



# **John Deere 520 Series Tractor Gasoline and All-Fuel**



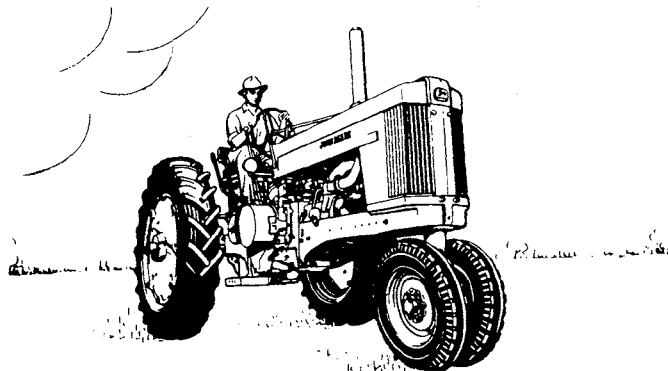
## **OPERATORS MANUAL** John Deere 520 Series Tractor Gasoline and All-Fuel

OMR2051 C7    English

**OMR2051 C7**

LITHO IN U.S.A.  
ENGLISH





50905

## *To the Purchaser*

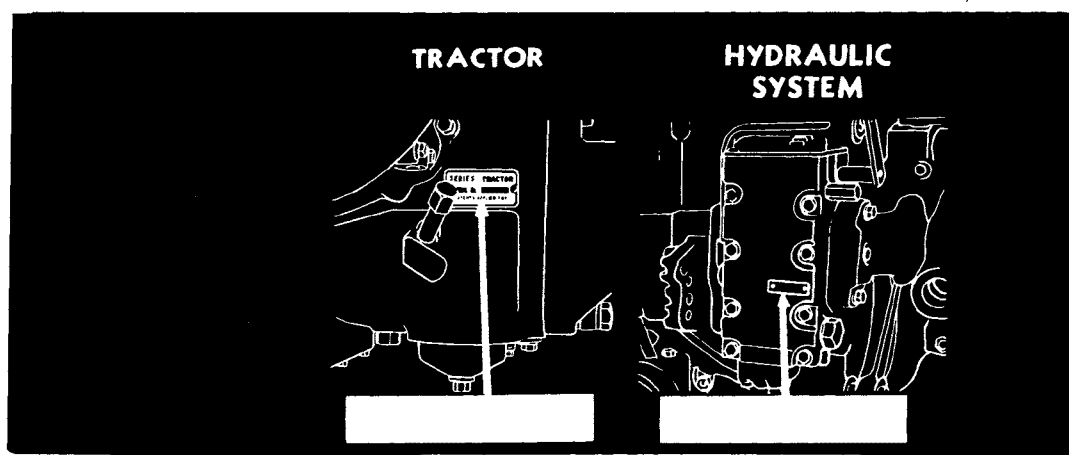
We welcome you to our ever-growing family of John Deere tractor owners. We are confident that the dependable and economical performance of your John Deere tractor will prove that you made a wise choice.

The purpose of this manual is to acquaint you with your new tractor. The manual explains how to operate and service your tractor, and how to maintain its high operating efficiency. Instructions are given clearly with the intention of making these operations as easy as possible.

Keep this manual in a convenient place for quick and easy reference. Use it as a guide whenever questions arise. You have purchased a dependable, sturdy tractor, but only by operating and caring for it properly can you expect to receive the service and long life for which it was designed.

If in the future you need new parts to replace those that may be worn, insist on genuine John Deere parts. They are exact duplicates of the originals, made from the same patterns and of the same high-quality materials.

When in need of parts, give your John Deere dealer the serial number of your tractor or hydraulic system, depending on the parts you need. The illustration below shows you where to find these serial numbers. Obtain them from your tractor—NOW—and insert them in the spaces provided in the illustrations below.



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## *John Deere Tractor Service Policy*

**JOHN DEERE  
TRACTOR  
SERVICE POLICY**

OWNER'S NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

TOWN \_\_\_\_\_ STATE \_\_\_\_\_

TRACTOR SERIES \_\_\_\_\_

TRACTOR SERIAL No. \_\_\_\_\_

POWER-TRAIL SERIAL No. \_\_\_\_\_

ISSUED BY:

JOHN DEERE DEALER \_\_\_\_\_

TOWN \_\_\_\_\_ STATE \_\_\_\_\_

DEALER'S SIGNATURE \_\_\_\_\_

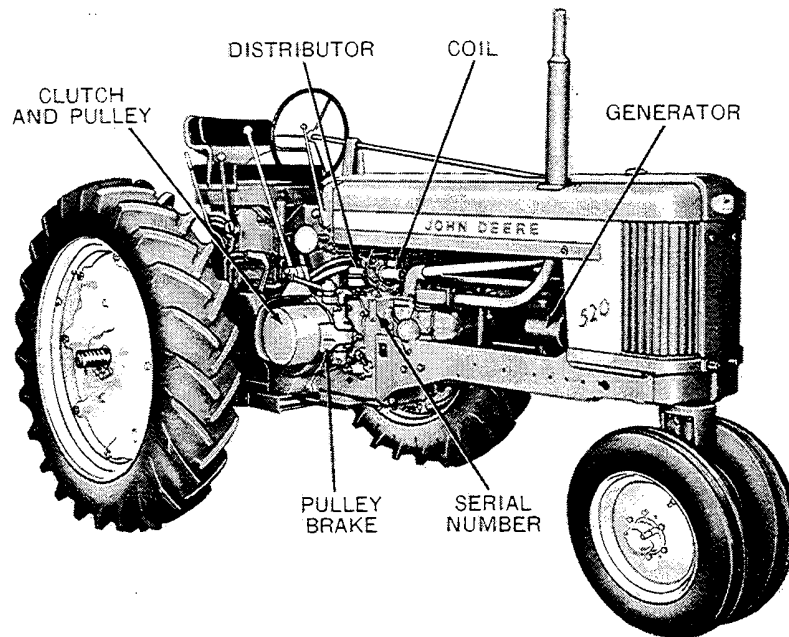


GASOLINE, ALL-FUEL, AND LP-GAS  
TRACTORS

When your new tractor was delivered the John Deere dealer presented to you a copy of the Tractor Service Policy illustrated above. This policy certifies that your new John Deere Tractor was properly inspected and prepared for delivery by the dealer before he released it to you.

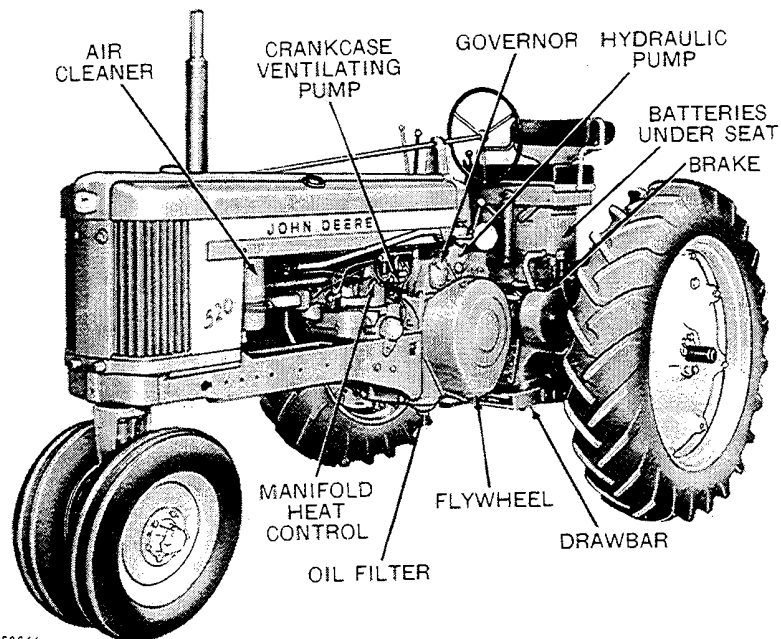
Present the policy to the dealer whenever any services which it authorizes are required. Keep the policy in a safe place for ready reference at all times.

# *This is Your New John Deere Tractor* <sup>3</sup>



50643

*John Deere "520" Series Tractor—Pulley Side*



50644

*John Deere "520" Series Tractor—Flywheel Side*

# SPECIFICATIONS

## PERFORMANCE:

Three 14-inch plow bottoms or the equivalent under most conditions.

### Maximum Belt Horsepower:

|                |       |
|----------------|-------|
| *Gasoline..... | 38.58 |
| *All-Fuel..... | 26.61 |

### Maximum Drawbar Horsepower:

|                |       |
|----------------|-------|
| *Gasoline..... | 34.31 |
| *All-Fuel..... | 24.77 |

## CAPACITIES (U. S. MEASUREMENTS):

### Gasoline Tank:

|                            |              |
|----------------------------|--------------|
| Gasoline Tractor.....      | 18 Gals.     |
| All-Fuel Tractor.....      | 2 Gals.      |
| Fuel Tank (All-Fuel).....  | 15-1/2 Gals. |
| Crankcase.....             | 7 Qts.       |
| Transmission.....          | 4 Gals.      |
| Hydraulic System.....      | 10 Qts.      |
| Remote Cylinder.....       | 1 Qt.        |
| Power Shaft Clutch.....    | 1 Gal.       |
| Cooling System.....        | 4-1/2 Gals.  |
| First Reduction Gear Cover | 1 Qt.        |
| Power Steering.....        | 5 Qts.       |

## SPEEDS:

| Gear         | With<br>12.4-36 Tires |
|--------------|-----------------------|
| 1.....       | 1-1/2 mph             |
| 2.....       | 2-1/2 mph             |
| 3.....       | 3-1/2 mph             |
| 4.....       | 4-1/2 mph             |
| 5.....       | 5-3/4 mph             |
| 6.....       | 10 mph                |
| Reverse..... | 2-1/2 mph             |

## ENGINE:

Type.....Two-cylinder, cast-in-block, valves-in-head.

