830 Series Tractors Diesel with Gasoline Cranking Engine (Serial No. 8300000-Up)

JOHN DEERE

OPERATORS MANUAL

830 Series Tractors Diesel with Gasoline Cranking Engine (Serial No. 8300000-Up)

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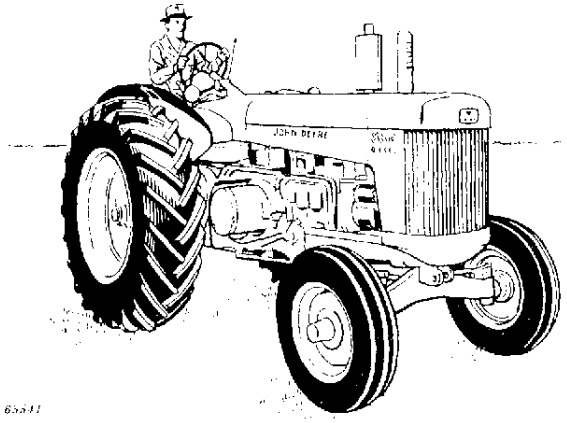


TO THE PURCHASER

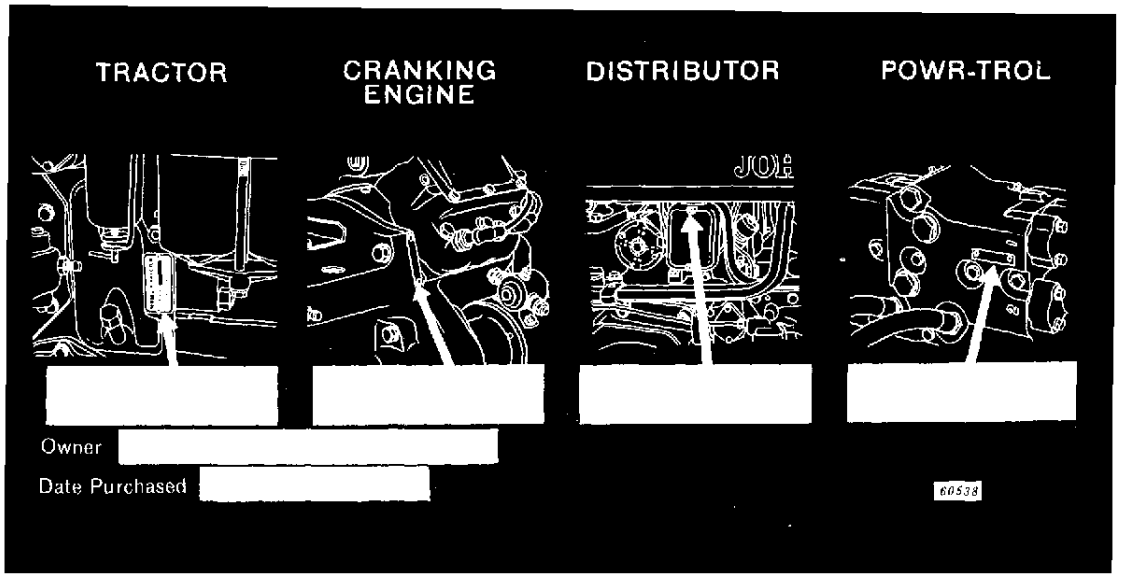
We welcome you to our ever-growing family of John Deere Tractor owners. We are confident that the dependable and economical performance of your John Deere "830" Diesel Tractor will prove that you made a wise choice.

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, cranking engine, distributor, or Powr-Trol, 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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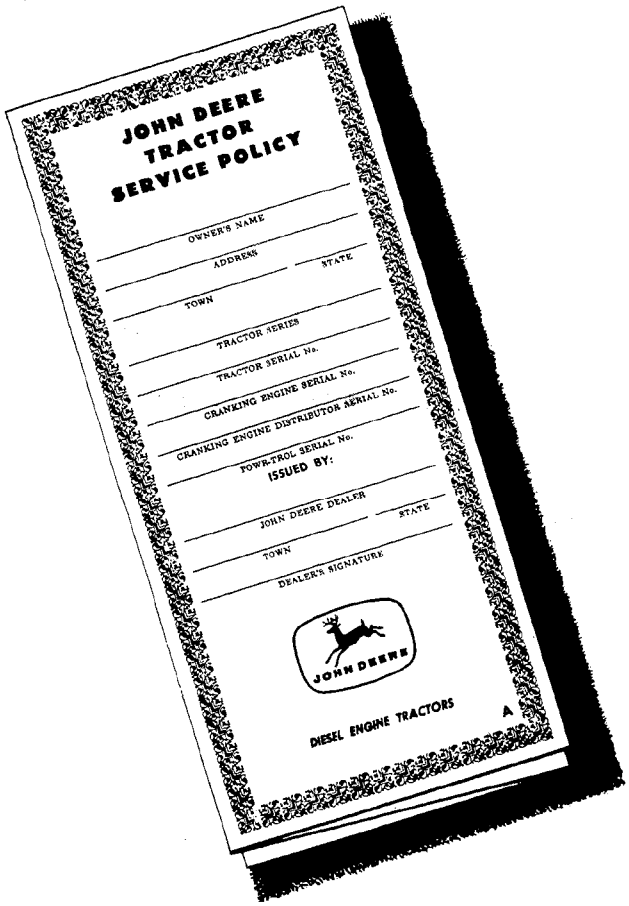
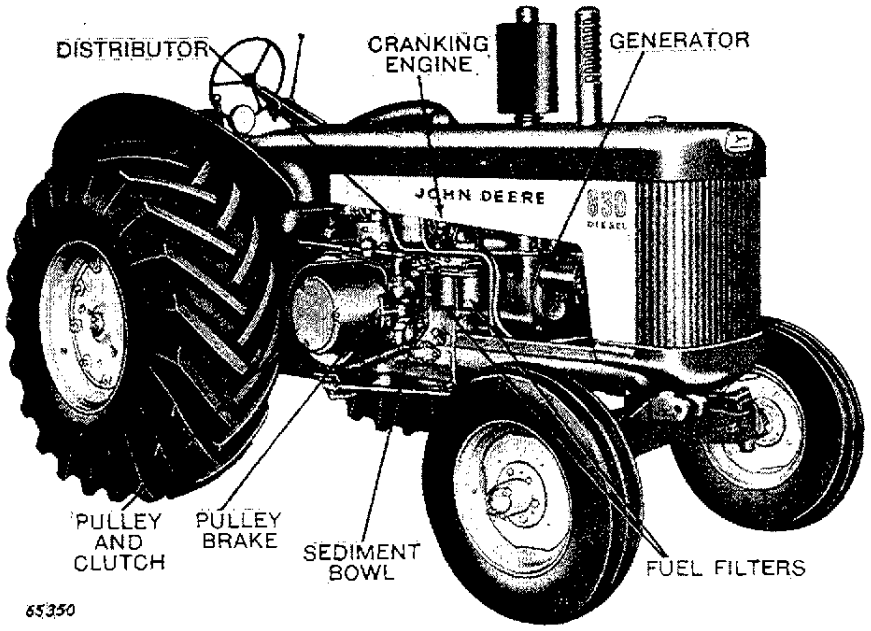
John Deere Tractor Service Policy



