3020 ROW-CROP STANDARD AND HI-CROP TRACTORS

JOHN DEERE

OPERATORS MANUAL

3020 ROW-CROP STANDARD AND HI-CROP TRACTORS

OMR34406 E4 English

JOHN DEERE TRACTOR WORKS
OMR34406 E4

LITHO IN THE U.S.A.
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.

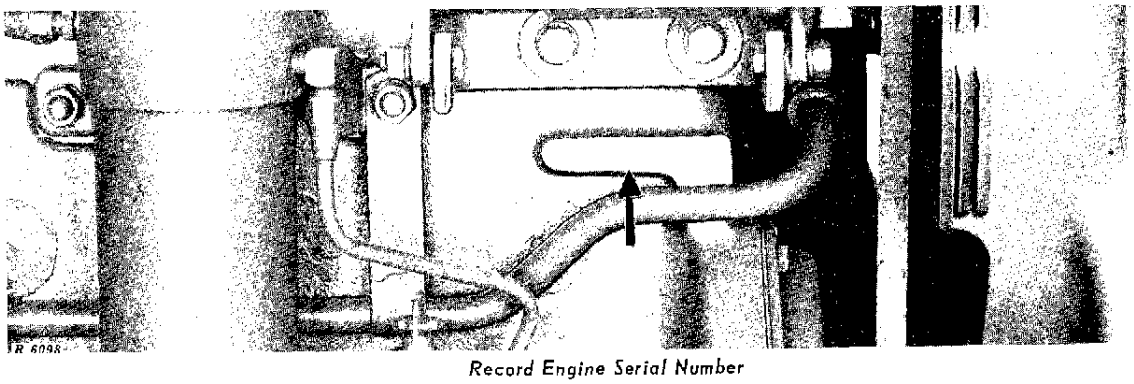
At the time the tractor was delivered, the John Deere dealer discussed with you its safe operation and proper care. However, before putting the tractor to work, read this manual. It contains complete instructions for operating the tractor, caring for it, and taking full advantage of its many time- and 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.

The service policy which you received with your new tractor certifies that the tractor was properly inspected and prepared for delivery by your John Deere dealer. Keep this policy in a safe place and present it to the dealer whenever services which it authorizes are required.

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.

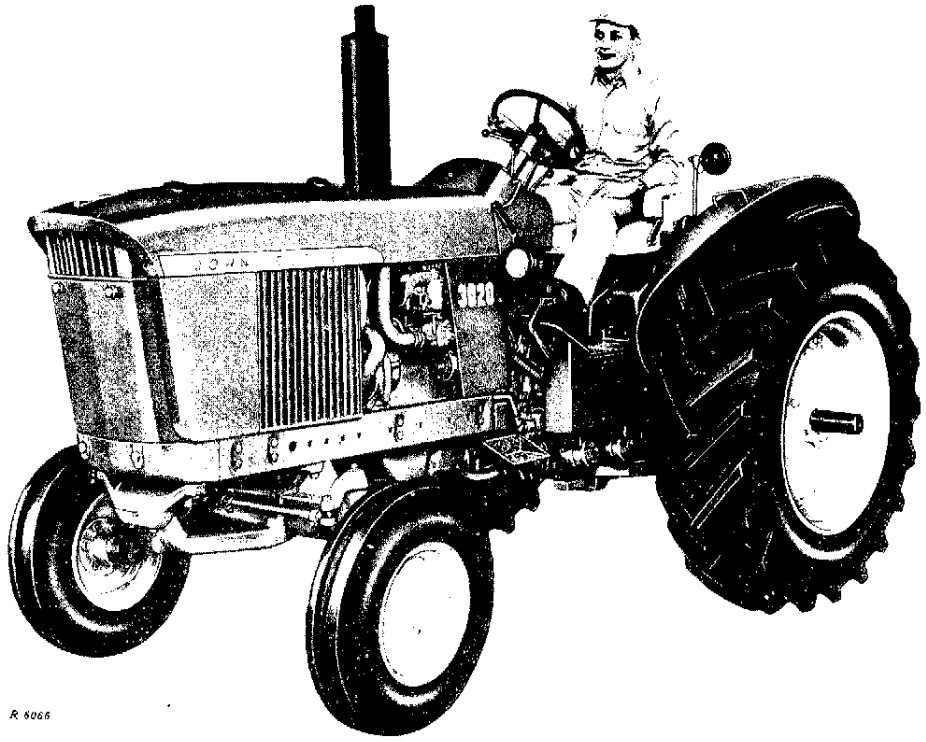
When in need of new parts, be prepared to furnish your dealer with the engine serial number, the tractor chassis serial number, and the tractor series number. For ready reference, locate and record the serial numbers in the spaces provided in the following illustrations.