### Engine Speeds:

|                |          |
|----------------|----------|
| Load.....      | 1325 rpm |
| Fast Idle..... | 1460 rpm |
| Slow Idle..... | 600 rpm  |

Bore and Stroke.... 4-11/16" x 5-1/2"

Displacement..... 189.8 cubic inches

Compression Ratio:

Gasoline..... 7.00 to 1

## LUBRICATION SYSTEM:

Type..... Full force-feed pressure system with full flow oil filter.

## FUEL SYSTEM:

Type..... Gravity feed.  
Carburetor. Natural-draft duplex type.  
Air Cleaner..... Oil-wash type.

## COOLING SYSTEM:

Type.... Pressure system—centrifugal pump with engine temperature controlled by heavy-duty thermostat.

## IGNITION SYSTEM:

Type..... Battery-Distributor  
Distributor Point Gap (Delco-Remy)..... .022"

### Spark Plugs:

Size..... 18 mm.  
Spark Plug Gap..... .030"

## ELECTRICAL SYSTEM:

Battery Voltage..... 12 Volts  
Generator Regulation..... Voltage Regulator.  
Battery..... Group I

## CLUTCH:

Type..... Hand-operated, four 7-inch dry disks.

## BELT PULLEY:

Diameter..... 9-11/16"  
Width..... 7-1/4"  
Rpm (Load)..... 1325  
Belt Speed..... 3360 fpm

## TRANSMISSION:

Type..... Six speeds forward and one in reverse.

Gears..... Selective-type, straight spur-cut gears, forged and heat-treated.

Bearings... Shafts operate on three roller bearings, four tapered roller bearings, and five ball bearings.

\*Maximum h.p. corrected to 60°F. and 29.92 in. hg. (Nebraska Tests Nos. 592 and 597).

(Continued on next page)

**Types Available . . . Regular and long.**

|                    |                   |        |
|--------------------|-------------------|--------|
| Diameter . . . . . | Regular . . . . . | 2-7/8" |
|                    | Long . . . . .    | 3-1/8" |

**Bearings . . . . . Four tapered roller bearings.**

Regular Rear Axle. 12.4-36, 4-ply tires  
and on cast disk wheels  
Long Rear Axle (recommended for  
average field condi-  
tions). 13.9-36, 4-  
ply and 11-38, 6-  
ply Cane and Rice  
tires also available.

**Type...** Two automotive-type internal-expanding rear wheel brakes.

### Double and Adjustable Type:

Reversible for added clearance.

Bearings..... Four tapered roller bearings.

Tires . . . . . 5.50 x 16", 4-ply.

**Single Type:**

Bearings..... Two tapered roller bearings.

Tires..... 6.50 x 16", 6- or 8-ply.  
9.00 x 10", 8-ply.

|                                 |        |        |        |
|---------------------------------|--------|--------|--------|
| Shaft Diameter.....             | 1-3/8" | 1-3/8" | 1-3/8" |
| Shaft rpm.....                  | 529    | 529    | 529    |
| Splined End Ahead of Hitch..... | 14"    | 14"    | 14"    |
| Splined Shaft Above Groun.....  | 23.5"  | 23.5"  | 23.5"  |

|                                      |           |           |                                |
|--------------------------------------|-----------|-----------|--------------------------------|
| Wheel-Base.....                      | 90"       | 90-1/4"   | 92-1/2"                        |
| Over-All Width.....                  | 86-5/8"   | 86-5/8"   | 86-5/8"                        |
| Over-All Height.....                 | 83-3/8"   | 83-1/8"   | 83-3/4"                        |
| Height to Top of Steering Wheel..... | 75-11/16" | 75-11/16" | 75-11/16"                      |
| Width Over Axles.....                | 86-5/8"   | 95-15/16" | 95-15/16"                      |
| Tread Adjustments.....               | 56-88"*   | 56-104"   | 56-104"                        |
| Clearance.....                       | 24-3/4"   | 24-3/4"   | Front—22-9/16"<br>Rear—24-3/4" |
| Turning Radius.....                  | 8' 7-1/2" | 8' 7-1/2" | 14"                            |

|                      |           |           |           |
|----------------------|-----------|-----------|-----------|
| SHIPPING WEIGHT..... | 4960 lbs. | 4870 lbs. | 5230 lbs. |
|----------------------|-----------|-----------|-----------|