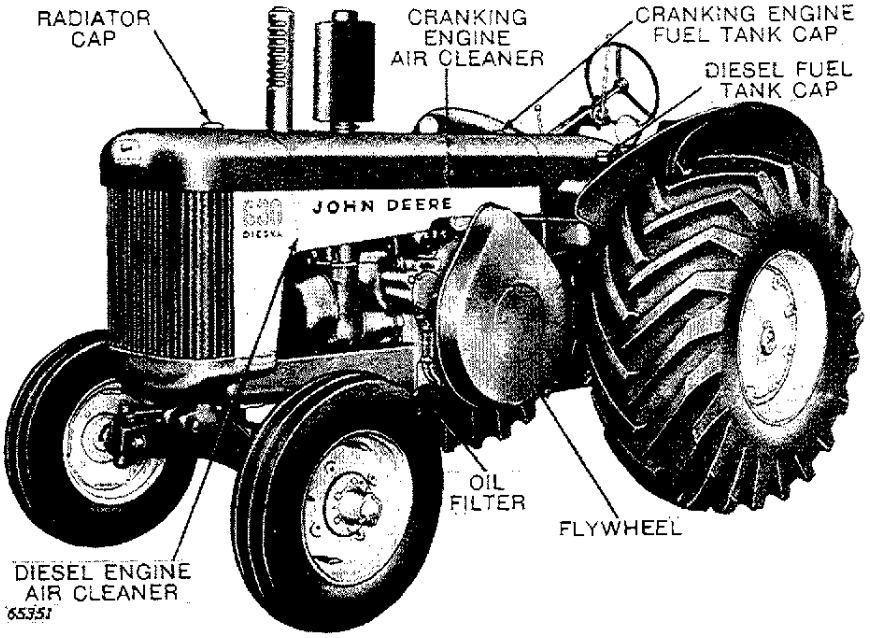
When your new tractor was delivered the John Deere dealer presented to you a copy of the Tractor Service Policy illustrated above. This policy certifies that your new John Deere Tractor was properly inspected and prepared for delivery by the dealer before he released it to you.

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



John Deere "830" Series Diesel Tractor with V-4 Gasoline Cranking Engine—Pulley Side
(Serial No. 8300000-)



John Deere "830" Series Diesel Tractor with V-4 Gasoline Cranking Engine—Flywheel Side
(Serial No. 8300000-)

SPECIFICATIONS

PERFORMANCE:

Capacity for Work:

Six 14-inch plow bottoms or an equivalent load in most soil conditions.

***Maximum Horsepower:**

Belt	75.60
Drawbar	69.66

CAPACITIES (U. S. MEASUREMENTS):

Fuel Tank	32-1/2 Gals.
Gasoline Tank	1 Qt.
Crankcase (Diesel)	3-1/2 Gals.
Transmission (Diesel)	3-1/4 Gals.
Crankcase (Cranking Engine)	1-1/2 Qts.
Transmission (Cranking Engine)	1/2 Pt.
Powr-Trol	3 Gals.
Power Shaft Clutch	3-3/4 Qts.
Remote Cylinder (Each)	1-3/4 Qts.
Cooling System	8 Gals.
Power Steering Reservoir	5-1/2 Qts.

SPEEDS:

Gear	15-34 Tires
1st Regular	2-1/3 mph
1st Optional	1-3/4 mph
2nd	3-1/2 mph
3rd	4-1/2 mph
4th	5-1/3 mph
5th	6-3/4 mph
6th	12-1/4 mph
Reverse	2-2/3 mph

DIESEL ENGINE:

Type	Two-cylinder, cast-in-block, valves-in-head.
Bore and Stroke	6-1/8″ x 8″
Compression Ratio	16 to 1
Displacement	471-1/2 cu. in.
Engine Speeds:	
Load	1125 rpm
Fast Idle	1270 rpm
Slow Idle	750 rpm

CRANKING ENGINE:

Type	Four-cylinder V-type valves-in-head.
Bore and Stroke	2″ x 1-1/2″
Displacement	18.85 cu. in.
Engine Speeds:	
Load	4500 rpm
Slow Idle	4000 rpm
Fast Idle	5000 rpm

**Sea level (calculated); maximum h.p. based on 60° F. and 29.92 in. Hg. (Nebraska test No. 632).*

LUBRICATION SYSTEM:

Type..... Force-feed pressure system with full-flow oil filter.

