starting fluid, momentarily push up on the can.

CAUTION: To avoid damage, turn engine with starter one or two revolutions before injecting starting fluid and 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.

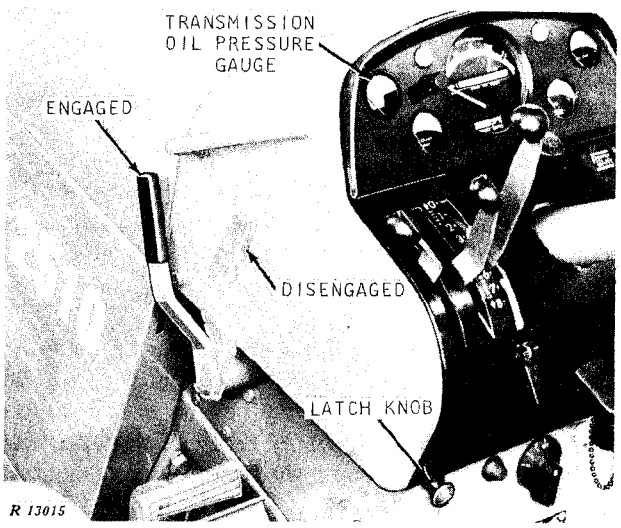
Be sure to install the cap on the adapter when it is not in use. This will prevent dust from being drawn into the engine.

Store starting fluid cans where they will not be subject to extreme cold or warm temperatures. For best results, store fluid at room temperature.



CAUTION: Ether starting fluid is highly flammable.

ENGINE DISCONNECT LEVER (Power Shift Tractors)



Engine Disconnect Lever

During cold weather, the starter speed on Power Shift tractors may be increased by disengaging the engine disconnect lever 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 while pulling out on the latch knob. Hold the knob out and allow the lever to move forward to the engaged position. Release the latch knob. The transmission oil pressure gauge should indicate oil pressure (pages 5 and 13).

CAUTION: 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 the engine of a Power Shift tractor by towing or pushing the tractor.

SHUTTING OFF HYDRAULIC PUMP

Starter speed may be increased during cold weather by shutting off the hydraulic pump so it will not build up pressure. The hydraulic pump shut-off screw assembly is available from your John Deere dealer and it is installed on top of the hydraulic pump which is to the rear of the fuel tank.

To shut the pump off, 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 out against the internal stop (turn the screw counter-clockwise). 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 HEATER

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. To use the heater, remove the cap, connect the cord to the heater and to any convenient 115-volt electrical source. To remove the electrical connector from the heater, press the release lever in the connector.

ADDITIONAL BATTERIES

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

CAUTION: Gas given off by batteries is explosive. To prevent 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. Connect one end of the other jumper cable to the negative post of the booster battery and connect the other end of the jumper cable 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 will damage the alternator or the electrical wiring.

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 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 SAE rated PTO speeds.

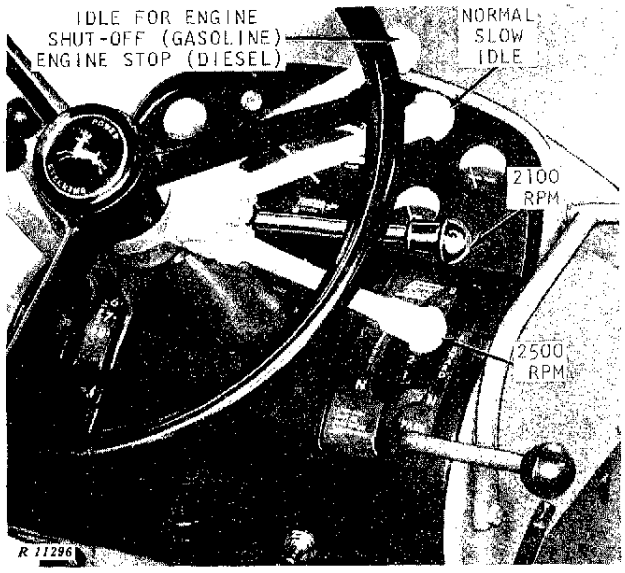
Normal slow idle speed is approximately 800 rpm. Gasoline tractors without an electrical carburetor fuel shut-off solenoid have a 425 rpm idle speed for engine shut-off.