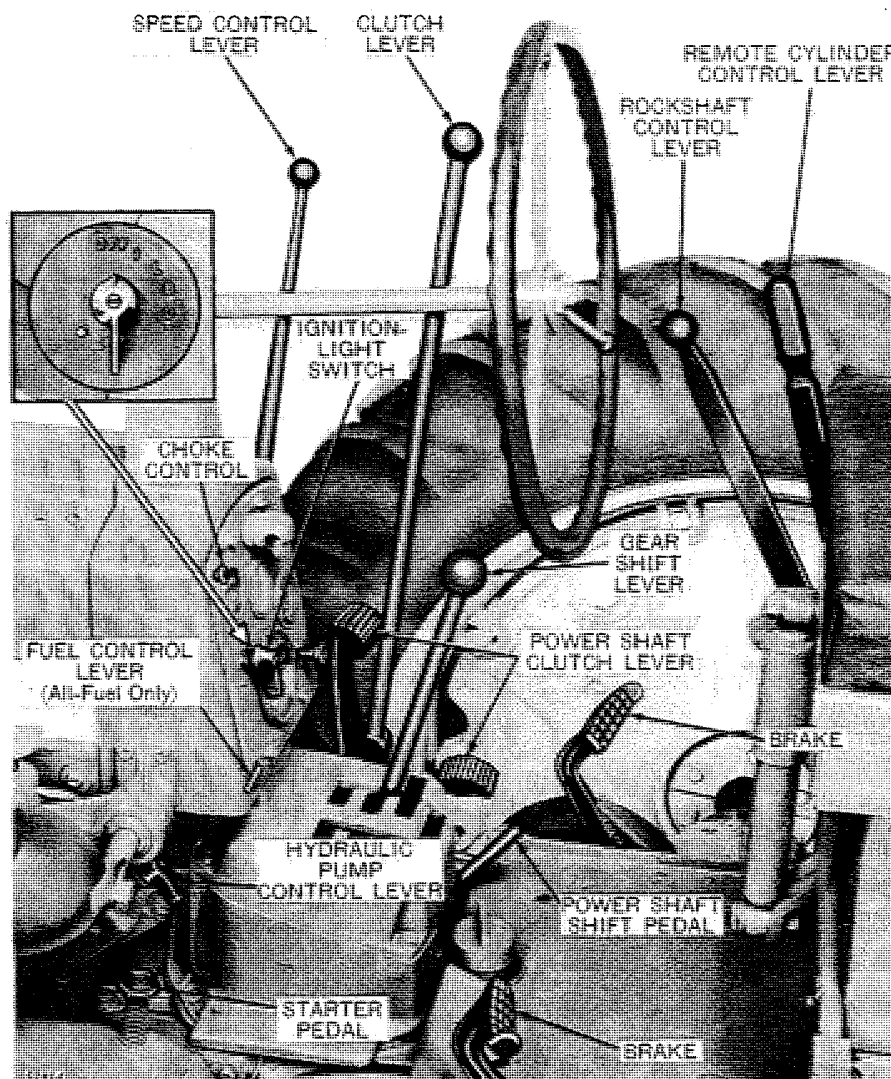
(Weights are for Tractor dry and with wheel equipment as shown under "Front Wheels" and "Rear Wheels")

\*Available with long axles providing tread of 62-1/2" to 97-3/4" and with offset wheels a tread of 56" to 104".

(Specifications and design subject to change without notice.)

# CONTROLS

Familiarize yourself with all the controls provided for safe and easy operation of your new tractor. Regardless of your previous tractor experience, study this section covering controls carefully before you operate your tractor.



*Starting and Operating Controls*

## ● STARTING CONTROLS ●

### IGNITION-LIGHT SWITCH.

A combination ignition-light switch is located in the center of the instrument panel. Turning the switch to any position except "OFF" turns on the ignition.

The lights on your tractor are designed to provide maximum use and convenience both for night work in the field and night travel on the highway. The combination rear lamp has a bright white light for illuminating drawn implements and a red light for highway travel.

All lights are controlled by the combination ignition-light switch. The switch has five positions as follows:

- "OFF"—Both ignition and lights off.
- "I" —Ignition only.
- "L" —Bright front lights and white rear light.
- "B" —Bright front lights and red rear light.
- "D" —Dim front lights and red rear light.

### FUEL-CONTROL LEVER (ALL-FUEL TRACTORS).

A three-way fuel control lever on All-Fuel tractors enables the operator to switch from gasoline for starting the engine to low-cost fuel for operation, or to shut off the fuel supply entirely without leaving his position at the wheel.

### STARTER PEDAL.

The engine is started by the pedal located in convenient reach of the operator's left foot. The pedal en-

gages the cranking motor pinion with the flywheel and also completes the electrical circuit to the cranking motor. For starting instructions see page 16.

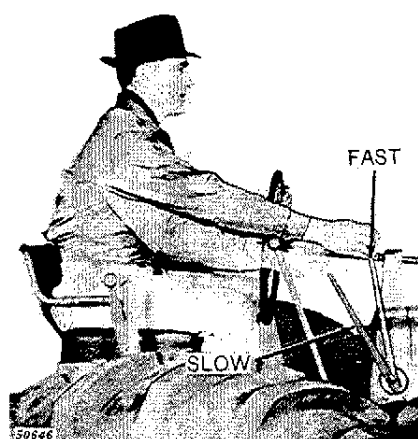
### CHOKE CONTROL.

Pulling out the choke button provides a rich mixture for the engine when starting. When button is pushed in, the choke returns to its normal position.

