

JOHN DEERE 5020 ROW CROP AND STANDARD TRACTORS



JOHN DEERE

OPERATORS MANUAL JOHN DEERE 5020 ROW CROP AND STANDARD TRACTORS

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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 new tractor.

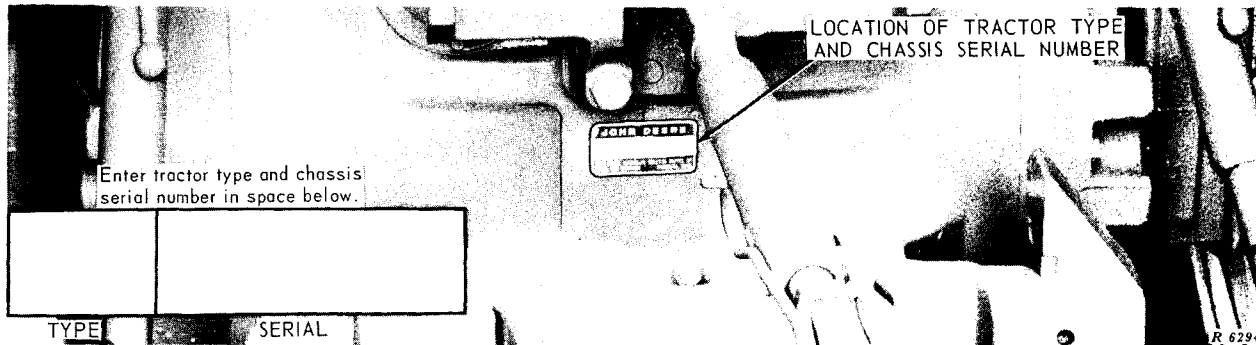
We are confident this modern tractor, combined with equally advanced John Deere tools and implements, will help you to farm better, easier, and more profitably.

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.

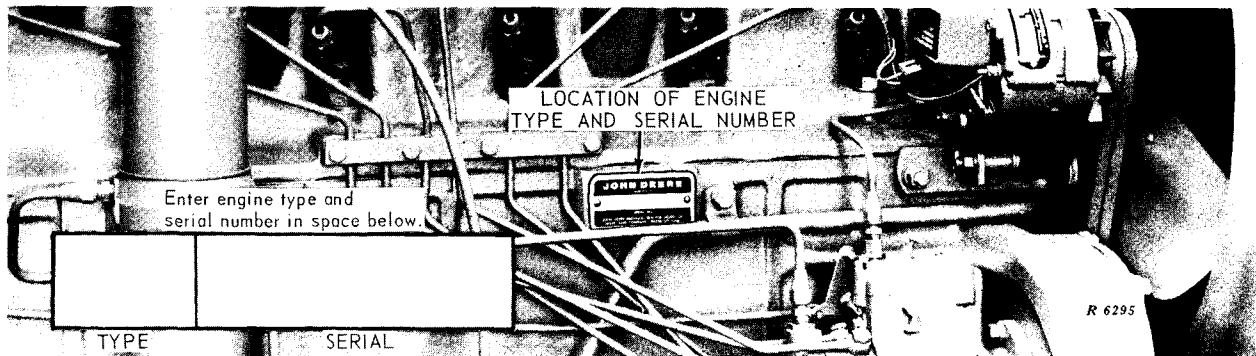
Information concerning warranty on this tractor appears on your copy of the delivery receipt which you should have received from your dealer when the tractor was delivered to you.

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, the complete tractor chassis serial number, the engine type and complete engine serial number. For ready reference, locate and record this information in the spaces provided in the following illustrations.



Tractor Chassis Serial Number



Engine Serial Number



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John Deere 5020 Row-Crop Diesel Tractor with Double Rear Wheels



SPECIFICATIONS

***HORSEPOWER:**

Measured at the PTO 132 hp.

ENGINE:

Type . . . 6-cylinder, in-line, valve-in-head

Engine Speeds:

Slow idle 800 rpm

Working range 1500 to 2200 rpm

Maximum transport speed 2500 rpm

Bore and stroke 4-3/4 in. x 5 in.

Displacement 531 cu. in.

Compression ratio 16.5 to 1

Firing order 1-5-3-6-2-4

Valve clearance intake 0.018 in.
exhaust 0.028 in.