Record Tractor Chassis Serial Number



Record Engine Serial Number

CONTENTS

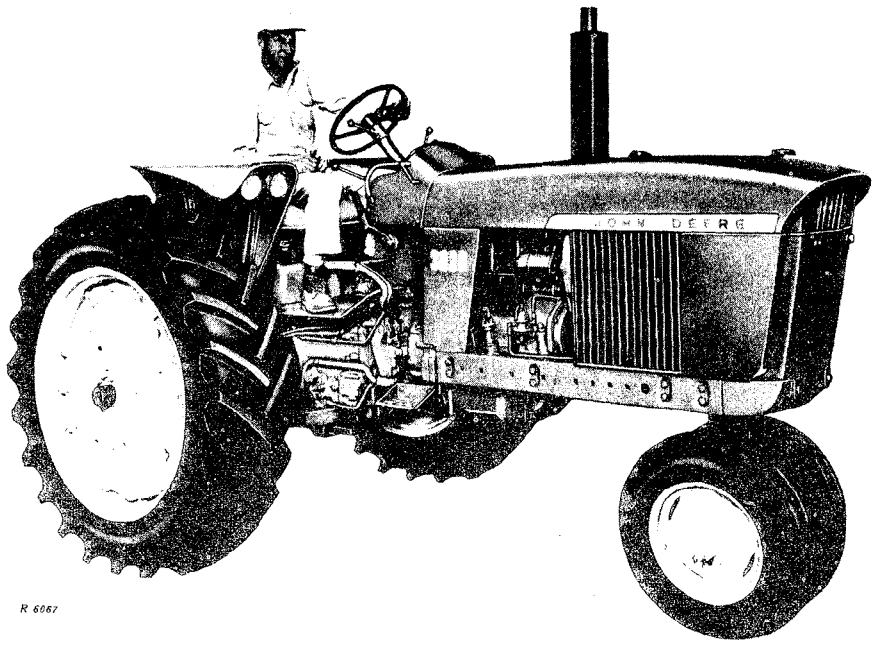


John Deere 3020 Standard Tractor with Gasoline Engine and Power Shift Transmission

SPECIFICATIONS

	Diesel	Gasoline	LP-Gas
HORSEPOWER:*			
PTO (observed)	65 h.p.	64 h.p.	64 h.p.
Drawbar (observed)	57 h.p.	55 h.p.	56 h.p.
ENGINE:			
Type	4-cylinder, in-line, valve-in-head		
Engine speeds:			
Idle for engine shutoff	.....	420 rpm	500 rpm
Normal slow idle	600 rpm	650 rpm	650 rpm
Working range	1500 to 2500 rpm	1500 to 2500 rpm	1500 to 2500 rpm
Bore and stroke	4-1/4 in. x 4-3/4 in.	4-1/4 in. x 4 in.	4-1/4 in. x 4 in.
Displacement	270 cu. in.	227 cu. in.	227 cu. in.
Compression ratio	16.5 to 1	7.5 to 1	9.0 to 1
Firing order	1-3-4-2	1-3-4-2	1-3-4-2
Intake valve clearance	0.018 in.	0.015 in.	0.015 in.
Exhaust valve clearance	0.018 in.	0.028 in.	0.028 in.
Injection pump timing	TDC	.....	.....
Distributor timing (see page 64 for engine speed)	.....	20° BTDC	25° BTDC
Distributor point gap	.....	0.022 in.	0.022 in.
Spark plug gap	.....	0.025 in.	0.015 in.
ELECTRICAL SYSTEM:			
Starter and generator voltage	24 volts	12 volts	12 volts
Lights and accessory voltage	12 volts	12 volts	12 volts
12-volt battery, 78-plate, 75 amp-hour	Two (connected in series)	One	One

**Above observed horsepower figures are official at 2500 engine rpm.*



John Deere 3020 Row-Crop Tractor with Gasoline Engine and Power Shift Transmission

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 --	29 U.S. gals.
	LP-Gas (80% full) --	33.6 U.S. gals.
Crankcase	Dry system --	9 U.S qts.
	At service intervals --	8 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.
Air cleaner	Diesel --	4 U.S. pints
	Gasoline and LP-Gas --	2-1/4 U.S. pints
Cooling system	--	19 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
- Standard . . . . . 6.50 - 16, 6-ply

REAR TIRES**
- Row-crop . . . . . 13.6 - 38, 6-ply
- Standard . . . . . 18.4 - 30, 6-ply

FRONT WHEEL TREAD . . . . . See pages 16 and 17

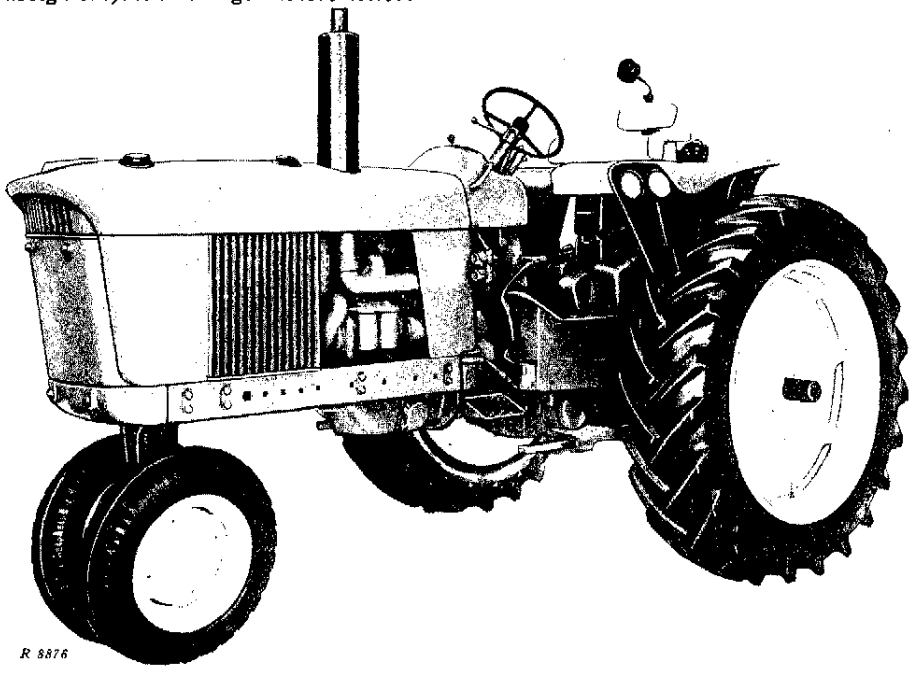
REAR WHEEL TREAD:
- Regular and offset wheels . . . . . See page 18
- Dual wheels . . . . . See page 19

