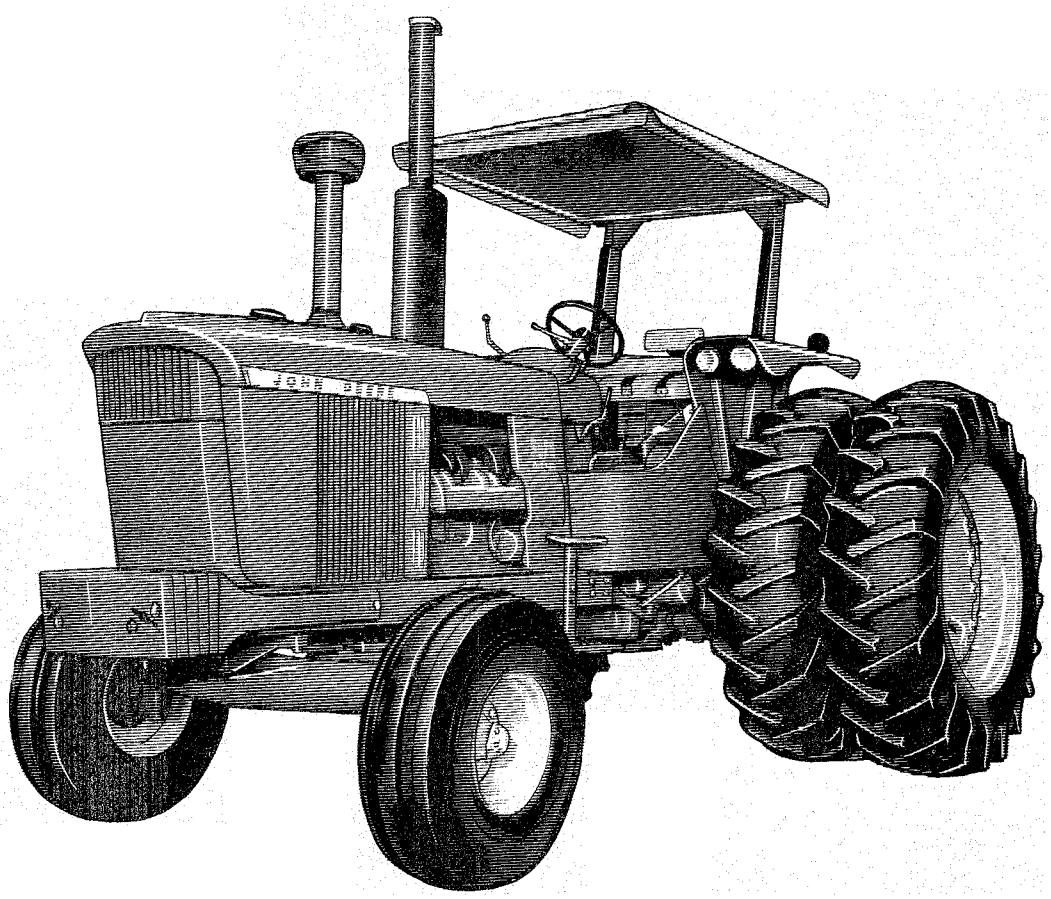
John Deere 5020 Tractor (Serial No. 30,001-up)

Operator's Manual OM-R48276 Issue H0



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.