Injection pump timing TDC

CAPACITIES:

Fuel tank 68 U.S. gals.

Crankcase (with filter change). 20 U.S. qts.

Transmission-hydraulic system 16 U.S. gals.

Cooling system 33 U.S. qts.

**Above horsepower figures are factory observed at 2200 engine rpm.*

GROUND SPEEDS:**

1st 1.7 mph

2nd 2.6 mph

3rd 3.5 mph

4th 4.5 mph

5th 5.6 mph

6th 7.3 mph

7th 9.4 mph

8th 15.4 mph

1st reverse 3.4 mph

2nd reverse 5.4 mph

CLUTCH: Heavy-duty, two 12-in. plates, foot operated

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

FUEL SYSTEM:

Type Direct injection

Injection pump type Inlet metering, distributing type

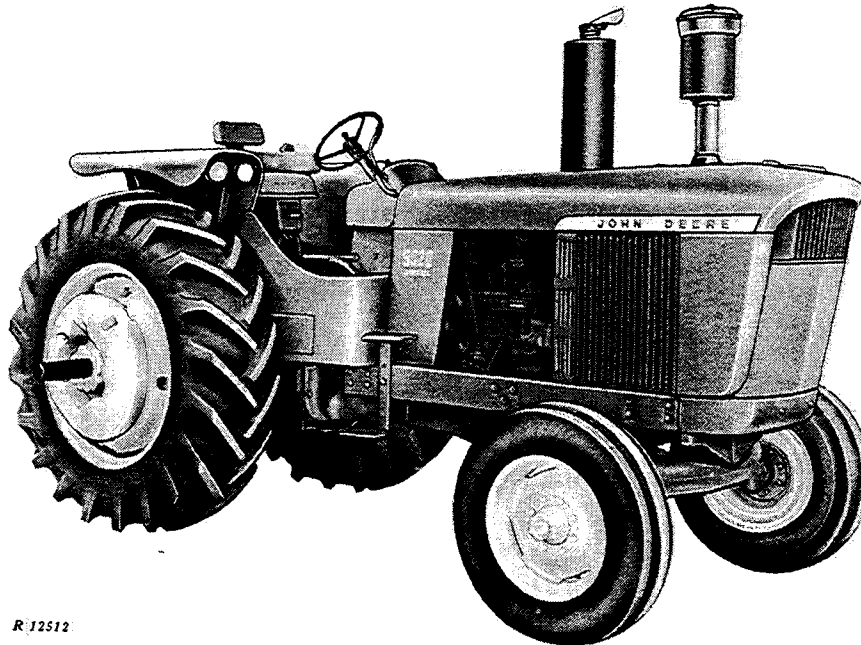
Air cleaner Dry type

COOLING SYSTEM:

Type . . . Pressurized with centrifugal pump

Engine temperature control . . . Two heavy-duty thermostats

***Calculated at 1900 rpm engine speed with 24.5-32 tires.*



R.12512

John Deere 5020 Row-Crop Diesel Tractor

ELECTRICAL SYSTEM:

Type 24-volt, split-load system
 Starter and alternator voltage 24 volts
 Lights and accessory voltage 12 volts
 Batteries . . . Four 6-volt, 51 plate, 115 am-
 pere-hour, tractor-type, connected in series

TRANSMISSION:

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

POWER TAKE-OFF:

Type Independent
 Speed (1900 engine rpm) 1010 rpm
 PTO ahead of drawbar hitch point . . . 16 in.
 PTO shaft above ground 25-1/2 in.

PTO CLUTCH Hydraulically power ac-
 tuated, hand-operated

HYDRAULIC SYSTEM:

Type Closed center, constant pressure.
 Includes power steering, power
 brakes, implement control, and
 transmission and differential lu-
 brication.

Maximum pressure 2250 psi

BRAKES Hydraulically power actuated,
 disk-type operating in oil

FRONT TIRES:***

Standard 11.00-16, 8-ply
 Row-Crop 9.50-20, 8-ply

REAR TIRES***

Standard 24.5-32, 10-ply
 Row-Crop 18.4-38, 12-ply

FRONT WHEEL TREAD See page 11

REAR WHEEL TREAD See page 13

DIMENSIONS:

Standard (Fixed tread front axle):

Wheel base 104 in.
 Over-all length 172.3 in.
 Over-all height 98.3 in.
 Height to steering wheel 82.4 in.
 Width Regular wheel, 95.8 in.
 Clearance 16 in.
 Turning radius 12 ft. 6 in.