DIMENSIONS	Row-Crop	Standard
Wheel base	90-in.	81-1/2 or 92-3/4 in.
Over-all length	138-1/2 in.	138-1/2 in.
Over-all height	86-5/8 in.	85-1/2 in.
Height to steering wheel	76-3/8 in.	77-1/2 in.
Width (regular axle)	89-5/8 in.	89-5/8 in.
Turning radius	108 in.	110 in.

SHIPPING WEIGHT (With equipment for average field service, less fuel and ballast. Add 330 lbs. if tractor has Power Shift transmission:

	Row-Crop	Standard
Diesel	7399 lbs.	7692 lbs.
Gasoline	7203 lbs.	7496 lbs.
LP-Gas	7373 lbs.	7666 lbs.

**Additional tires available for special purposes.



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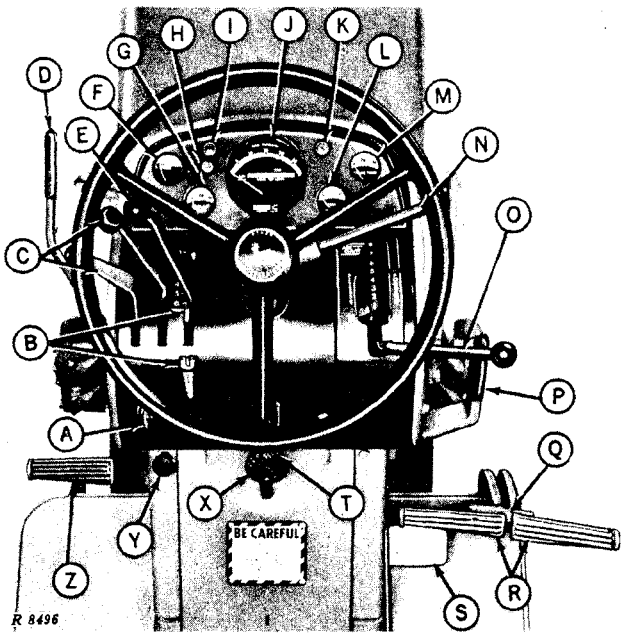
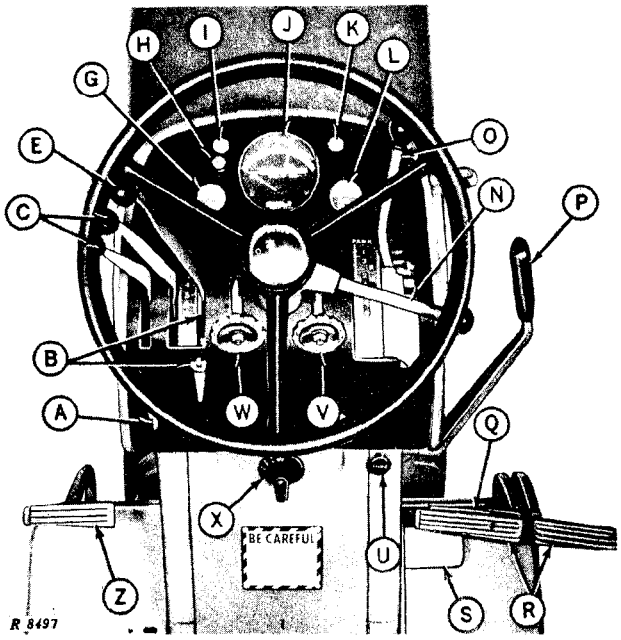
John Deere 3020 Row-Crop Tractor with Diesel Engine and Syncro-Range Transmission

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.