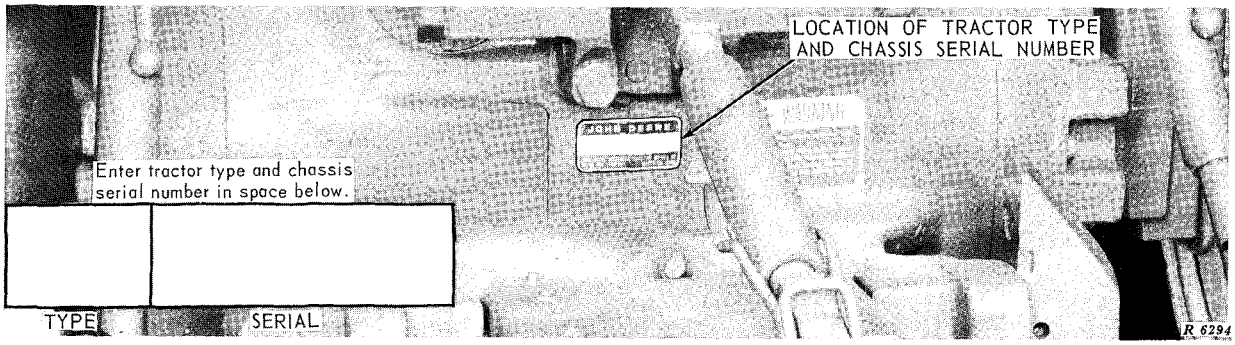
This safety alert symbol identifies important safety messages in this manual. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.

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.

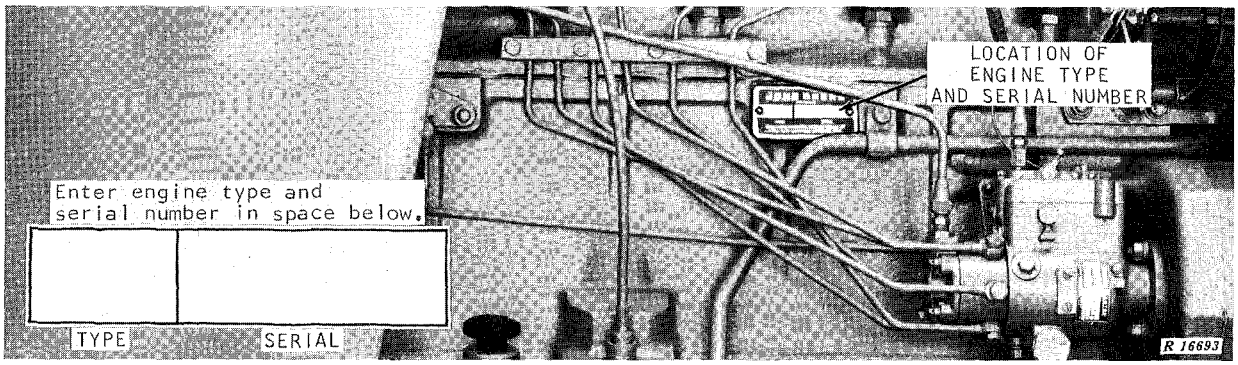
The warranty on this tractor appears on your copy of the purchase order which you should have received from your dealer when you purchased the tractor.

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, engine type, and complete engine serial number. For ready reference, locate and record the above information in the spaces provided in the illustrations below.