Row-Crop (81.5-inch tread front axle):

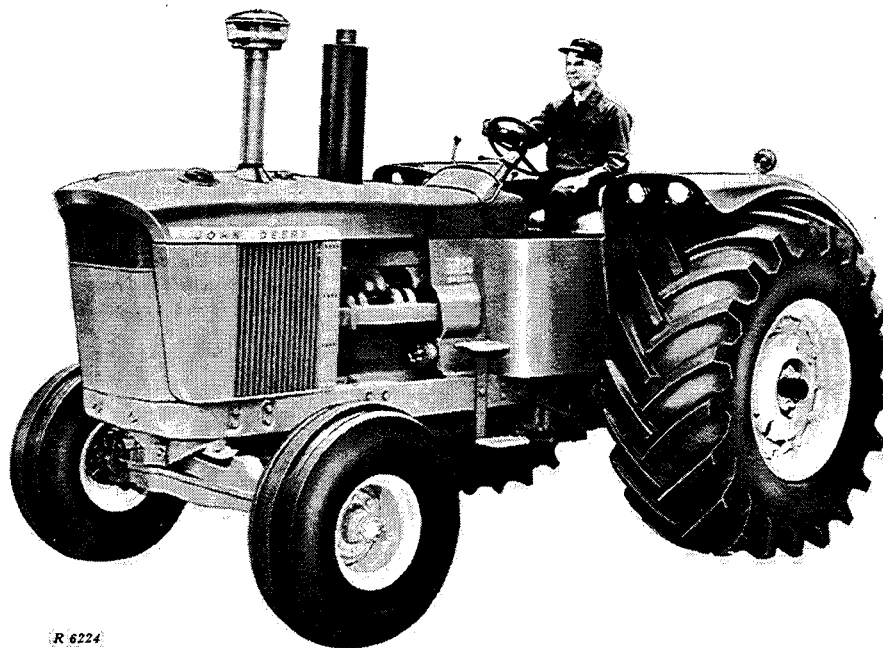
Wheel base 102 to 106 in.
 Over-all length 172.3 in.
 Over-all height 98.3 in.
 Height to steering wheel 82.4 in.
 Over-all width 108.4 in.
 Turning radius 13 ft.

**SHIPPING WEIGHT (With equipment for
 average field service):**

Standard 16,180 lbs.
 Row-Crop 14,510 lbs.

****Additional tire sizes available.*

(Specifications and design subject to change without notice.)



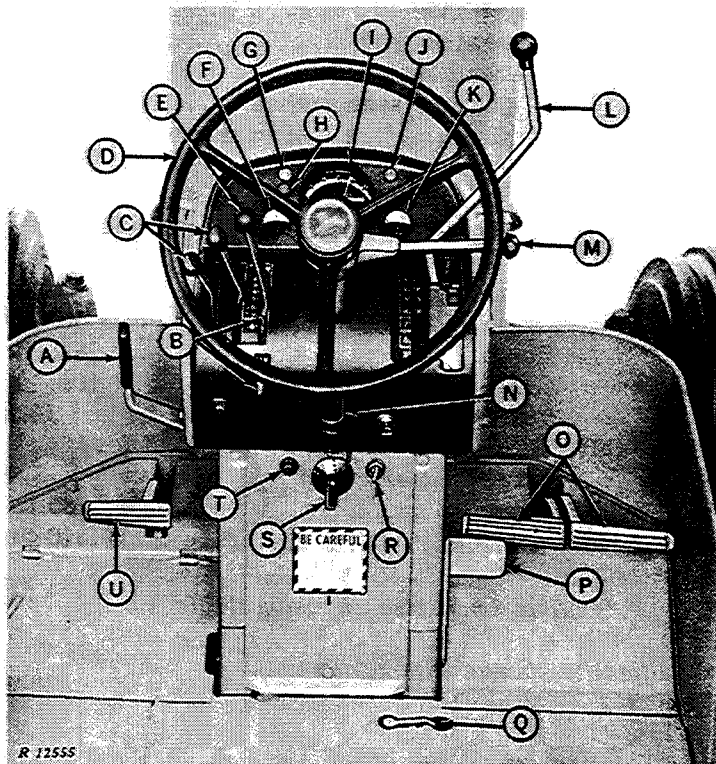
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John Deere 5020 Standard Diesel Tractor