## ● OPERATING CONTROLS ●

### SPEED CONTROL LEVER.

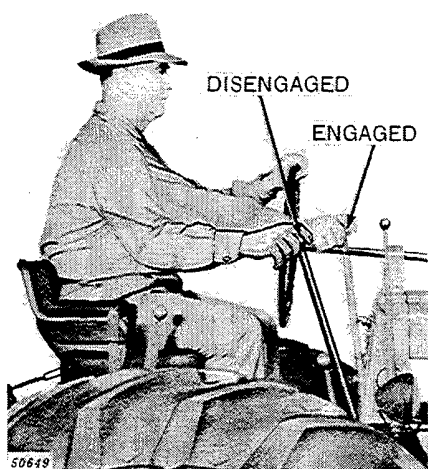
The lever mounted on the right-hand side of the hood support regulates the speed of the tractor engine. Pushing it forward opens the throttle and pulling it back closes the throttle. *NOTE: It is good practice to operate the engine whenever possible with speed control lever in the fully forward position.*



*Speed Control Lever*

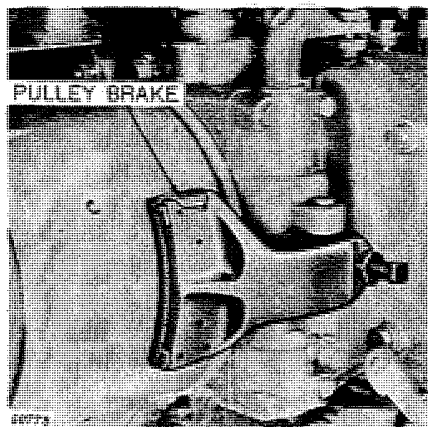
### CLUTCH LEVER AND PULLEY BRAKE.

Power is applied gradually and smoothly to the drive system by slowly pushing the clutch lever forward. When the tractor picks up speed, a quick forward thrust on the lever snaps the clutch into engagement. Pull back on lever to disengage the clutch.



*Clutch Lever*

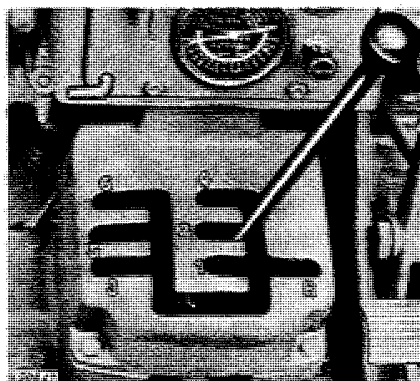
A pulley brake, which is applied when the clutch lever is pulled back, stops the pulley from rotating, permitting easy shifting of the transmission gears. **NOTE:** Do not use pulley brake to stop the tractor.



*Pulley Brake*

### GEAR SHIFT LEVER.

The gear shift lever is used to select the proper gear depending upon the load and speed. Familiarize yourself with the shifting before attempting to operate the tractor.



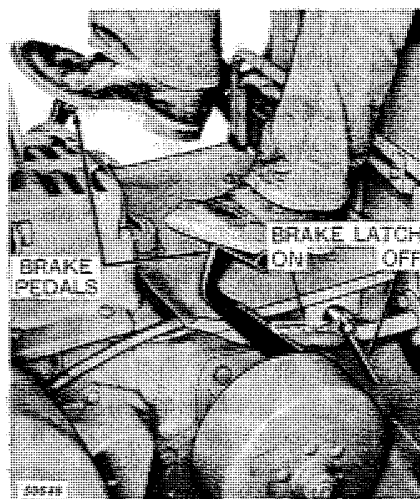
*Gear Shift Lever*

### BRAKES.

Individual, foot-operated brakes make possible short turns.

For safe stopping at high transport speeds, apply the brakes **evenly** to avoid drawing the tractor to one side.

A brake latch is conveniently located for locking each brake when doing belt work or when holding the tractor on a hill or incline.



*Brake Pedals and Latches*

## SEAT, BATTERY COMPARTMENT AND ELECTRICAL OUTLET SOCKET.

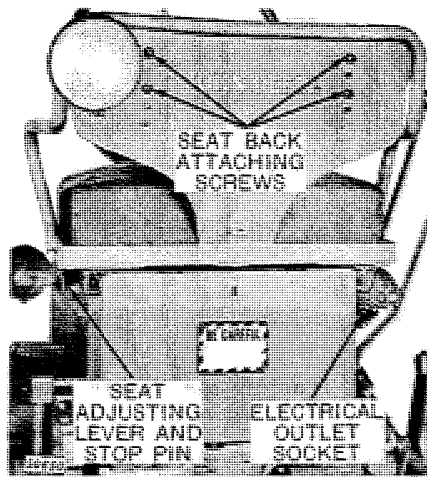
### Standard Seat.

The roomy seat adds much to operator comfort and lessens fatigue. There is an adjustment on the left-hand side for moving the seat forward and backward to suit the convenience of the operator. The back of the seat can be adjusted up or down by means of the attaching screws.

The batteries are located in a compartment under the seat where they are readily accessible for periodic checking and service.

### Electrical Outlet Socket.

A convenient electrical outlet socket is located on the right-hand side of the battery box.