FUEL SYSTEM:

Type..... Gravity to sediment bowl. Transfer pump through filters.

Air Cleaners.. Oil-wash type.

COOLING SYSTEM:

Type..... Pressure system. Centrifugal pump with temperature controlled by heavy-duty thermostat.

IGNITION SYSTEM (CRANKING ENGINE):

Type	Battery-distributor
Distributor Point Gap	.020″
Spark Plugs:	
Size	14 mm.
Spark Plug Gap	.025″

ELECTRICAL SYSTEM:

Battery Voltage	6 Volts
Generator Regulation	Voltage Regulator
Battery	Group 1

CLUTCH:

Type..... Hand-operated, eight 9-1/4″ dry disks.

BELT PULLEY:

Diameter	12-7/32″
Width	9″
Belt Speed	At 1125 rpm—3600 fpm At 1000 rpm—3200 fpm (ASAE-SAE Standard)

TRANSMISSION:

Type..... Six forward speeds and one in reverse. (1-3/4 mph 1st speed available as optional equipment.)

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

Bearings.. Shafts operate on six tapered roller bearings.

REAR WHEEL BRAKES:

Type..... Automotive-type, internal expanding.

(Continued on next page.)

SPECIFICATIONS

POWER TAKE-OFF SHAFT:

Shaft diameter	1-3/8″
Shaft rpm	536
Splined end ahead of hitch	14″
Splined shaft above ground	26-1/2″

POWR-TROL:

Type . . . . . Direct engine-driven with either single function or dual function remote cylinder control valve.

REAR AXLES:

Diameter	3-1/4″
Bearings	Four tapered roller bearings.

FRONT WHEELS AND TIRES:

Bearings	Four tapered roller bearings.
Tires	7.50 x 18, 4-ply, regular; 7.50 x 18, 6-ply, available.

REAR WHEELS AND TIRES:

14-34 6-ply on cast disk wheels. 15-34 6-ply, 18-26 8-ply, and 15-34 or 18-26 cane and rice available.

TREAD ADJUSTMENTS:

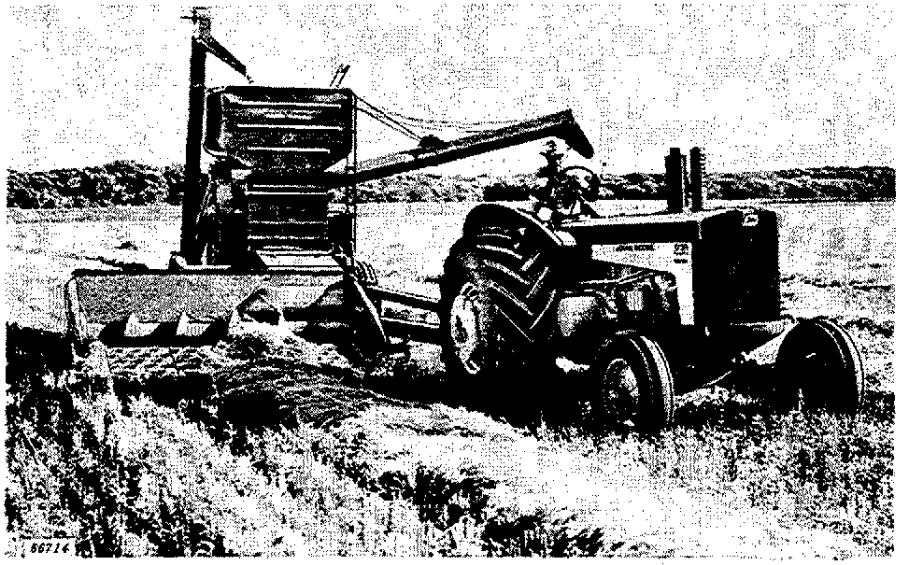
Front	56-1/2″ and 63″
Rear	64-1/2″ or 68-1/2″ with 14-34 and 15-34 tires; 67-1/4″ or 75-1/4″ with 18-26 tires on 16″ wide rims; 67-1/4″ or 83-1/4″ with 18-26 tires on 20″ wide rims.

DIMENSIONS:

Wheel Base	85-1/4″
Over-All Height	81″
Height to Top of Steering Wheel	80-3/4″
Over-All Length	142-3/4″
Turning Radius	15′ 6″
*Shipping weight with power shaft, Powr-Trol, and power steering (approx.)	8000 lbs.