To check engine speeds, see page 54.

USING HAND THROTTLE

Use the hand throttle to select slow idle or any of the variable governed speeds from 1500 to 2500 rpm.

Push the throttle upward with the knob in to obtain the normal slow idle speed of 800 rpm. To obtain the idle speed for engine shut-off on gasoline tractors, pull out on the knob on the hand throttle and push the throttle upward as far as it will go. To obtain the 2100 rpm load speed,

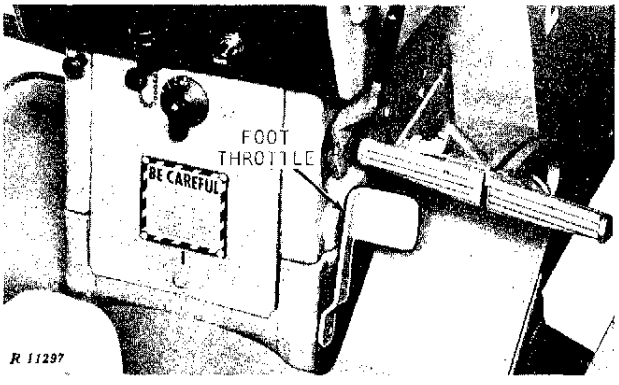


Range of Hand Throttle Positions

pull the throttle downward to the first stop. Placing the throttle halfway between slow idle and 2100 rpm gives the 1500 rpm speed. Engine speeds between 1500 rpm and 2100 rpm may be selected by moving the lever between these two positions.

To obtain working speeds above 2100 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 2500 rpm load speed position. Engine speeds between 2100 and 2500 rpm may be selected by moving the lever between these two positions.

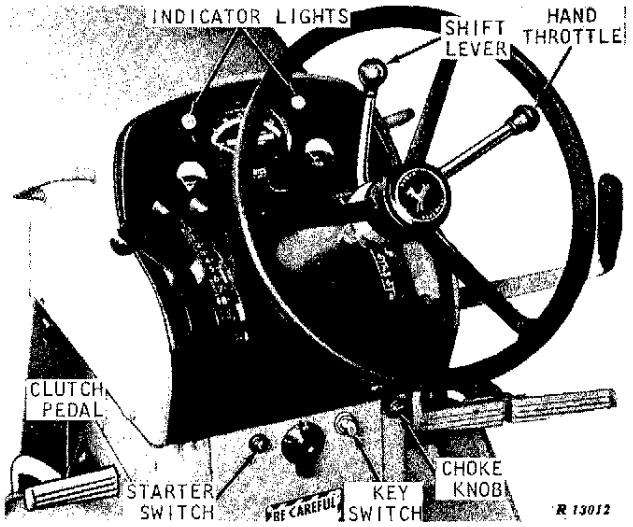
USING FOOT THROTTLE



Foot Throttle

The foot throttle is used to increase engine speed momentarily. When the foot throttle is pushed all the way downward, the engine operates at 2500 rpm load 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

Pull out on the hand throttle knob and push the throttle up into the engine stop position. Turn the key switch off.

GASOLINE ENGINES

On tractors with an electrical carburetor fuel shut-off solenoid, run the engine at approximately 800 to 1200 rpm and turn the key switch off. On tractors without an electrical carburetor shut-off solenoid, pull out on the hand throttle knob and push the throttle all the way up into the idle position for engine shut-off (this prevents after-running). Stop the engine by turning the key switch off.