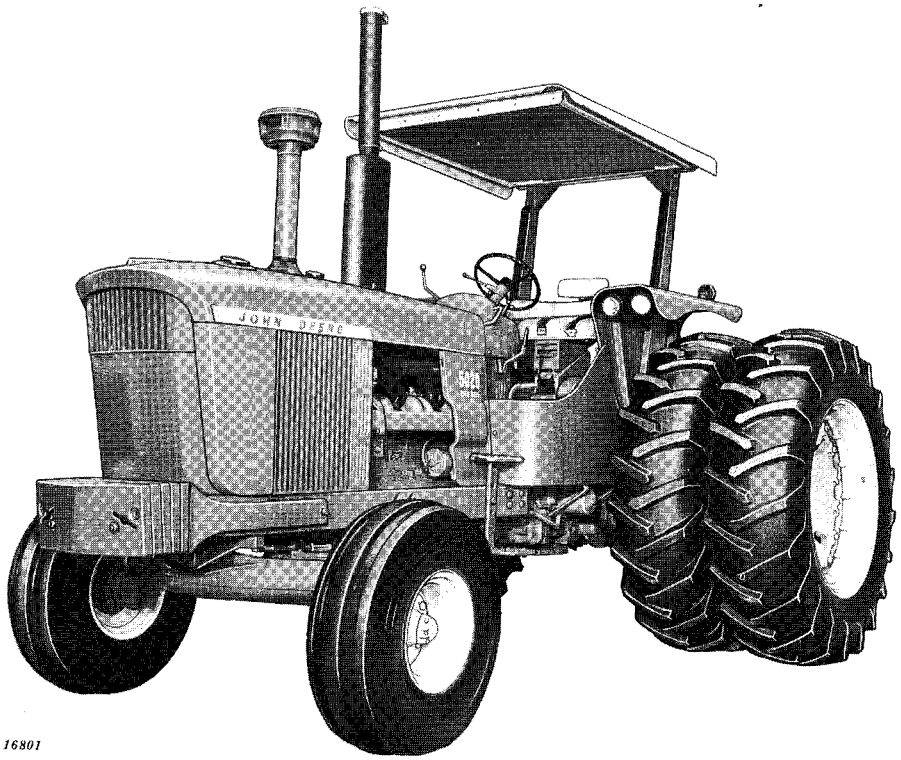


Tractor Chassis Serial Number



Engine Serial Number

CONTENTS



R 16801

John Deere 5020 Row-Crop Diesel Tractor with Roll-Gard, Canopy, and Double Rear Wheels

SPECIFICATIONS

*HORSEPOWER:
- Measured at the PTO 141.34

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 (add 2 U.S. qts. for cab heater) . . . 33 U.S. qts.

**Above horsepower figure is official 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

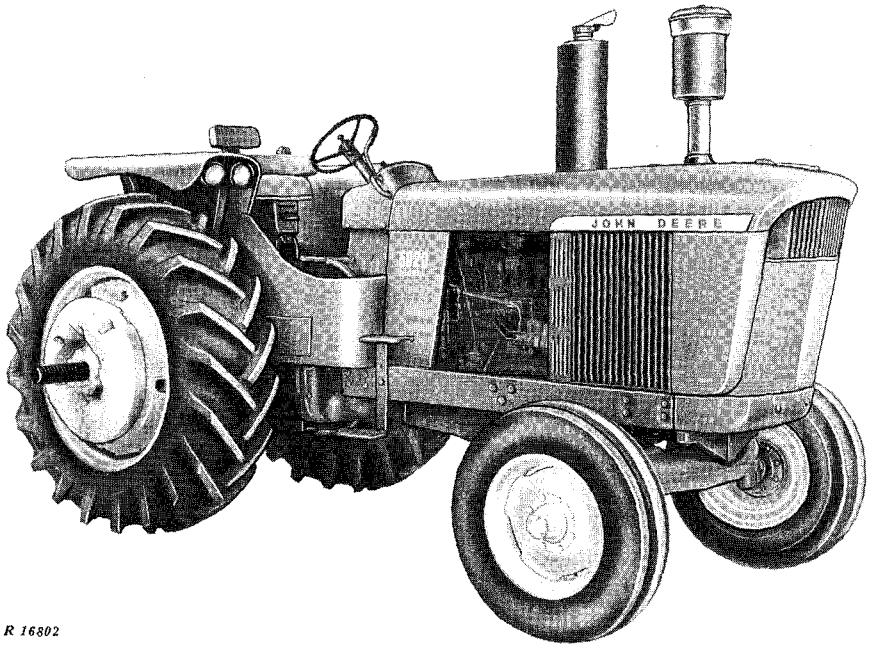
CLUTCH: . . . . Heavy-duty, two 12-in. plates, foot operated

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 16802

John Deere 5020 Row-Crop Diesel Tractor

ELECTRICAL SYSTEM:
- Type. . . . . 12-volt, negative grounded
- Batteries. . . . . Two 6-volt, 87-plate, 204 ampere-hour, group 6T3A, 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 actuated, hand-operated

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

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 12

REAR WHEEL TREAD. . . . . See page 14

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.
- Drawbar 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.

