620 Series Orchard Tractor (Gasoline, All-fuel and LP-Gas)

JOHN DEERE

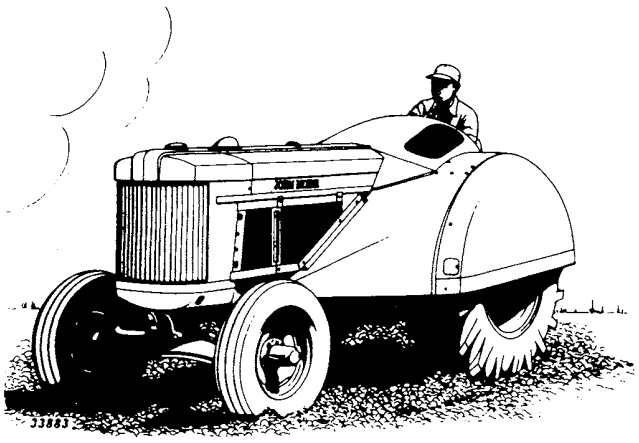
OPERATORS MANUAL

620 Series Orchard Tractor (Gasoline, All-fuel and LP-Gas)

OMR2073 E7 English

OMR2073 E7

LITHO IN U.S.A.
ENGLISH



To the Purchaser

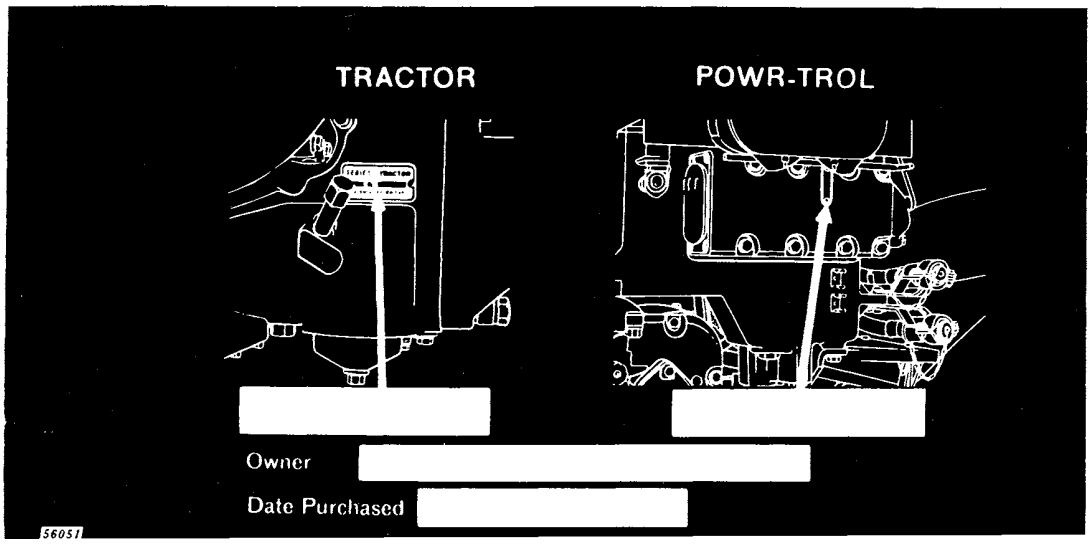
We welcome you to our ever-growing family of John Deere tractor owners. We are confident that the dependable and economical performance of your John Deere tractor will prove that you made a wise choice.

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.

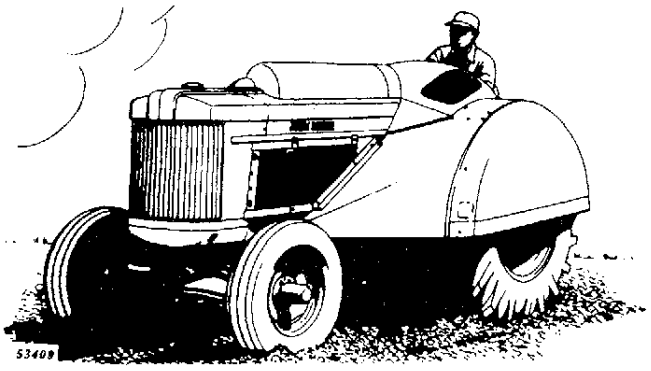
Keep this manual in a convenient place for quick and easy reference. Use it as a guide whenever questions arise. You have purchased a dependable, sturdy tractor, but only by operating and caring for it properly can you expect to receive the service and long life for which it was designed.

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.

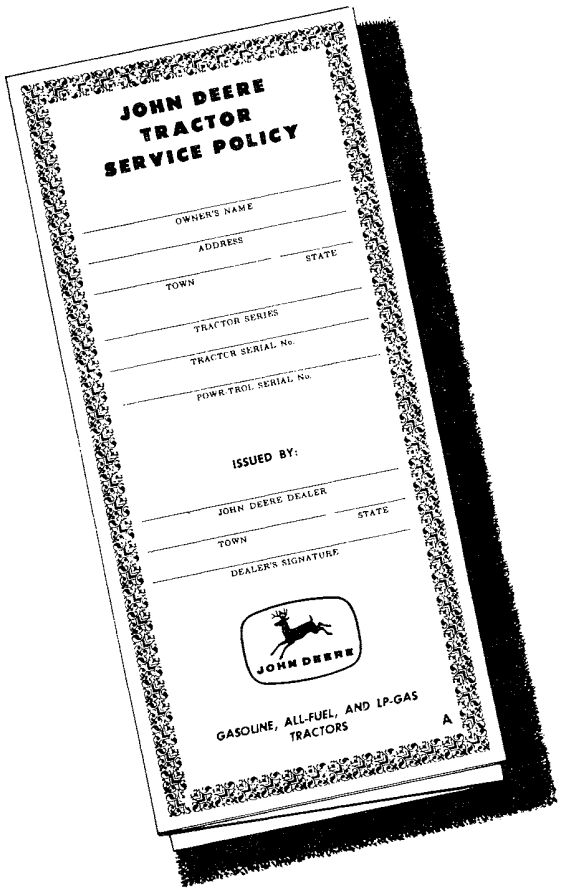
When in need of parts, give your John Deere dealer the serial number of your tractor or Powr-Trol, depending on the parts you need. The illustration below shows you where to find these serial numbers. Obtain them from your tractor—NOW—and insert them in the spaces provided in the illustrations below.