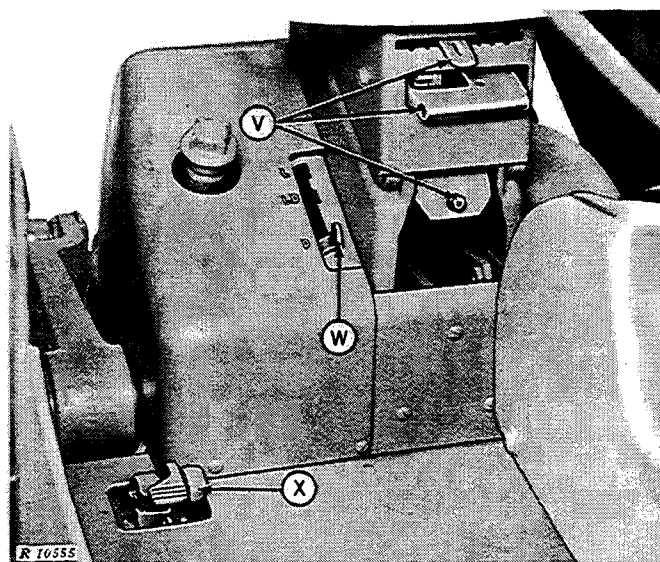


CONTROLS AND INSTRUMENTS

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.



- A - PTO Clutch Operating Lever (Page 27)
- B - Rockshaft Control Lever Stop and Lock (Page 21)
- C - Remote Cylinder Operating Levers (Page 18)
- D - Steering Wheel
- E - Rockshaft Control Lever (Page 21)
- F - Water Temperature Gauge
- G - Alternator Indicator Lamp (Page 6)
- H - Speed Indicator Knob (Page 10)
- I - Speed-Hour Meter (Pages 10 and 33)
- J - Oil Pressure Indicator Lamp (Page 6)
- K - Fuel Gauge
- L - Gear Shift Lever (Page 10)
- M - Hand Throttle (Page 8)
- N - Ether Starting Fluid Adapter (Page 7)
- O - Brake Pedals (Page 11)
- P - Foot Throttle (Page 8)
- Q - Power Take-Off Drive Disconnect Lever (Page 27)
- R - Key Switch (Page 6)
- S - Light Switch (Page 16)
- T - Starter Switch (Page 6)
- U - Clutch Pedal (Page 10)



- V - Seat Controls (Page 5)
- W - Rockshaft Selector Lever (Page 21)
- X - Differential Lock Operating Pedal (Page 11)

SEATS

The deluxe tractor seat has a steel compression spring and shock absorber to provide "float ride" suspension. The seat is also equipped with a flexibly mounted padded backrest and semi-circular foam padding which surrounds the operator.

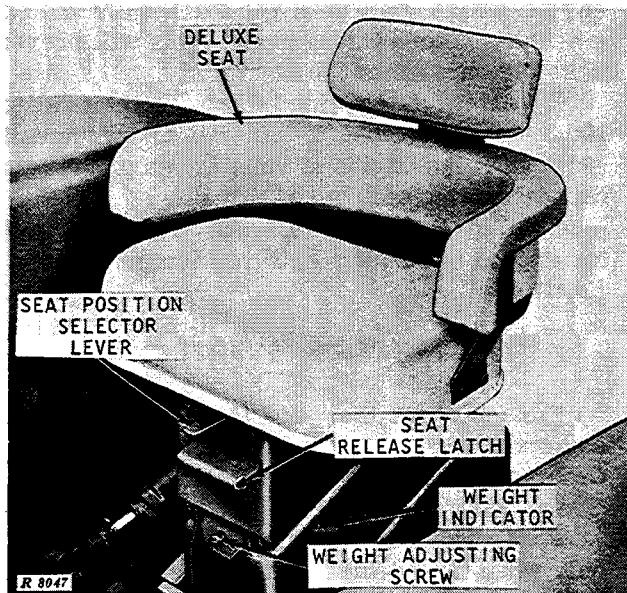
Use only warm water and mild soap to clean the seat cushions. NEVER USE SOLVENTS.