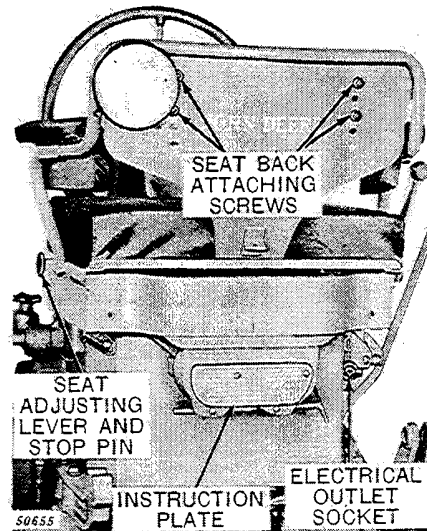


*Standard Seat*

### Special Float Ride Seat.

A special float ride seat having rubber torsion springs and a shock absorber is available as optional equipment. This seat has the same forward and backward adjustment and seat back adjustment as the regular seat but, in addition, the tension on the rubber springs can be adjusted to suit each rider. Adjustment is made by turning the handle located at the back of the seat. An instruction plate above the handle tells how to make the adjustment.

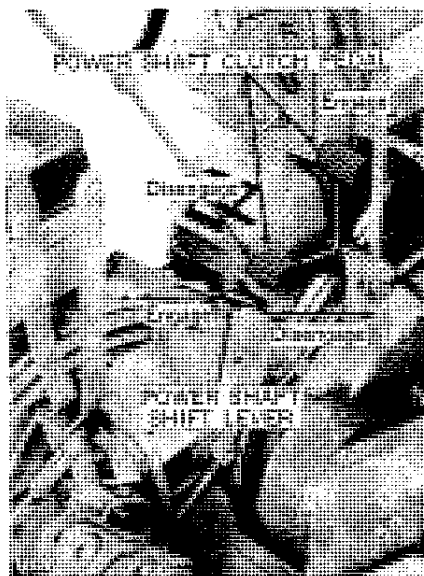
**CAUTION:** Do not adjust the rubber torsion springs while a rider is on the seat.



*Float Ride Seat*

### POWER SHAFT SHIFT LEVER.

The power shaft is engaged by the power shaft shift lever located to the right of the gear shift lever. Move the lever to the left to engage the power shaft and to the right to disengage the shaft. **CAUTION: Do not engage the power shaft shift lever while the engine is running. Before engaging the lever, read the operating instructions on page 26.**



*Power Shaft Shift Lever and Clutch Pedal*

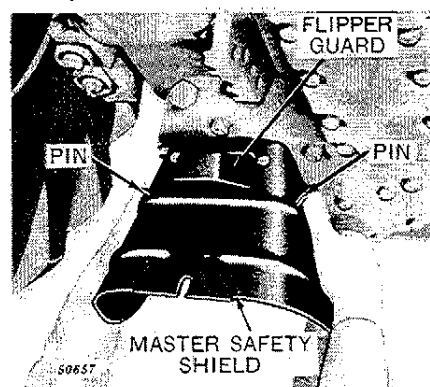
### POWER SHAFT CLUTCH PEDAL.

A power shaft clutch makes it easy and convenient to start or to stop the power shaft.

The clutch is operated by a double pedal located to the right of the gear shift lever. Pushing forward on the upper pad of the double pedal engages the clutch. Pushing down on the lower pad disengages the clutch.

### POWER SHAFT MASTER SAFETY SHIELD.

A master safety shield is mounted over the power shaft to protect the operator. This master shield should be removed only when it might interfere with operation of mounted integral equipment. To remove the shield, press up on the two pins protruding from the sides and lift the shield from the tractor. Replace the master shield immediately upon removal of the equipment. Install the master safety shield any time the power shaft is used.



*Power Shaft Master Safety Shield and Flipper Guard*

### POWER SHAFT FLIPPER GUARD.

Never remove the power shaft flipper guard from the tractor. Do not operate the tractor with the end of the power shaft exposed. If the flipper guard is damaged, repair or replace it immediately.

**CAUTION: Make it a rule never to dismount from the tractor without first disengaging the power shaft.**

### HYDRAULIC PUMP CONTROL LEVER.

The hydraulic pump is engaged by rotating the control lever in a counter-clockwise direction and disengaged by turning the lever in a clockwise direction. **CAUTION: Do not engage the pump while the engine is running.** It may be necessary to turn the engine over by means of the cranking motor with the ignition switch **off** to engage the gears.

### HYDRAULIC SYSTEM OPERATING LEVERS.

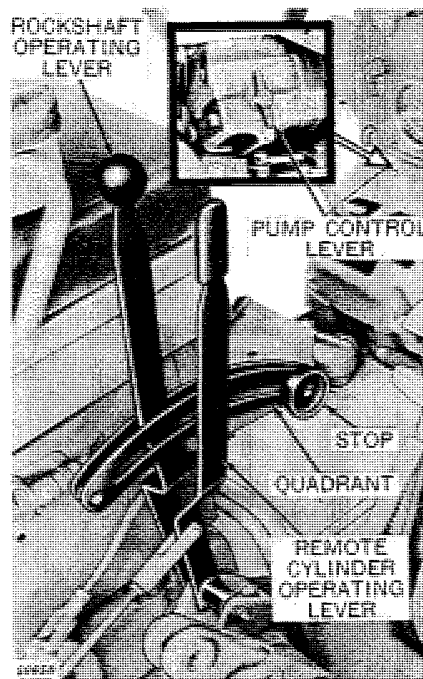
#### Rockshaft Operating Lever.