**Weights are for tractors dry and with wheel equipment as shown under "Front Wheels" and "Rear Wheels."*

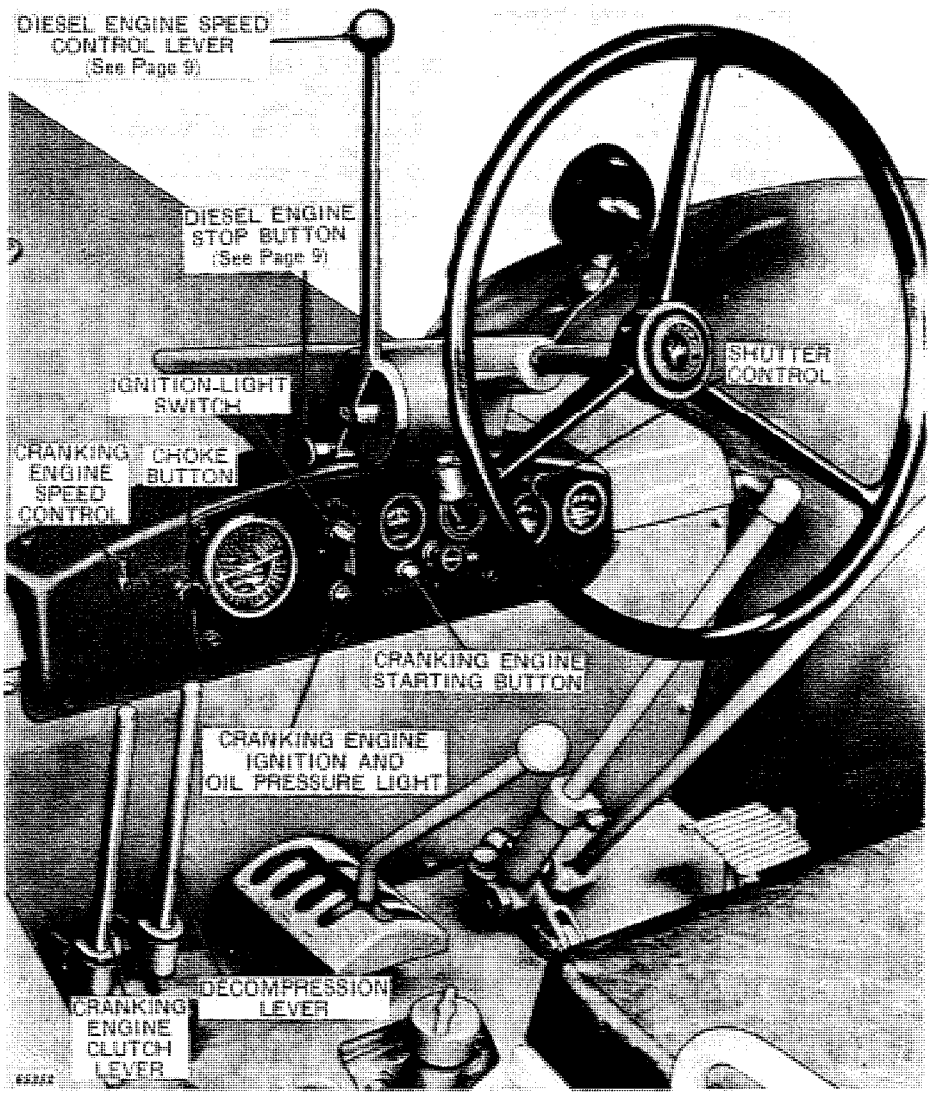
(Specifications and design subject to change without notice.)



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 CONTROLS •



Starting Controls

• STARTING CONTROLS •

IGNITION-LIGHT SWITCH.

A combination ignition-light switch is located on the instrument panel. Turning the switch to the "I" position turns on the cranking engine ignition and completes the electrical circuit to the starter button.

IGNITION AND CRANKING ENGINE OIL PRESSURE RED LIGHT.

When the ignition-light switch is turned on the red light on the instrument panel also comes on. The red light indicates that the ignition switch is on and that the cranking engine oil pressure is at zero. As the cranking engine is cranked and oil pressure develops, the red light is cut off. If the light reappears while the cranking engine is running, it is a warning to the operator that the lubrication system is not functioning properly. If this occurs, the engine should be stopped immediately and the cause of insufficient oil pressure determined.

If the operator fails to turn off the ignition switch after the Diesel engine has started, the cranking engine will continue to run until the entire gasoline supply is consumed. The engine will then stop, the oil pressure will drop to zero and the red light will glow to remind the operator to turn off the ignition switch.

LIGHTS.

The lights on your tractor provide maximum use and convenience for both 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

CRANKING ENGINE CHOKE BUTTON.

Pulling the choke control button out provides a rich mixture for starting. Push choke knob in for normal operation.

CRANKING ENGINE SPEED CONTROL.

The cranking engine speed control has two positions: "Start" when turned counter-clockwise, and "Run" when turned clockwise.

STARTER BUTTON.

The starter button closes the circuit to the cranking motor for starting the cranking engine.

DECOMPRESSION LEVER.

Pulling the decompression lever to the rear relieves compression in the Diesel engine for starting purposes.

CRANKING ENGINE CLUTCH LEVER.

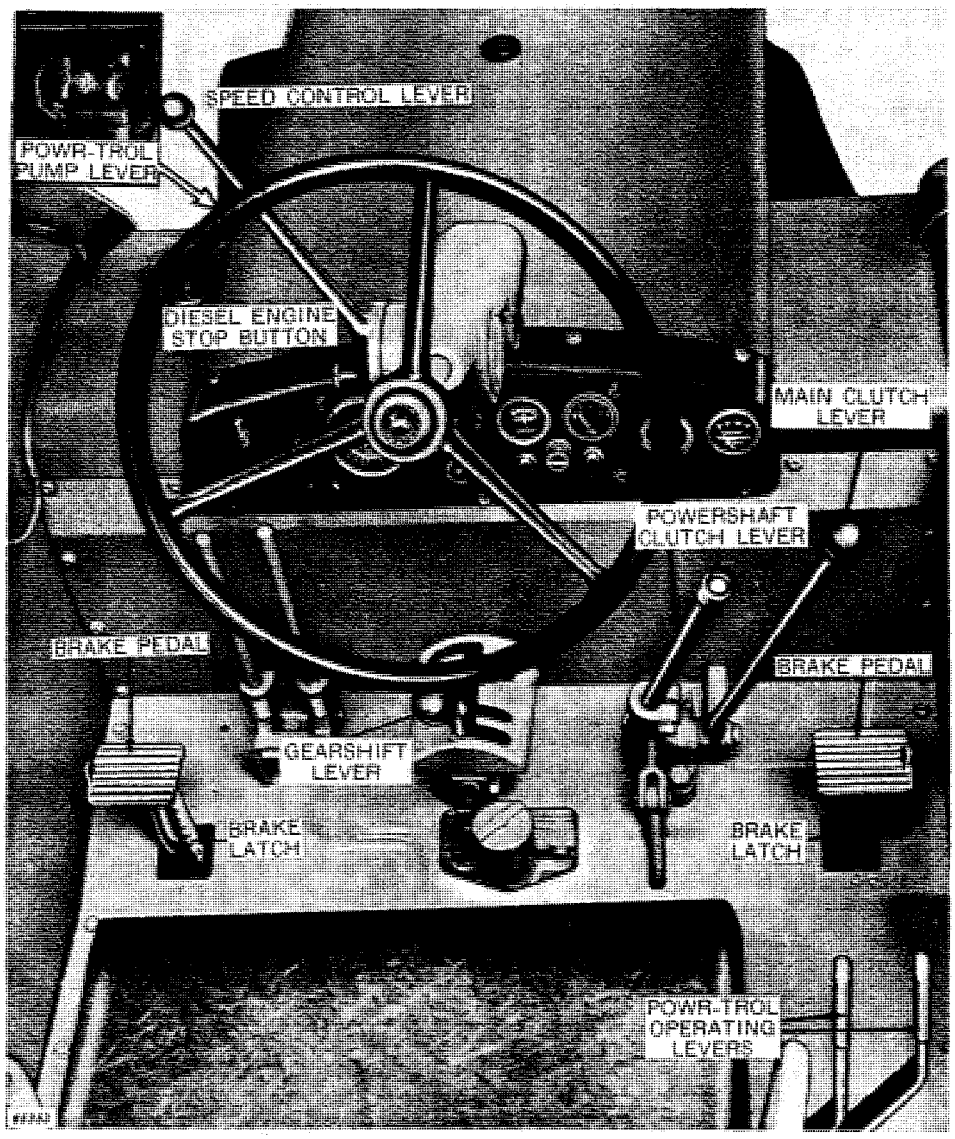
The cranking engine clutch lever has two functions. During the first half of its travel as it is pulled to the rear, it engages the cranking engine transmission pinion with the Diesel engine flywheel. During the remainder of the lever travel it engages the cranking engine clutch.