MOVE 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.

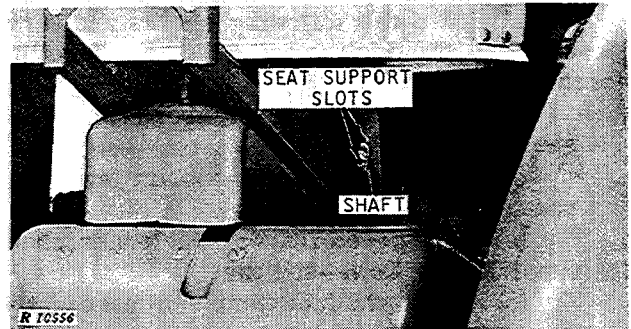


Seat Controls

ADJUSTING FOR WEIGHT OF OPERATOR

You can adjust the tension of the steel compression spring of the seat to conform to your weight. This enables the seat to "float" when the tractor is driven 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



Counterbalance Shaft

If the seat does not move fully to the rear when unlatched, adjust the counterbalance spring as follows. Push the seat to the upper, rear position. Insert a screwdriver in the slot in the counterbalance shaft and push in on the screwdriver to unlatch the shaft. Turn the shaft counterclockwise until seat action is satisfactory. Line up the latch across the end of the shaft with one of the pairs of slots in the side of the seat support and release pressure on the screwdriver.

ROLL-GARD AND SEAT BELT

A protective Roll-Gard is available as special equipment for your tractor. A canopy that fits on the top of the Roll-Gard, and seat belts are also available. See page 52 for additional information.

CAUTION: Under almost all operating conditions:

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



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

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

(a) Check the engine crankcase oil level—see page 36.

(b) Check the radiator coolant level—see page 36.

(c) If the tractor has a precleaner, check the collector bowl—see page 37.

(d) Check the fuel pump sediment bowl—see page 37.

(e) Lubricate the wide-swing drawbar rollers, the front axle pivot pins, steering knuckle pins, steering bellcrank, and steering cylinder end fittings—see page 37.

STARTING THE ENGINE

NOTE: If the prevailing temperature is 40° F. or lower, it may be necessary to use a cold weather starting aid to start the engine—see next column.

(2) Make sure that the fuel shut-off valve at the bottom of the fuel tank is open—see page 41.

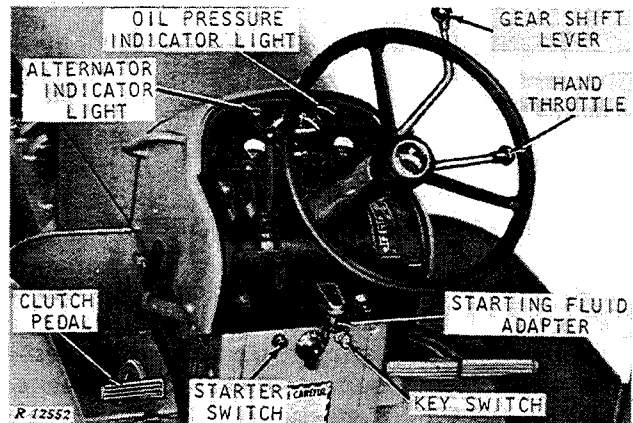
(3) See that the shift lever is in the "PARK" position. Depress the clutch pedal to decrease drag on the engine.

(4) Set the hand throttle approximately 1/3 of its travel downward to the first stop.

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

(6) Press firmly 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. If engine does not start the first time, wait for two minutes before trying again. If it does not start after four attempts, see "Trouble Shooting."

If starter is activated but not allowed to attain speed (bumping or jogging), the contact



Starting Controls

point life will be shortened (due to high amperage load when separating).

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.

(7) After the engine starts, both indicator lights should go out. If either light continues to glow when the engine is running, stop the engine and determine the cause.

CAUTION: Always leave key switch on while the engine is running so the indicator lights will function.

COLD WEATHER STARTING AIDS

For cold weather starting, the tractor is equipped with an ether starting fluid adapter. Other starting aids are available from your John Deere dealer.