BOTH ENGINES

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

BREAKING IN THE ENGINE

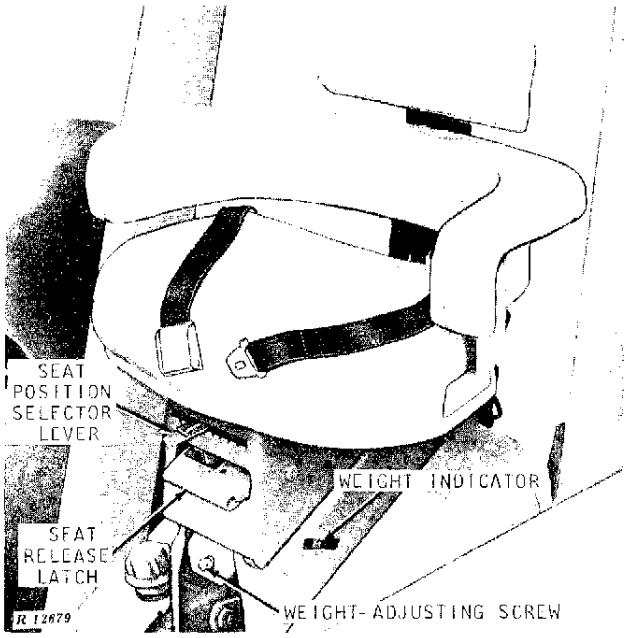
NOTE: If the coolant temperature rises above the "N" range, operate in a lower gear to reduce the load on the engine. Be sure to follow the special break-in lubrication instructions given on page 45.

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

During the first 20 hours, it is not recommended to use the foot throttle or to place the hand throttle in speeds above the 2100 rpm load speed position (page 9). 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 solvents.

MOVING SEAT TO UPPER REAR POSITION

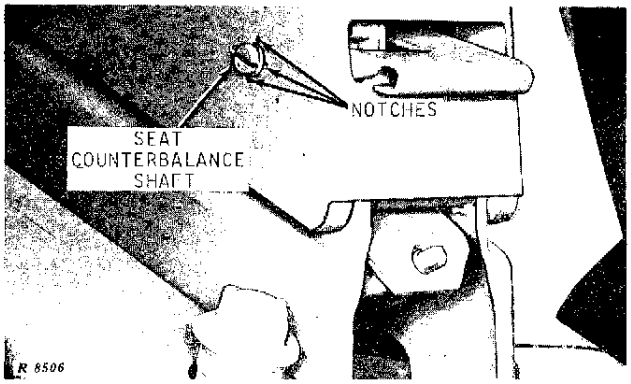
To move the seat up and back, stand up and lift the seat release latch. A counterbalance spring will move the seat to the upper rear position. Sit down to return the seat to the normal preset operating position.

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 poisition 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.

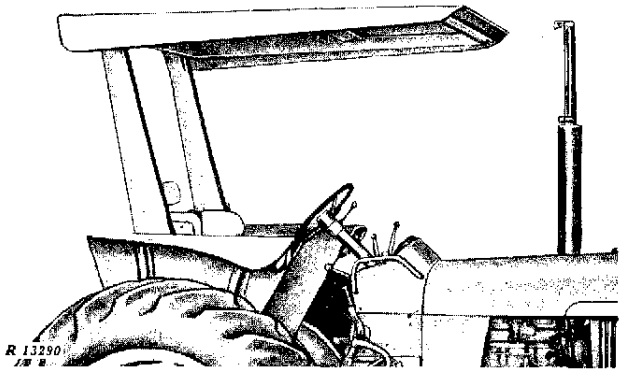
ADJUSTING COUNTERBALANCE SPRING



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 71 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.**

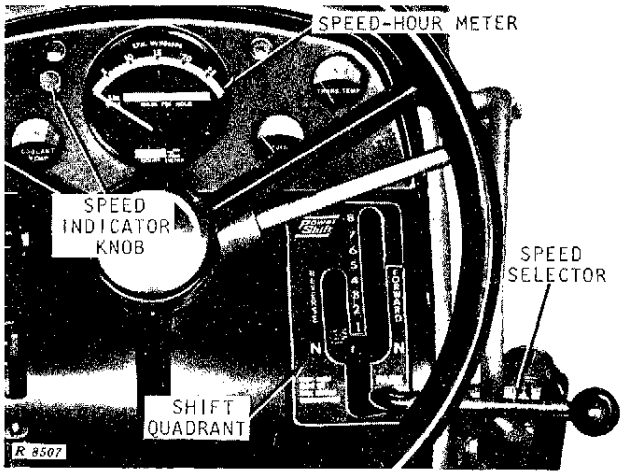
SELECTING GROUND SPEED

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 2500 rpm. Tractor ground speeds shown in the chart are only for engine speeds of 1500, 2100, 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 needle will now indicate the tractor ground speed in miles per hour.