SHUTTER CONTROL (ATTACHMENT).

A shutter may be purchased as special equipment. It is to shorten the engine warm-up periods and to maintain proper idling temperature.

A convenient control button adjusts the shutter opening.

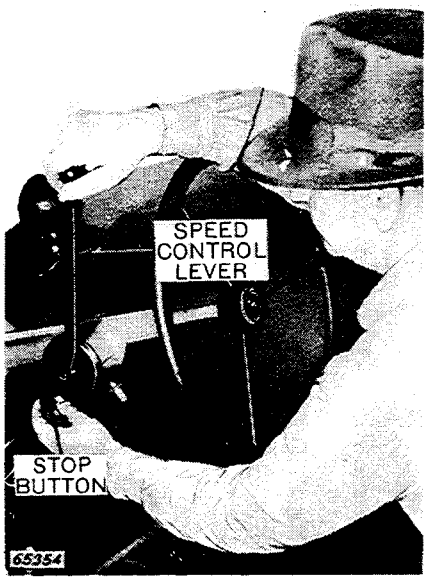
• OPERATING CONTROLS •



Operating Controls

SPEED CONTROL LEVER.

The lever mounted on the left-hand side of the steering support regulates the speed of the Diesel engine. Pushing it forward increases the speed and pulling it back decreases the speed. *NOTE: It is good practice to operate the engine with speed control lever in full forward position.*



Speed Control Lever and Stop Button

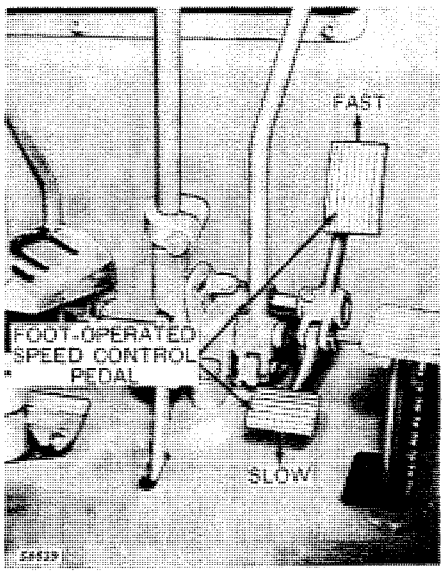
FOOT-OPERATED SPEED CONTROL PEDAL (ATTACHMENT).

This pedal, which is available as a special attachment, is used to speed up or slow down the tractor without using the hand-operated speed control lever. This attachment is especially handy when operating over rough areas, in and out of ditches and levees or when the tractor is used with some special equipment.

The pedal operates independently of the speed control lever.

Pressing down on the lower section of the pedal slows the engine. When pedal contacts the platform the engine is operating at slow idle speed.

Pushing ahead on the top section of the pedal speeds up the engine. When pushed forward as far as possible the engine is operating at fast idle.



Foot-Operated Speed Control Pedal

DIESEL ENGINE STOP BUTTON.

The Diesel engine is stopped by pulling the speed control lever all the way to the rear which cuts off delivery of fuel to the engine by the injection pumps.

The Diesel engine stop button, located on the left side of the speed control lever, permits the operator to slow the engine quickly to idle speed without danger of the engine stopping. When the stop button is pulled out, the speed control lever can be moved all the way to the rear to stop the engine.

MAIN CLUTCH LEVER.

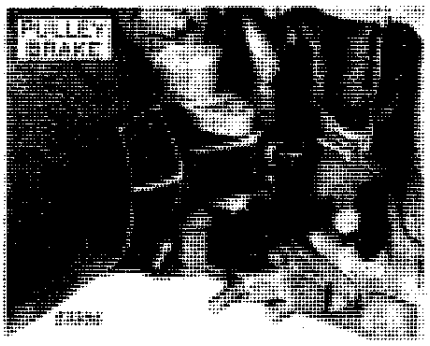
Power is applied gradually and smoothly by slowly pushing the clutch lever forward. When the tractor picks up speed, a quick forward thrust on the lever locks the clutch into engagement.

Clutch Lever

Pull back on the clutch lever to disengage the clutch.

PULLEY BRAKE.