TRACTOR CAB:

	Not Air Conditioned	Air Conditioned
Blower capacity . . .	290 cfm	560 cfm
Heater capacity . . .	20,000 btu/hr.	22,000 btu/hr.
Exterior cab height (tires at loaded radius)	107.3 in.	115.0 in.

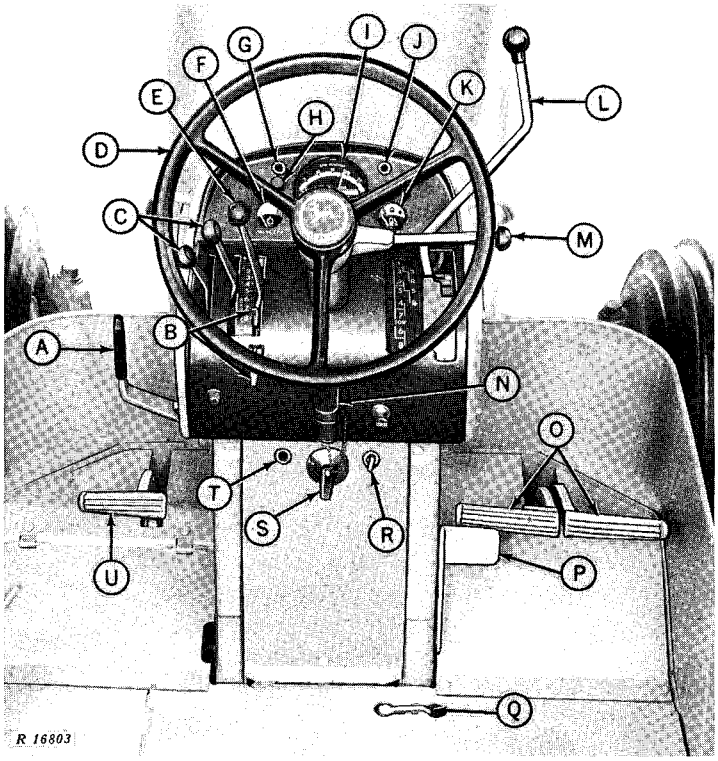
SHIPPING WEIGHT (With equipment for average field service):
- Standard . . . . . 15,600 lbs.
- Row-Crop . . . . . 14,480 lbs.

****Additional tire sizes available.*

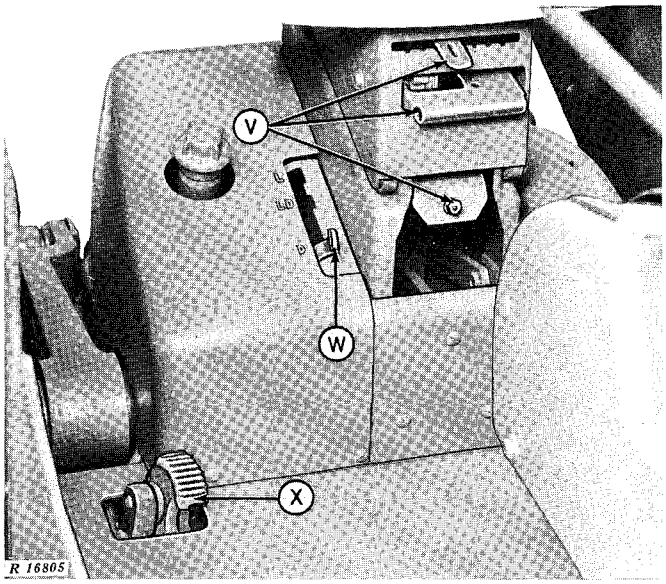
(Specifications and design subject to change without notice.)