Avoid overloading the tractor. When this occurs, operate in a lower gear. 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.

NOTE: The ground speeds shown in the chart below are for Row-Crop tractors with 13.6-38 rear tires that have a loaded radius of 28.5 inches. Hi-Crop tractors have similar ground speeds.

TRACTOR GROUND SPEEDS IN MILES PER HOUR

Gear	1500 Rpm		*2100 Rpm		2500 Rpm	
	Syncro-Range	Power Shift	Syncro-Range	Power Shift	Syncro-Range	Power Shift
1st	1.1	1.0	1.5	1.4	1.8	1.7
2nd	1.7	1.4	2.4	2.0	2.8	2.4
3rd	2.2	2.2	3.1	3.1	3.6	3.7
4th	2.8	2.9	3.9	4.0	4.7	4.8
5th	3.5	3.7	4.8	5.1	5.7	6.1
6th	4.6	4.7	6.5	6.7	7.7	7.9
7th	5.8	6.3	8.1	8.8	9.6	10.5
8th	9.5	10.5	13.2	14.7	15.8	17.5
1st reverse	2.1	1.2	3.0	1.6	.....	.....
2nd reverse	3.3	1.7	4.7	2.3	.....	.....
3rd reverse	....	2.6	.....	3.6	.....	.....
4th reverse	....	3.3	.....	4.7	.....	.....

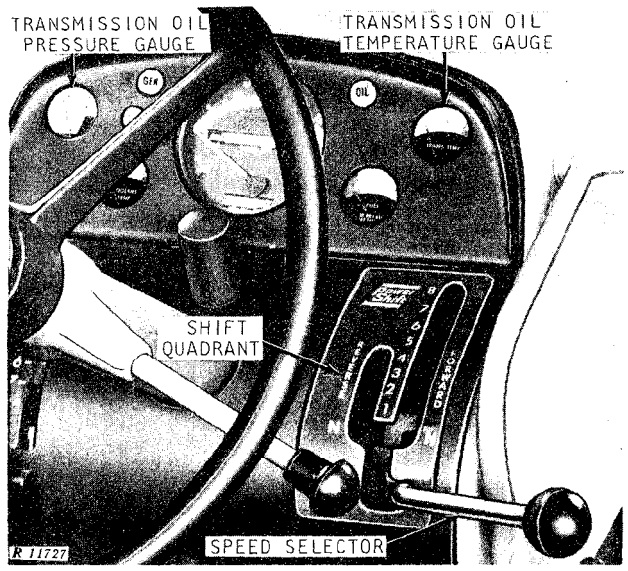
**2100 engine rpm gives the SAE rated 540 or 1000 rpm PTO speed. Some PTO-driven implements are operated at other speeds. See the implement operator's manual for detailed instructions.*

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 a Power Shift transmission, check the transmission oil pressure gauge and the transmission oil temperature gauge for satisfactory transmission operation.

If the indicator hand 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. See page 64. Also check for proper transmission-hydraulic oil level. If necessary, fill the system to the proper level. See page 52. If this does not correct the difficulty, call your John Deere dealer. Do not operate the tractor when the temperature indicator hand is in the red zone.

When operating the engine at 2200 rpm, the indicator hand on the transmission oil pressure gauge should be to the right of the minimum transmission pressure line.