The rockshaft is operated by a lever located to the right of the

seat. Moving the control lever rearward raises the implement while moving the lever forward lowers the implement. A depth-control stop on the quadrant can be set so that the implement always returns to the same working depth after it has been raised. For further information see page 33.

#### Remote Cylinder Operating Levers.

Your tractor can be equipped to operate either one or two remote hydraulic cylinders. The cylinders are operated by the outer lever or levers located to the right of the seat. Implements are lowered by moving the proper lever forward and raised by moving the lever to the rear. For further information see page 28.

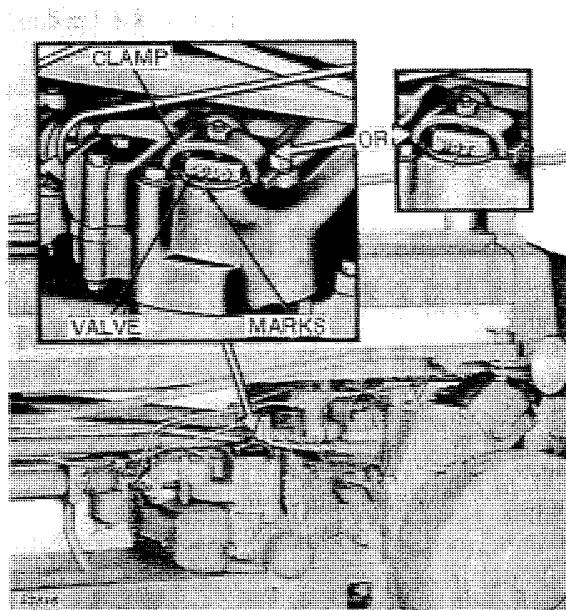


*Hydraulic Pump Control Lever and Hydraulic System Operating Levers*

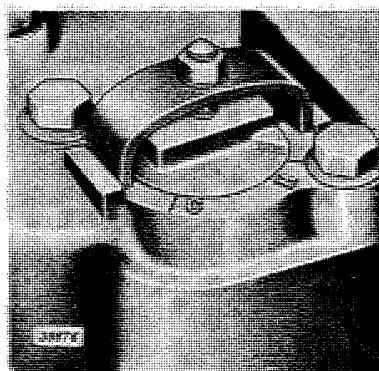
**MANIFOLD HEAT CONTROL VALVE.**

The purpose of this control, located in the engine manifold, is to improve engine performance and efficiency in hot or cold weather by controlling the path taken by hot

exhaust gases. Use of the valve is described on page 65. Generally, the valve is set at "COLD" or "C" for air temperatures above 32° F. and at "HOT" or "H" for temperatures below 32° F. For instructions on changing the position of the valve, see page 65.

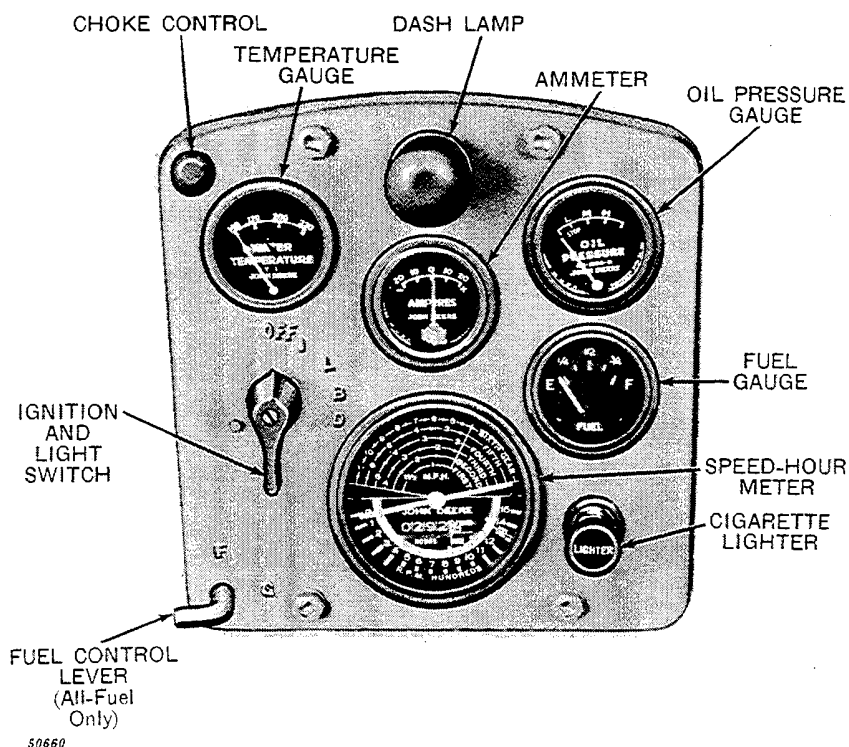


***Manifold Heat Control Valve on Gasoline-Burning Tractors***



***Manifold Heat Control Valve on All-Fuel Tractors***

## ● INSTRUMENT PANEL ●



*Instrument Panel*

### TEMPERATURE GAUGE.

The temperature gauge indicates the temperature of the coolant in the cooling system. Engine temperatures are controlled by a thermostat in the cylinder water outlet.