CONTROLS AND INSTRUMENTS

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



A – PTO Clutch Operating Lever (Page 30)
B – Rockshaft Control Lever Stop and Lock (Page 23)
C – Remote Cylinder Operating Levers (Page 20)
D – Steering Wheel
E – Rockshaft Control Lever (Page 23)
F – Coolant Temperature Gauge
G – Alternator Indicator Lamp (Page 5)
H – Speed Indicator Knob (Page 10)
I – Speed-Hour Meter (Pages 10 and 36)
J – Oil Pressure Indicator Lamp (Page 5)
K – Fuel Gauge
L – Gear Shift Lever (Page 10)
M – Hand Throttle (Page 7)
N – Ether Starting Fluid Adapter (Page 6)
O – Brake Pedals (Page 11)
P – Foot Throttle (Page 10)
Q – Power Take-Off Drive Disconnect Lever (Page 30)
R – Key Switch (Page 5)
S – Light Switch (Page 18)
T – Air Cleaner Indicator Light (Pages 5 and 38)
U – Clutch Pedal (Page 5)



V – Seat Controls (Page 8)
W – Rockshaft Selector Lever (Page 23)
X – Differential Lock Operating Pedal (Page 11)

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 40.

(b) Check the radiator coolant level—see page 40.

(c) If the tractor has a precleaner, check the collector bowl—see page 40.

(d) Drain contaminants from fuel filter—see page 40.

(e) Lubricate the wide-swing drawbar rollers, the front axle pivot pins, steering knuckle pins, steering bellcrank, and steering cylinder end fittings—see page 40.

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.

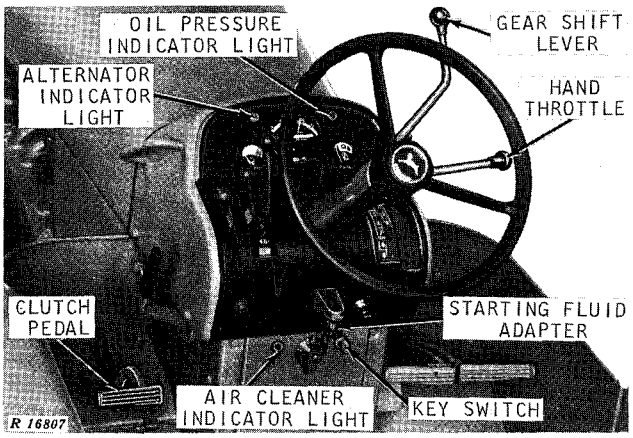
(2) Make sure that the fuel shut-off valve at the bottom of the fuel tank is open—see page 44.

(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. The alternator and oil pressure indicator lights should glow. Turning the key switch further to the start position should cause the air cleaner indicator light to glow and cause the alternator indicator light to go out. If any light fails to glow, turn off the key switch and determine the cause.

(6) Turn the key switch all the way to the right to start the engine. Do not operate the starter for more than 30 seconds at a time. To do so may overheat the starter. If the engine does not start the first time, wait for a minute or two before trying again. If it does not start after four attempts, see "Trouble Shooting," page 59.



Starting Controls

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

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

COLD WEATHER STARTING AIDS

For cold weather starting, the tractor may be equipped with an ether starting fluid adapter or an in-block coolant heater. 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.

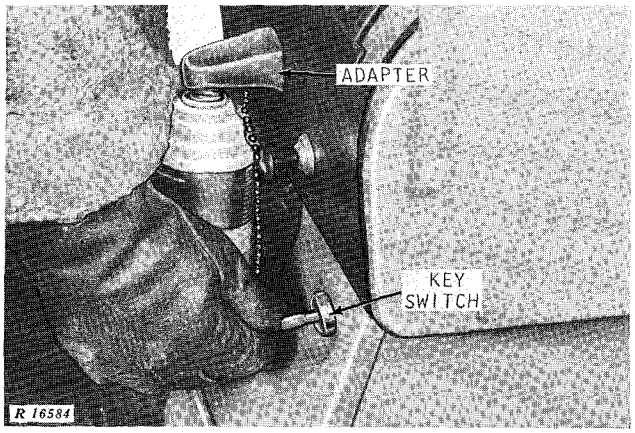
Always use No. 1 diesel fuel at temperatures below 40° F.

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.

CAUTION: Ether starting fluid is highly flammable.