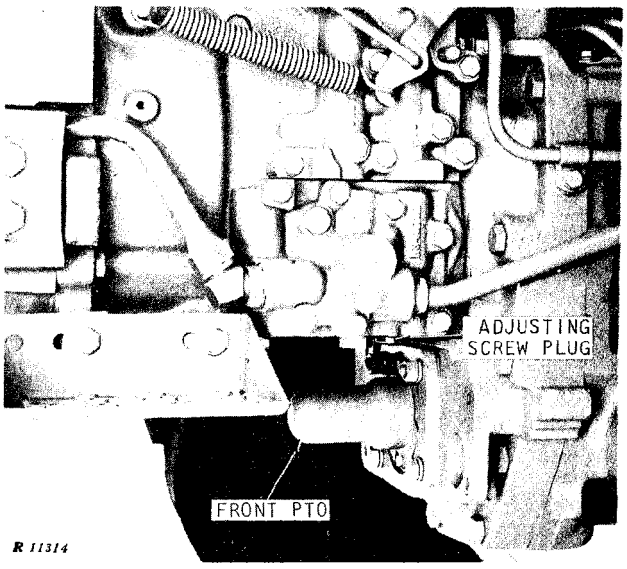
The minimum, safe transmission oil pressure will decrease in proportion to engine speed below 2200 rpm. If the pressure is questionable, check it by momentarily running the engine at 2200 rpm.

If the gauge indicates low oil pressure, stop the tractor and check the transmission oil level (see page 52). If the oil level is in the "SAFE" range, the transmission-hydraulic system filters may be clogged and need replacing. See pages 54 and 76. If this does not correct the difficulty, call your John Deere dealer.

CAUTION: Do not operate the tractor when the transmission oil temperature is too high or the oil pressure is too low.

SHIFT ADJUSTMENT

The transmission speed-of-shift may be adjusted for rapid shift or for slow, smoother shift. When pulling a heavy load, such as a plow, adjust for a rapid shift to prevent the tractor from stopping while shifting. When pulling a light load, such as a mower, adjust for a slow, smooth shift.



Speed-of-Shift Adjusting Screw Plug

To adjust the speed-of-shift, stop the engine and remove the adjusting screw plug at the bottom of the valve housing on the left-hand side of the tractor. With a screwdriver, turn the adjusting screw in (clockwise) to slow down the shifting. To speed up the shifting for heavy loads, turn the adjusting screw out. Turn the

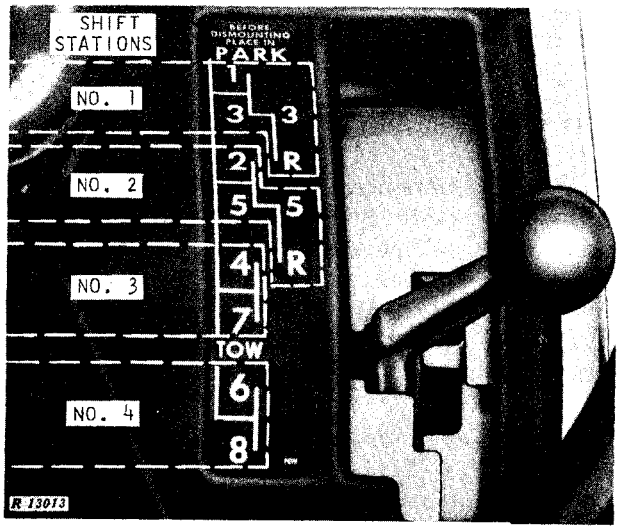
adjusting screw one-half turn at a time until the desired speed-of-shift is obtained.

Install the adjusting screw plug to prevent oil leakage.

SYNCRO-RANGE TRANSMISSION

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.



Syncro-Range Transmission Shift Lever in TOW Position

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 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.

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

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, 2rd and 5th gears, 4th and 7th gears, and 6th and 8th gears without stopping the tractor.

You can also shift from a forward speed to the reverse speed within the same station without stopping the tractor. However, to avoid injury and damage to the tractor, do so only at slow ground speed.

Gradually release the clutch pedal to engage the clutch.