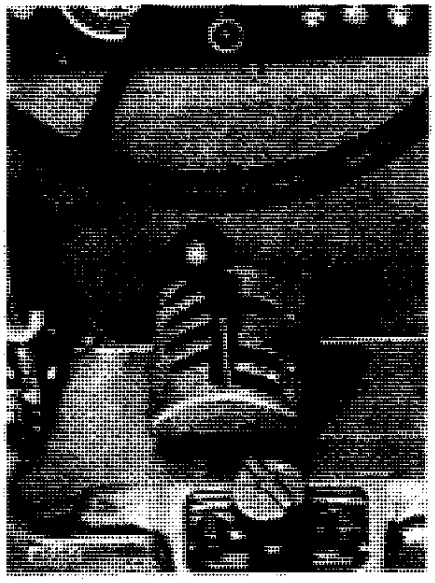
The pulley brake, which is applied when the clutch lever is pulled back, stops the pulley from rotating, permitting easy shifting of the transmission gears. *NOTE: Do not use pulley brake to stop tractor.*



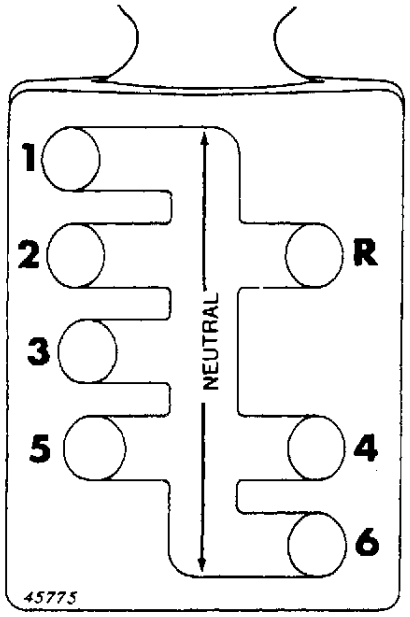
Pulley Brake

GEARSHIFT LEVER.

This lever is used to select any one of the six forward speeds or reverse speed. Familiarize yourself with the shifting diagram before attempting to operate the tractor.



Gearshift Lever

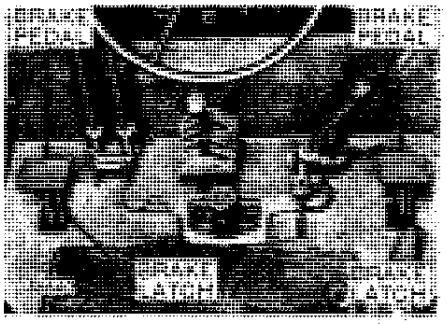


Gearshift Quadrant

BRAKES.

Individual foot-operated brakes assist in making short turns to the right or left.

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



Brake Pedals and Latches

A brake latch on each pedal can be used for locking each brake when doing belt work or when holding the tractor on a hill or incline. The brakes are locked by tipping the pedal forward to engage the latch. The brakes are released by pressing on the heel of the pedal.

SEAT, BATTERY COMPARTMENT, TOOL BOX AND ELECTRICAL OUTLET SOCKET.

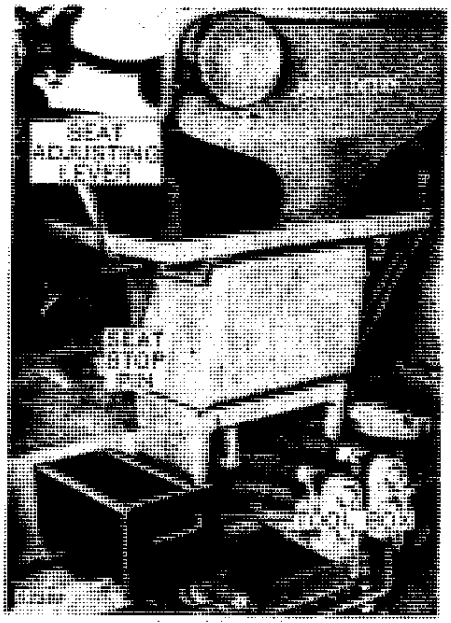
Standard Seat.

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 or backward to suit the convenience of the operator.

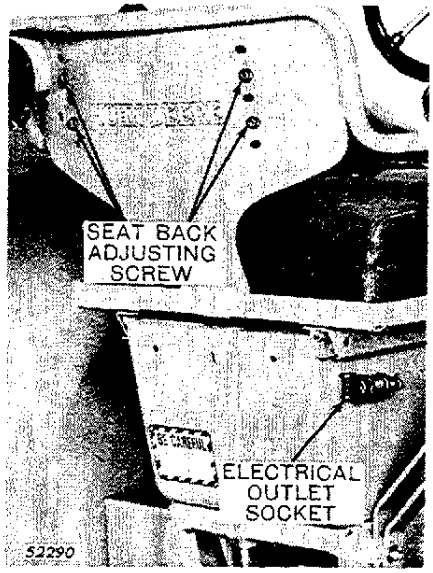
The back of the seat can be adjusted up or down by means of adjusting screws.

Tool Box.

The tool box is conveniently located to provide space for storing tools.



Standard Seat, Adjusting Lever, Stop Pin and Tool Box



Seat Back Adjusting Screws and Electrical Outlet Socket

Battery Compartment.

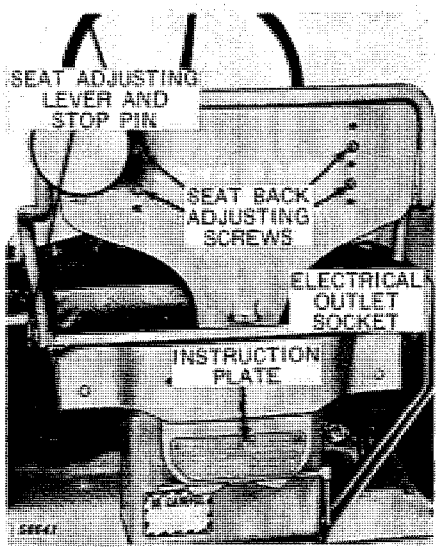
The battery is located in a compartment under the seat where it is readily accessible for periodic service.