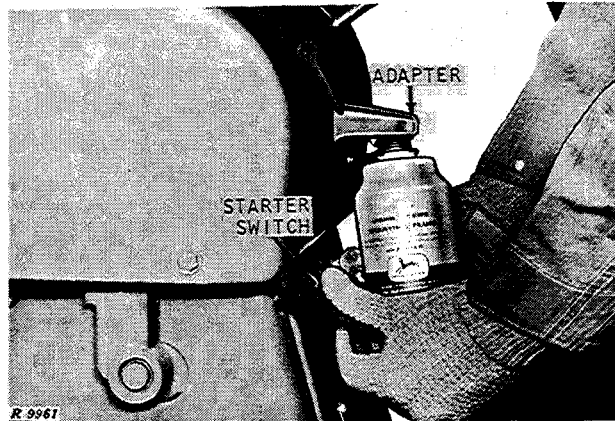
These aids are effective at low temperatures, only when the engine is otherwise operating satisfactorily. They will not correct such deficiencies as low battery charge, crankcase oil of heavy viscosity, and high electrical resistance which may prevent the engine from starting.

Always use No. 1 diesel fuel at temperatures below 0° F.

STARTING FLUID ADAPTER

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

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.

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

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

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.

SHUTTING OFF HYDRAULIC PUMP

If the hydraulic pump has a shut-off screw (available from your 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 located on top of the pump 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 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 HEATER

To facilitate cold weather starting, a 240-watt, 115-volt electrical crankcase oil heater can be installed in the engine oil pan. To use the heater, remove the cap, connect the cord to the heater and connect to any 115-volt electrical source. To remove the electrical connector from the heater, press release lever in the connector.

TANK-TYPE COOLANT HEATER

A thermostatically controlled tank-type coolant heater (available from your dealer) will improve cold weather starting. This attachment will keep the coolant warm, reducing oil drag and shortening the engine warm-up period.

ADDITIONAL BATTERIES

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

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

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.

Use two 12-volt booster batteries and four jumper cables. Connect the first jumper cable

to the positive (+) post of the first booster battery and to the positive (+) post of the second from front tractor battery. Connect the second jumper cable from the negative post of the second booster battery and to the negative post of the second from rear tractor battery. Connect one end of the third jumper cable to the negative post of the first booster battery. Connect one end of the fourth jumper cable to the positive (+) post of the second booster battery. To make the last connection away from the batteries, connect the other ends of the third and fourth jumper cables.

NOTE: To prevent damage to the light gauge ground wire, never connect a booster battery to the tractor frame. Tractor is equipped with an ALTERNATOR. To prevent damage to alternator or electrical system, be sure to connect batteries in proper polarity.

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 SAE rated PTO speed.

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

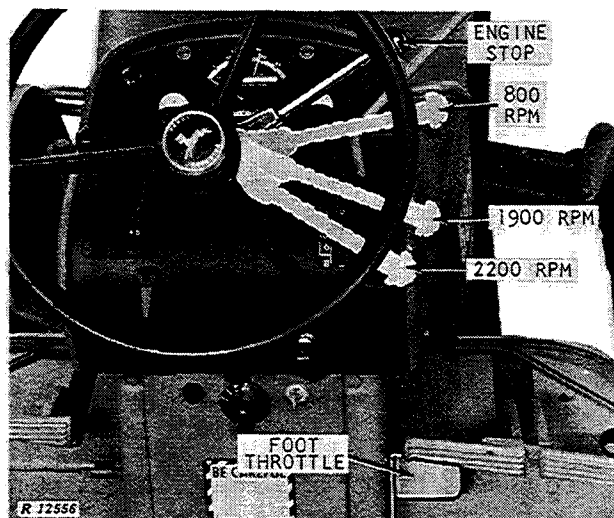
Slow idle speed is approximately 800 rpm.

To check engine speeds, see page 39.

USING HAND THROTTLE

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

Move the hand throttle counter-clockwise as far as it will go with the knob in to obtain normal slow idle speed of 800 rpm.



Range of Hand Throttle Positions

To obtain 1900 rpm load speed, move the throttle clockwise 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, move the throttle clockwise 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

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.

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

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