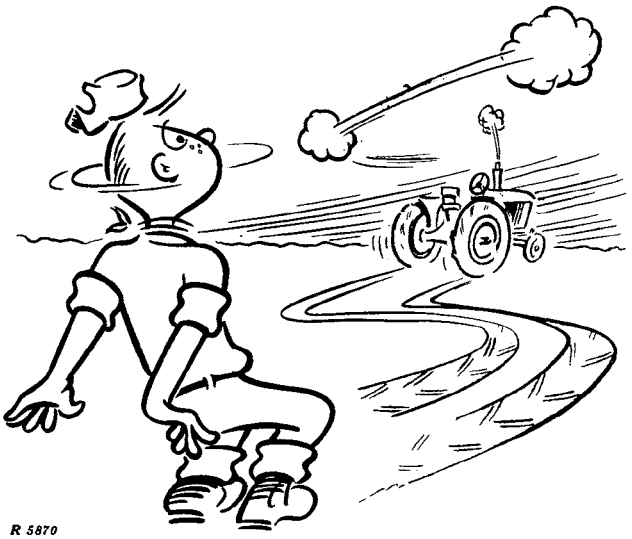
PARKING THE TRACTOR

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

SYNCRO-RANGE TRACTORS

On Syncro-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



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.

Suggest:

If the above button click is invalid.

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first, and then click the above link

to download the complete manual.

Thank you so much for reading

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."

POWER SHIFT TRACTORS

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

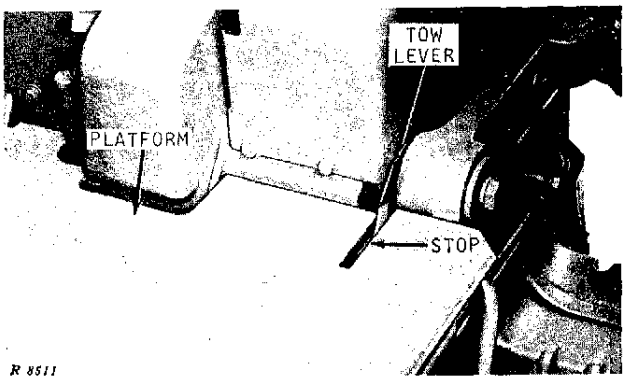
TOWING THE TRACTOR

CAUTION: Never tow the tractor at high speeds. Always attach a tow bar or chain to the tractor frame.

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. When possible, run the engine for power operation of steering and brakes.

POWER SHIFT TRACTORS

When towing a tractor with a Power Shift transmission, move the tow lever to the center of the tractor and forward around the stop until it locks in the "TOW" position. Place the speed selector in the neutral "N" position.



Tow Lever on Power Shift Tractor

When moving the lever out of the "TOW" position to operate the tractor, place the speed selector in "PARK" and move the tow lever rearward, around the stop until the lever locks in the rearward position. If tow lever will not move all the way rearward, start the engine while applying pressure rearward to the lever.

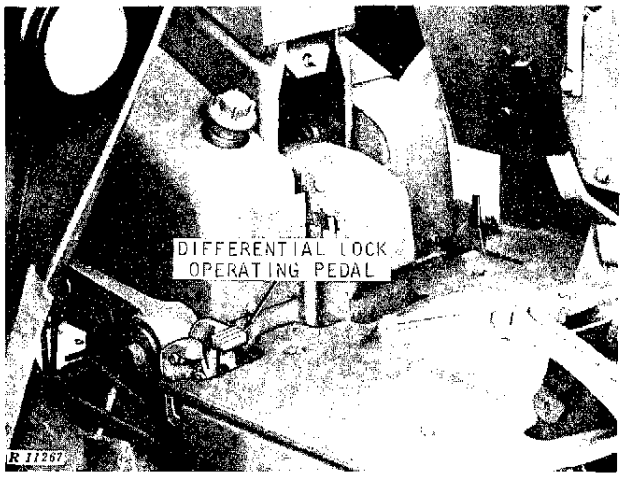
CAUTION: To prevent transmission damage, always place the tow lever in "TOW" position when towing Power Shift tractors. Do not tow the tractor to start the engine.

SYNCRO-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.

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 the differential lock.

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