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



Injecting Starting Fluid

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

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

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

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 AND TANK-TYPE COOLANT HEATERS

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

A 1000-watt, 115-volt coolant heater (available from your dealer) mounts in the frost plug opening on the left-hand side of the engine block. This attachment will keep the coolant warm, reducing oil drag and shortening the warm-up period.

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

ADDITIONAL BATTERIES

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

Connect a jumper cable to the POSITIVE (+) post of a 12-volt booster battery and to the POSITIVE (+) post of the tractor battery that is connected to the starter. Connect one end of the other jumper cable to the negative post of the other tractor battery that is connected to the

starter. Connect the other end of this jumper cable to the negative post of the booster battery.

NOTE: To prevent damage to the electrical system ground wire, never connect a booster battery to the tractor frame. To prevent damage to the alternator or the electrical system, be sure to connect the 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.

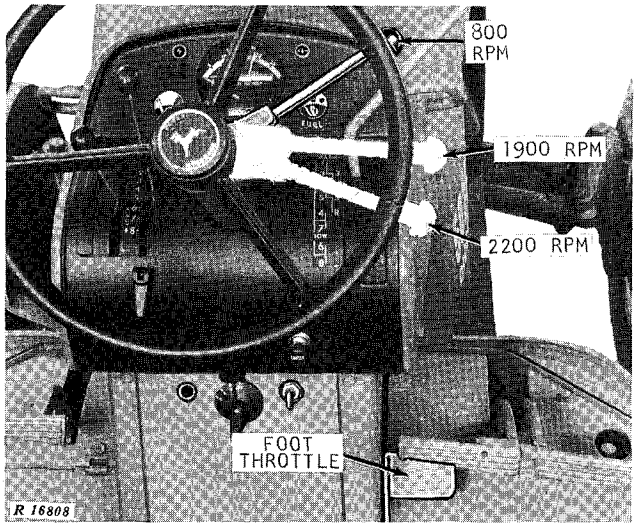
In addition, engine speeds can be varied up to 2500 rpm to save time when traveling on highways or smooth-surfaced roads.

Slow idle speed is approximately 800 rpm. To check engine speeds, see page 42.

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 counterclockwise as far as it will go 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.

STOPPING THE ENGINE

Place the shift lever 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.

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

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

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

BREAKING IN THE ENGINE

During the first 100 hours of tractor service avoid prolonged periods of engine idling.

If the coolant temperature rises to the warning range on the gauge, shift to a lower gear to reduce the load on the engine.

Be sure to follow the special break-in lubrication instructions on page 36.

OPERATING THE TRACTOR

SEAT

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 semicircular foam padding which surrounds the operator.

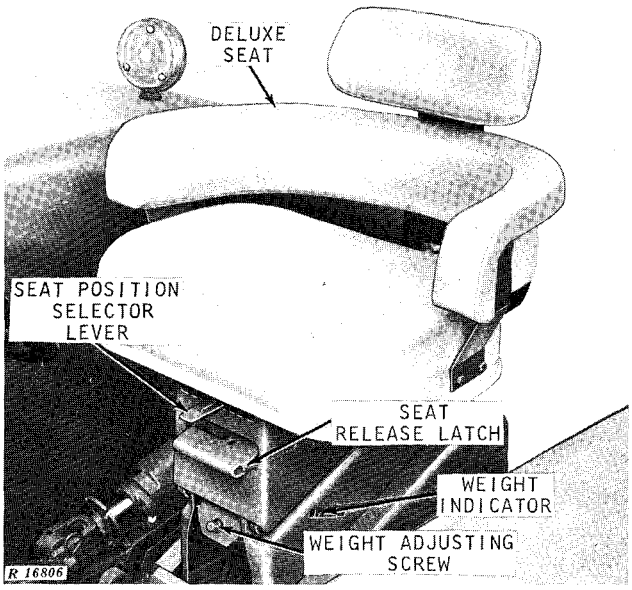
Use only warm water and mild soap to clean the seat cushions. NEVER USE SOLVENTS.

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 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 counterclockwise until the indicator on the left-hand side of the seat conforms to your weight.