Electrical Outlet Socket.

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

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 torsion 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.



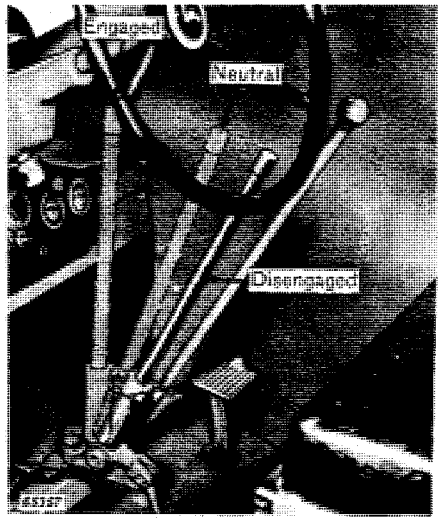
Float Ride Seat

CAUTION: Do not adjust the rubber torsion springs while an operator is on the seat.

POWERSHAFT CLUTCH LEVER.

The powershaft clutch makes it easy to use the powershaft without the necessity of shifting gears.

Pushing the lever forward engages the clutch. Pulling the lever back disengages the clutch and applies a brake to keep the shaft from turning when not in use. For further information see page 28.



Powershaft Clutch Lever

Powershaft safety shields are provided with powershaft driven equipment for the safety of the operator. These shields should always be used when this type of equipment is being operated.

Make it a standing rule never to dismount from the tractor without first disengaging the power shaft clutch.

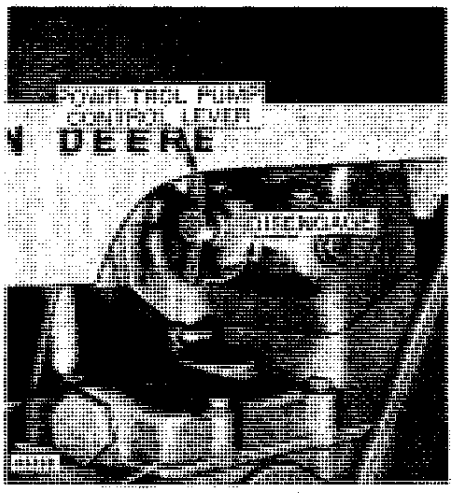
POWR-TROL PUMP CONTROL LEVER.

The Powr-Trol pump is engaged

by a control lever located on the pump housing.

CAUTION: Do not engage the Powr-Trol pump while the engine is running. Read operating instructions on page 29.

The Powr-Trol sliding shifter collar is spring loaded. To engage the Powr-Trol pump turn control lever to engaged position ("ON" at top), then start the Diesel engine. The pump can be disengaged while the Diesel engine is running at slow idle.

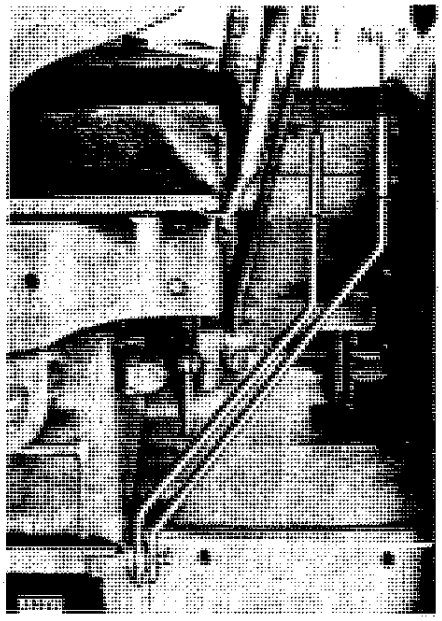


Powr-Trol Pump Control Lever

POWR-TROL OPERATING LEVERS.

Either single control valve or dual control valve Powr-Trol systems are used. One remote cylinder is used with the single control valve and either one or two cylinders with the dual control valve.

The levers at the right-hand side of the seat operate the cylinders. On tractor equipped with the single control valve there is only one valve and one remote cylinder. The inner of the two operating levers (No. 1) operates the cylinder attached to the left-hand (No. 1) breakaway coupling.



Powr-Trol Operating Levers

When two cylinders are used the outer lever (No. 2) is used to operate the second cylinder attached to the right-hand (No. 2) breakaway coupling. Both levers can be used simultaneously to operate both cylinders at the same time. Each lever has five operating positions; neutral, slow raise, fast raise, slow drop and fast drop. Implements are raised by moving the lever forward and dropped by moving the lever to the rear. For further information, see page 29.

• INSTRUMENT PANEL •

DIESEL OIL PRESSURE GAUGE.

The oil pressure gauge indicates whether or not the Diesel engine oil pump is working. The indicator hand on the gauge should rest between the letters "M" and "H" when the engine is hot and operating at fast idle.

If gauge does not indicate pressure, stop engine immediately.