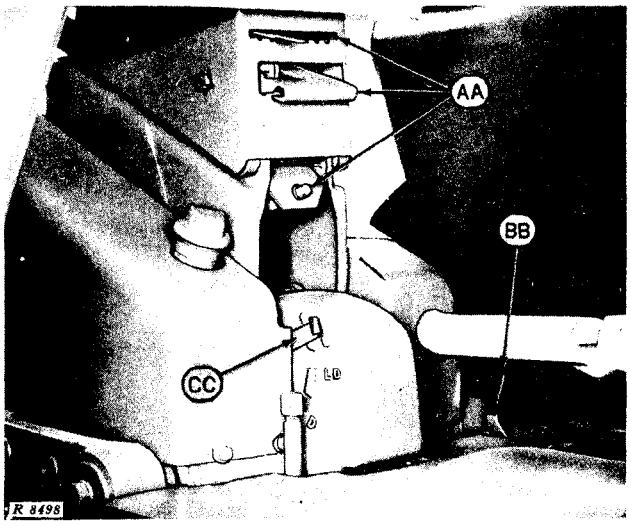


Tractor with Diesel Engine and Power Shift Transmission



Tractor with LP-Gas Engine and Syncro-Range Transmission

A – Key Switch (pages 5, 6, and 10)
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 – Generator Indicator Light (pages 5 and 6)
J – Speed-Hour Meter (pages 12 and 47)
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 Coupler Bar (page 16)
R – Brake Pedals (page 16)
S – Foot Throttle (page 10)
T – Ether Starting Fluid Adapter (Diesel Tractors, page 7)
U – Engine Choke Knob (Gasoline and LP-Gas Tractors, page 6)
V – Vapor Withdrawal Valve (LP-Gas Tractors, page 6)
W – Liquid Withdrawal Valve (LP-Gas Tractors, page 6)
X – Light Switch (page 23)
Y – Lever Latch Knob (Power Shift Tractors, page 8)
Z – Clutch Pedal (Syncro-Range Tractors, page 14)
Inching Pedal (Power Shift Tractors, page 12)



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

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 50.

(2) Check the radiator coolant level - see page 50.

(3) Change the air cleaner oil when the dirt level exceeds 3/8-inch - see page 50. If tractor has a precleaner, check the collector bowl - see page 50.

(4) If tractor has a fuel pump, check the sediment bowl - see page 51.

(5) Grease the wide-swing drawbar rollers, Hi-Crop rear axles, and the Roll-O-Matic or wide front axle grease fittings - see page 51.

(6) Grease the front wheel bearings if the tractor has been operated in extremely wet or muddy conditions - see page 51.

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.

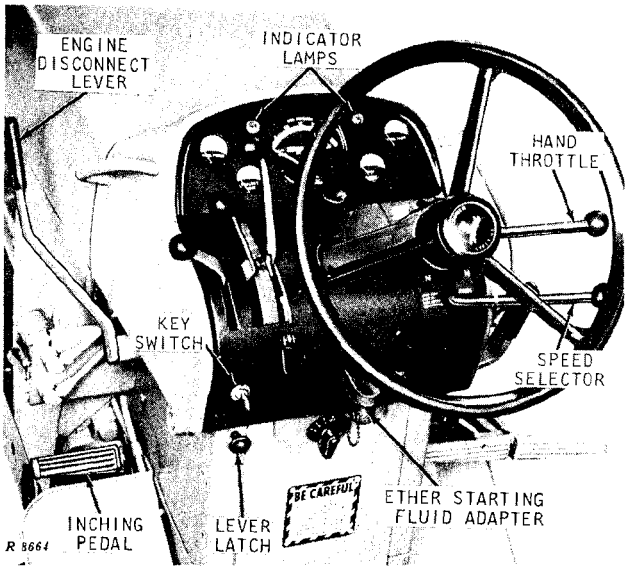
(1) Make sure the fuel shut-off valve on the bottom of the fuel tank is open—see page 58.

(2) See that the shift lever or the speed selector is in the "PARK" position. 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. Both indicator lights should glow. If either 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. Do not hold the key switch in start position 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 such attempts, refer to "Trouble Shooting" (page 75).



Diesel Starting Controls

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

On Syncro-Range transmission tractors the shift lever must be in neutral, or on Power Shift transmission tractors the inching pedal must be depressed before the starter will operate.

(6) After the engine starts, the generator and oil pressure indicator lights should go out. If either light continues to glow when the engine is running faster than 800 rpm, stop the engine and determine the cause. Leave key switch in the on position so 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

Perform the Prestarting checks listed on page 5.

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

(2) See that the shift lever or the speed selector is in "PARK" position. Depress the clutch pedal or the inching pedal.

(3) PLACE THE HAND THROTTLE IN THE 650 RPM POSITION, all the way up with the knob in.

(4) When the prevailing temperature is below 60 degrees Fahrenheit and the engine is cold, pull out on the engine choke knob.

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

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

(6) Turn the key switch all the way to the right to start the engine. Do not hold the key switch in start position for more than 30 seconds at a time. To do so may overheat the starter. If the engine does not start the first time, pull the hand throttle down SLIGHTLY and wait a minute or two before trying again. If it does not start after four such attempts, refer to "Trouble Shooting" (page 75).

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

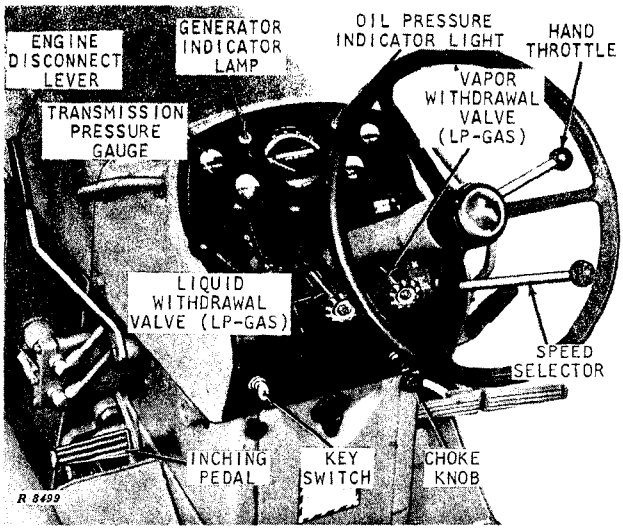
On Sycro-Range tractors, the shift lever must be in neutral, or on Power Shift tractors, the inching pedal must be depressed before the starter will operate.