### OIL PRESSURE GAUGE.

The oil pressure gauge indicates whether or not the oil pump is working. The gauge does not in any way tell the amount or condition of the oil in the crankcase. The indicator hand of the gauge should rest between the letters "M" and "H" when the engine is hot and operating at

fast idle. If the gauge does not register pressure when the engine is started, stop the engine immediately.

### AMMETER.

The ammeter indicates whether or not the generator is charging the batteries.

### DASH LAMP.

A small lamp is provided to illuminate the dash at night. It is turned on by the ignition-light switch when the main lights are turned on.

**CIGARETTE LIGHTER.**

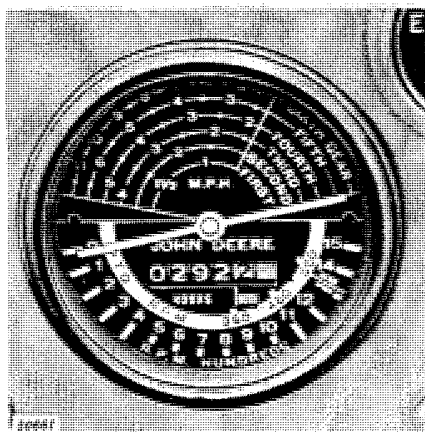
A cigarette lighter (special attachment) is provided for your convenience on the instrument panel.

**SPEED-HOUR METER.**

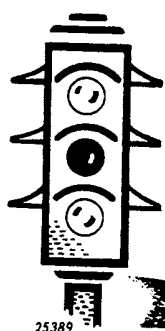
The speed-hour meter (special attachment), located in the center of the instrument panel, can be used to determine the following:

**Shown on**

- (1) Ground Travel Speed in All Gears . . . . Top Half of Dial
- (2) Power Take-Off Shaft Speed (rpm) . . . . White Section of Lower Dial
- (3) Engine Speed (rpm) . . . . . Bottom Portion of Lower Dial
- (4) Accumulated Hours of Service . . . . . Center Portion of Lower Dial



*Speed-Hour Meter Dial*



**CAUTION!**  
Be sure gear shift lever is in neutral before starting engine.  
Never refuel tractor while engine is running or extremely hot. Do not smoke or use an oil lantern when working around inflammable fuels, especially when refueling the tractor.



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# OPERATING INSTRUCTIONS

The suggestions given on the following pages tell you how to take full advantage of the many features built into your new tractor and how to obtain long trouble-free service. By following the instructions, you will be able to perform your tractor work efficiently and avoid conditions likely to cause injury or damage.

## • FUEL •

### IMPORTANCE OF USING PROPER FUELS.

Now that you are familiar with the controls, your next consideration before starting your tractor is the type of fuel you are going to use.

The gasoline tractor is designed to operate economically on regular grade gasoline as defined by ASTM Designation 439-55T. The gasoline should have a minimum octane number rating of 80 (Motor Method) or 86 (Research Method). The distillation range or volatility is adjusted by the petroleum producers for local climatic conditions and also for seasonal variations. Avoid carrying over gasoline purchased in one season for another season's work. For example, gasoline furnished for summer use is less volatile than that sold in the winter season and attempts to use the summer gasoline in cold weather can result in poor starting of the engine.

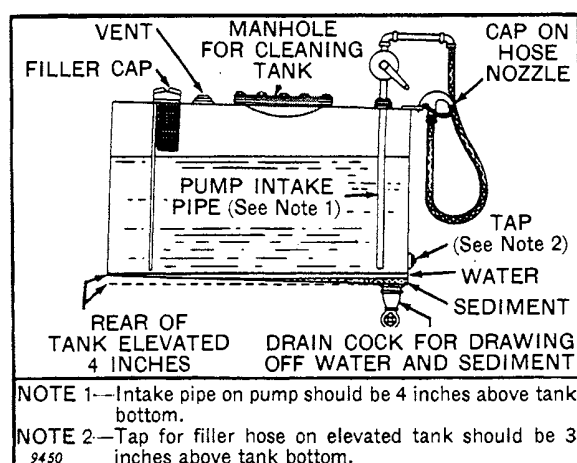
The All-Fuel Tractor is designed to operate on gasoline or "farm tractor fuel"

as defined by ASTM Designation D-1215-54. This includes either the "Light Grade" or "Regular Grade" having ASTM distillation 10% point recovered of 401°F. maximum and a 95% point recovered of 518°F. maximum and a minimum octane number of 35 (Motor Method) or 38 (Research Method).

### FUEL STORAGE.

Fuel should be stored in a convenient place outside of buildings. If fuel drums are used, they should be located in a shady spot to prevent undue evaporation. The fuel drums should be tilted slightly toward the rear so that any metal that might flake from the inside of the drum or any other sediment will settle to the rear and will not get out of the drum through the spigot. The hose nozzle should be capped when not in use so that no dust can enter.

Be sure that drum vent plug is screwed in tightly after using it.



*One Type of Fuel Storage Tank*

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