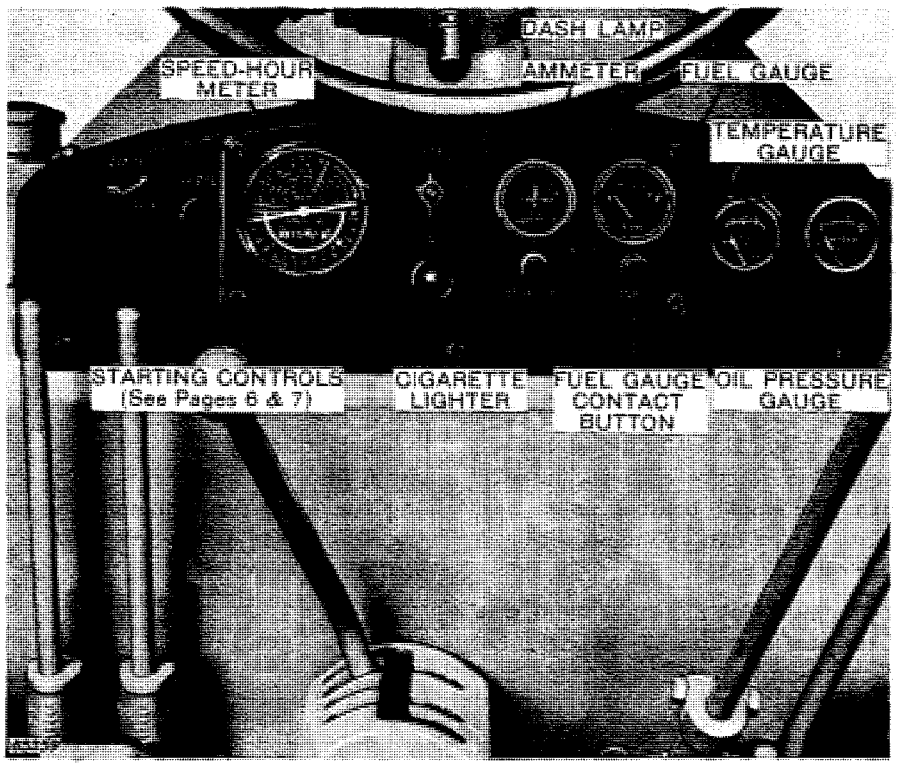
TEMPERATURE GAUGE.

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

CRANKING ENGINE IGNITION AND OIL PRESSURE INDICATOR LIGHT.

When the ignition-light switch is turned on, the ignition and oil pressure red light glows. After the cranking engine starts and oil pressure develops, the red light goes out. **If the red light glows while the cranking engine is running, stop the engine immediately; the glowing red light indicates low oil pressure.**

Occasionally the operator fails to stop the cranking engine after the Diesel engine has been started. In this case the cranking engine will not stop until the gasoline supply is used up. When the engine finally stops, the red light will glow to remind the operator to turn the ignition switch off.



Instrument Panel

AMMETER.

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

FUEL GAUGE.

The electric fuel gauge indicates the amount of fuel in the main fuel tank. The fuel gauge does not register with the engine stopped until the contact button under the fuel gauge is pushed.

DASH LAMP.

A small lamp is provided on the steering post for illumination at night. It is turned on by the ignition-light switch when the main lights are turned on.

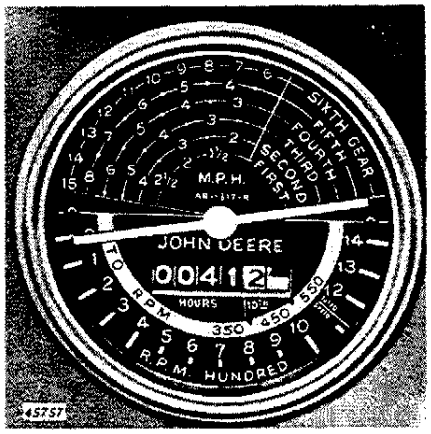
CIGARETTE LIGHTER.

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

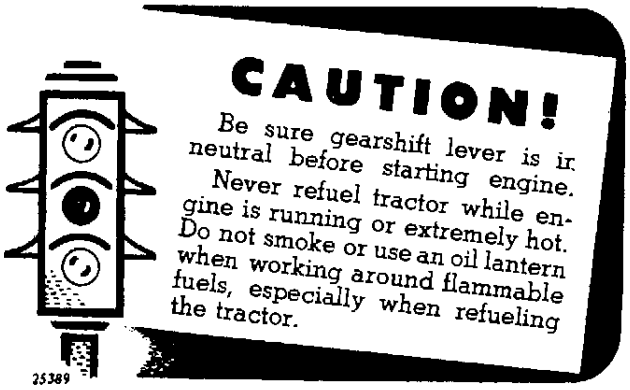
SPEED-HOUR METER.

The speed-hour meter 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



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Please download this document

first, and then click the above link

to download the complete manual.

Thank you so much for reading

OPERATING INSTRUCTIONS

The suggestions given on pages 16 through 34 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.

• 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.

CRANKING ENGINE FUEL.

The John Deere cranking engine is designed to operate on regular gasoline with a **minimum octane rating of 80, (Motor Method), 86 (Research Method).** No difficulty will be experienced with this fuel if the simple operating directions are followed.

DIESEL ENGINE FUEL.

Either No. 1-D or No. 2-D Diesel fuel as defined by ASTM designation D-975-53-T for Diesel fuel oils may be used. The No. 2 fuel is the heavier fuel and will produce more work per gallon. General specifications are listed as follows:

Flash Point—100° F. minimum.

Pour Point—For cold weather operation, the pour point should be specified 10° F. below the temperature at which the engine is to be operated.

Distillation Temperature—90% recovered at 675° F. maximum.

Viscosity at 100° F.—Saybolt Universal Sec. 30.0 minimum, 45 maximum.

Cetane Number—40 minimum. Low atmospheric temperatures as well as engine operation at high altitudes may require use of fuels with higher cetane ratings.

Sulphur—The sulphur content should be as low as possible, preferably less than 0.5% and in no case over 1.0%.

Sediment and Water—0.10% maximum.

FUEL STORAGE.

Many Diesel engine difficulties can be traced to dirty fuel. To keep the fuel injection equipment in its most efficient condition, keep all dirt, scale, water, and other foreign matter out of the fuel.

The importance of proper fuel storage cannot be too highly stressed.

Fuel should be stored in a convenient place outside of buildings. A fuel tank such as that illustrated on the next page, will provide good fuel storage. If fuel drums are used they should be located in a shady spot to prevent undue evaporation.