(7) As soon as the engine starts, push the choke knob in. During cold weather, it may be necessary to leave the choke partially on for the first few minutes.

(8) As the engine begins to run, check to see that the oil pressure and generator indicator lights go out. If either light continues to glow when the engine is running faster than 700 rpm, 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.

STARTING THE LP-GAS ENGINE



Starting Controls on Gasoline and LP-Gas Tractors with Power Shift Transmission

Perform the Prestarting checks listed on page 5.

(1) See that the shift lever or speed selector lever is in "PARK" position. Depress the clutch pedal or inching pedal.

(2) PLACE THE HAND THROTTLE IN THE 650 RPM POSITION, all the way up with the knob in.

(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.

(4) Turn the key switch clockwise to the first position. The generator and oil pressure indicator lights should glow. If either 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.

On Syncro-Range tractors, the shift lever must be in neutral, or on Power Shift tractors, the inching pedal must be depressed before the starter will operate.

(6) In cold weather, if the engine does not start immediately, PLACE THE HAND THROTTLE IN THE 500 RPM POSITION (page 9). While the starter is cranking the engine, pull the choke knob out slowly until the engine fires regularly. Leave the choke in this position and slowly advance the hand throttle. Gradually push the choke knob in. DO NOT OVER-CHOKE.

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

Do not hold the key switch in the start position 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 to allow the starter to cool. If the engine does not start after four such attempts, refer to "Trouble Shooting" (page 75).

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

(7) As the engine begins to run, check to see that the oil pressure indicator light and generator indicator light go out. If either light continues to glow when the engine is running faster than 700 rpm, 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.

(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.

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

COLD WEATHER STARTING AIDS

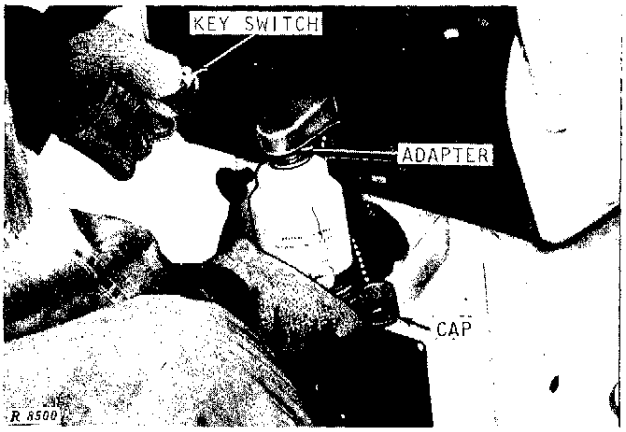
For cold weather starting, the diesel tractor is equipped with an ether starting fluid adapter. The Power Shift transmission tractor is equipped with an engine disconnect lever. Other starting aids are available from your John Deere dealer.

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)

The diesel tractor is 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.

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 starting fluid, 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.

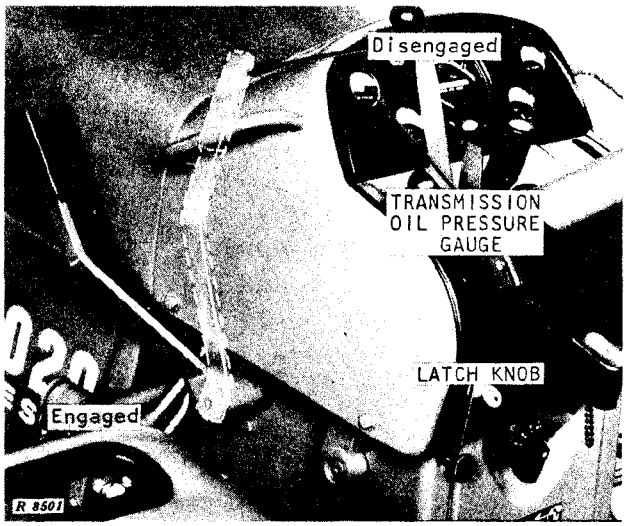
Relax pressure on the can between "shots" of starting fluid. Stop injecting fluid after the engine starts. If the engine begins to die during the first few minutes of operation, inject another "shot" of fluid. When the engine is operating satisfactorily, remove the can from the adapter and replace the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

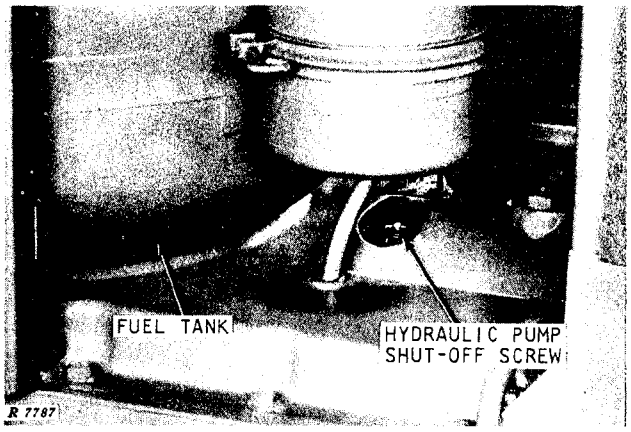
During cold weather, the starter speed on Power Shift tractors may be increased by disengaging the engine disconnect lever so that the transmission will not turn. To do so, pull the lever rearward until it is latched in the disengaged position.

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

If the tractor has a hydraulic pump shut-off screw (available from your John Deere dealer), the starter speed may be increased during cold weather by shutting off the hydraulic pump so it will not build up pressure. To do so, 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.

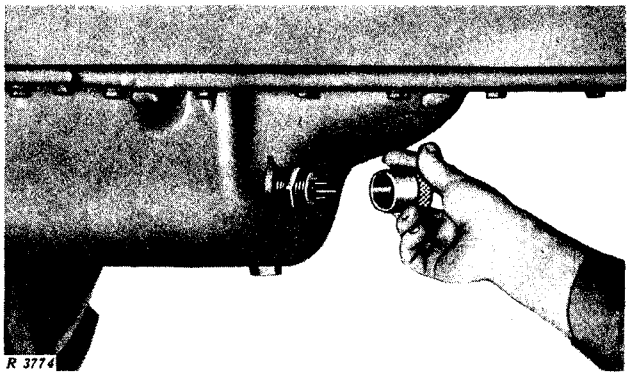


Hydraulic Pump Shut-Off Screw

After the engine has started, use a screwdriver to back the shut-off screw all the way out (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



Removing Cap from 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. To remove the electrical connector from the heater, press the release lever in the connector.

ADDITIONAL BATTERIES

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

Use jumper cables to connect the positive (+) terminals of the booster batteries to the positive (+) terminals of the tractor batteries and the negative (-) terminals of the booster batteries to the negative (-) terminals of the tractor batteries. See your John Deere dealer for tractor-mounted booster batteries.

BATTERY WARMER

This warmer is used to warm the battery, permitting it to furnish electrical current to the starter efficiently in cold weather.

Place the battery warmer under the battery in the battery compartment and plug the cord from the warmer into any convenient 115-volt electrical source. If it was necessary to disconnect the battery, be sure to connect the battery cables properly (page 68).

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 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.

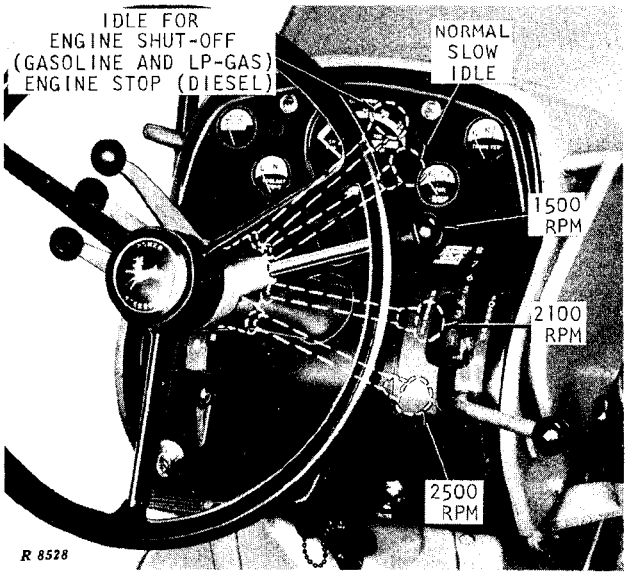
ENGINE SPEEDS

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 is approximately 600 rpm. On a gasoline tractor, a 420 rpm idle speed is provided for engine shut-off. The engine shut-off idle speed is 500 rpm on a LP-Gas tractor.

To check engine speeds, see page 55.

USING HAND THROTTLE



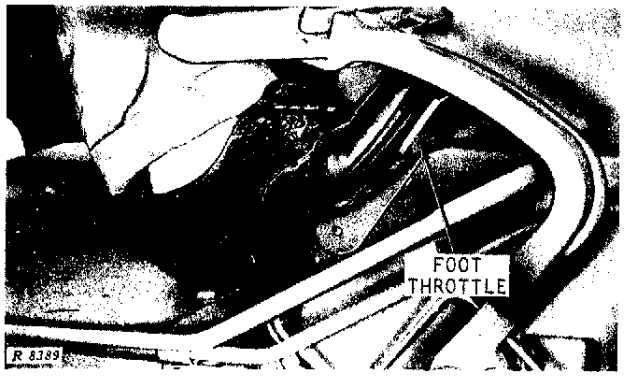
Range of Hand Throttle Positions

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

Push the throttle upward as far as it will go to obtain the normal slow idle speed (600 rpm for diesel tractors and 650 rpm for gasoline or LP-Gas tractors). To obtain the idle speed for engine shut-off on gasoline or LP-Gas tractors, pull out on the knob on the hand throttle and push the throttle upward as far as it will go. To obtain 2100 rpm load speed, 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 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.

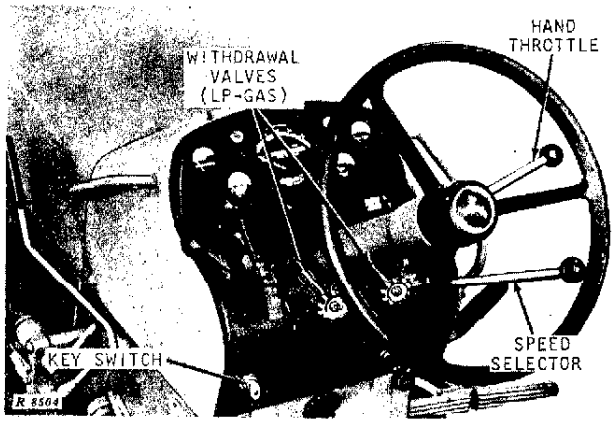
USING FOOT THROTTLE



Operating the Foot Throttle

The foot throttle is used to raise 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

Pull out on the hand throttle knob and push the throttle up into the idle position for engine shut-off. Stop the engine by turning the key switch off.

LP-GAS ENGINES

Close the withdrawal valves and let the engine run until all fuel is exhausted from the lines and the engine stops. Turn the key switch off.

CAUTION: Never leave liquid fuel in the lines with the withdrawal valves closed. To do so can damage the fuel system. Never leave the tractor with the valves open.

ALL ENGINES

After stopping the engine, remove the key from the switch to prevent tampering and unauthorized operation. Removing the key also prevents battery discharge in the event that the switch was accidently left in the on or the accessory position (counter-clockwise from off).

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.

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

DIESEL ENGINE

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.

When the sulphur content of the diesel fuel used does not exceed 0.5%, change the engine oil and engine oil filter after the first 100 hours of service (pages 45 and 52).

NOTE: When the sulphur content of the diesel fuel exceeds 0.5%, change the engine oil and oil filter after the first 20 hours of operation.

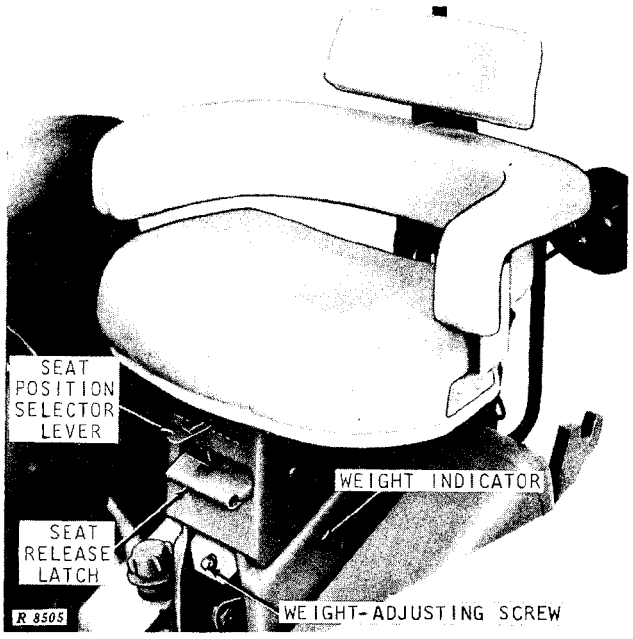
GASOLINE AND LP-GAS ENGINES

During the first 20 hours of service, operate the gasoline or LP-Gas engine at half load with the hand throttle in the 2100 rpm load speed position (page 9). At half load, the engine speed will be approximately 2250 rpm. During the break-in period, it is not recommended to use the foot throttle or to place the hand throttle in speeds above the 2100 rpm load speed position.

After 20 hours, drain the special break-in oil, replace the engine oil filter, and fill the crankcase with the proper oil (page 45). The gasoline or LP-Gas engine is then ready for normal operation.

OPERATING THE TRACTOR

SEAT



Seat Controls

The deluxe, foam-padded suspension seat is equipped with a steel compression spring and shock absorber to provide "Float-Ride" comfort. The semi-circular lower backrest and flexibly mounted upper backrest add to the operator's comfort and safety.

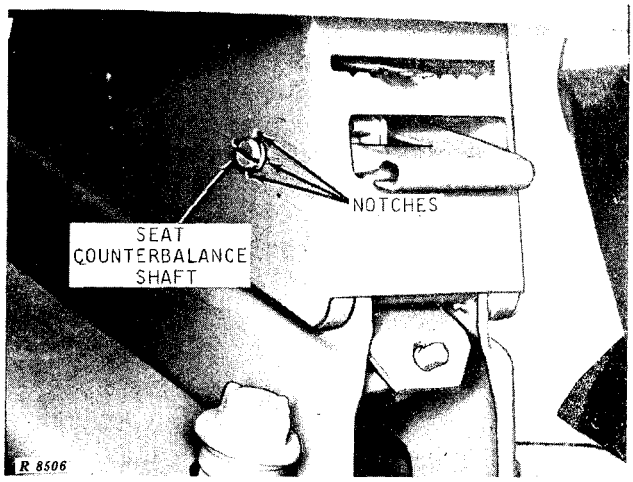
Use only warm water and mild soap to clean the seat cushions. NEVER USE SOLVENTS.

MOVING SEAT TO UPPER REAR POSITION

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

ADJUSTING FOR HEIGHT OF OPERATOR

The normal operating position of the seat can be suited to the height of the individual operator. To make this adjustment, first move the seat to the upper, rear position. Then shift the seat position selector lever between "short" and "tall" until the pedals and levers can be operated comfortably when you are seated. The seat will always return to this position when you sit down after having moved the seat up and to the rear for standing.



Seat Counterbalance Shaft

ADJUSTING FOR WEIGHT OF OPERATOR

You can adjust the tension of the steel compression spring to conform to your weight. This results in the proper amount of comfort and enables the seat to "float" when traveling over rough ground. To make this adjustment, turn the weight-adjusting screw clockwise or counter-clockwise until the indicator on the left-hand side of the seat conforms to your weight.

ADJUSTING COUNTERBALANCE SPRING

If the seat does not move fully to the rear when unlatched, adjust the counterbalance spring as follows. Move the seat to the upper rear position. Insert a screwdriver in the slot in the counterbalance shaft, push in to unlatch the shaft, and turn the shaft counter-clockwise. Align the latch in the end of the shaft with one of the pairs of slots in the side of the seat support and pull the screwdriver outward to latch the shaft.

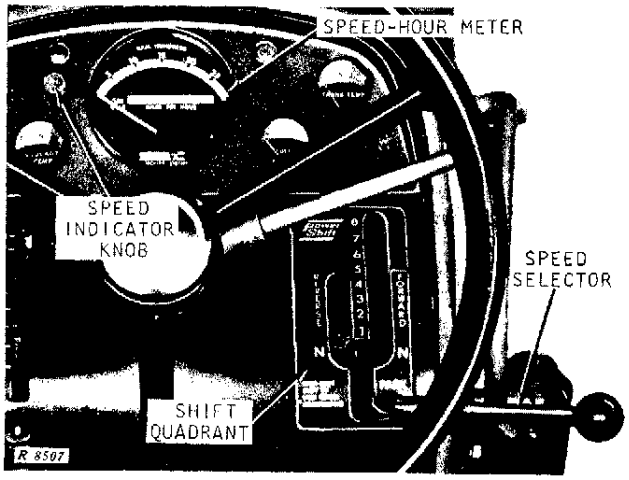
SELECTING GROUND SPEED

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.

TRACTOR GROUND SPEEDS IN MILES PER HOUR

NOTE: The ground speeds shown in this chart are for Row-Crop tractors with 15.5-38 rear tires that have a loaded radius of 28.5 inches. Standard and Hi-Crop tractors have similar ground speeds.

Gear	1500 Rpm		*2100 Rpm		2500 Rpm	
	Syncro-Range	Power Shift	Syncro-Range	Power Shift	Syncro-Range	Power Shift
1st	1.2	1.1	1.7	1.6	2.0	1.9
2nd	1.9	1.6	2.6	2.2	3.1	2.6
3rd	2.4	2.5	3.4	3.4	4.1	4.1
4th	3.1	3.2	4.4	4.4	5.2	5.3
5th	3.8	4.1	5.4	5.7	6.4	6.8
6th	5.1	5.3	7.2	7.4	8.6	8.8
7th	6.4	7.0	9.0	9.8	10.1	11.7
8th	10.5	11.7	14.7	16.3	17.6	19.5
1st reverse	2.4	1.3	3.3	1.8	. . .	. . .
2nd reverse	3.7	1.8	5.2	2.6	. . .	. . .
3rd reverse	. . .	2.9	. . .	4.0	. . .	. . .
4th reverse	. . .	3.7	. . .	5.2	. . .	. . .

**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.*

Suggest:

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to download the complete manual.

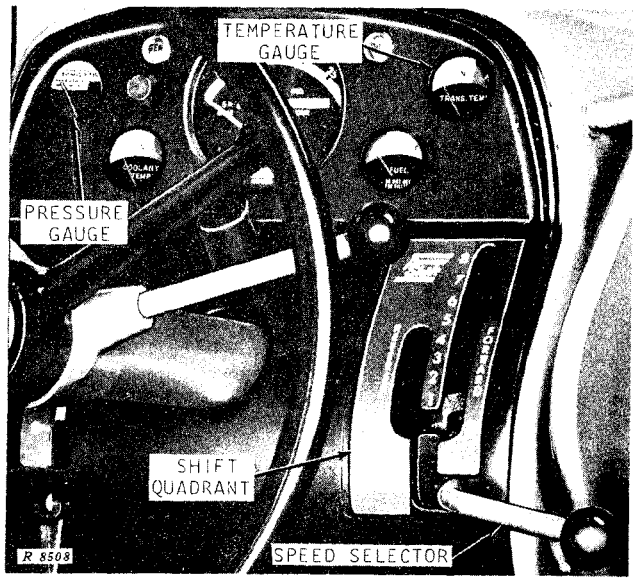
Thank you so much for reading

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 66. Also check for proper transmission-hydraulic oil level. If necessary, fill the system to the proper level. See page 53. 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 53). If the oil level is in the "SAFE" range, the transmission-hydraulic system filters may be clogged and need replacing. See page 55. 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.

CAUTION: Fast driving is the cause of many accidents. Drive at a safe speed at all times.