• TABLE OF CONTENTS •



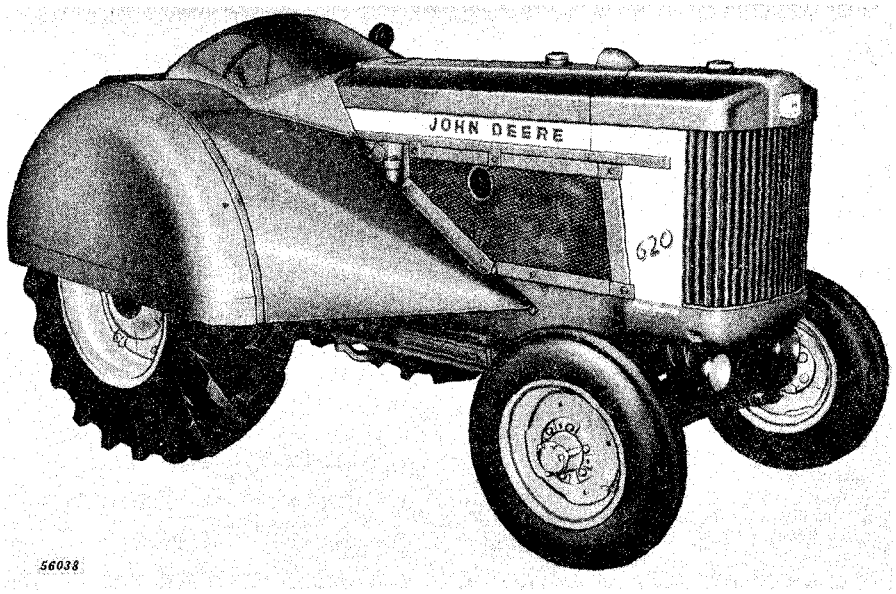
John Deere Tractor Service Policy



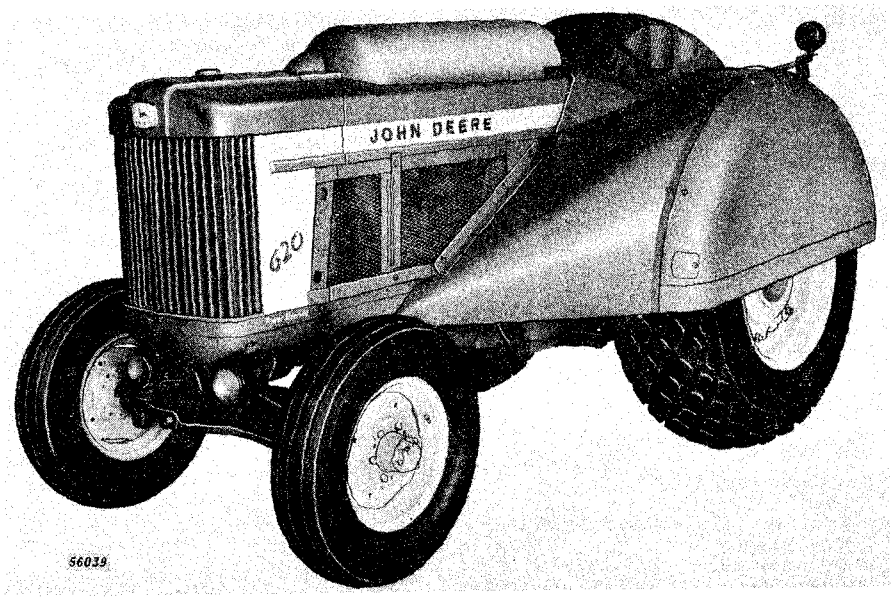
When your new tractor was delivered the John Deere dealer presented to you a copy of the Tractor Service Policy illustrated above. This policy certifies that your new John Deere Tractor was properly inspected and prepared for delivery by the dealer before he released it to you.

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 "620" Series Orchard Tractor (Gasoline or All-Fuel)—Pulley Side



John Deere "620" Series Orchard Tractor (LP-Gas)—Flywheel Side

SPECIFICATIONS

PERFORMANCE:

Capacity for Work:
Four 16-inch plow bottoms under normal conditions. Four 14-inch plow bottoms under favorable soil conditions.

Maximum Belt Horsepower:

*Gasoline	
*All-Fuel	
*LP-Gas	

Maximum Drawbar Horsepower:

*Gasoline	
*All-Fuel	
*LP-Gas	

CAPACITIES (U. S. MEASUREMENTS):

Gasoline Tank:	
Gasoline Tractor	20 Gals.
All-Fuel Tractor	1 Gal.
Fuel Tank (All-Fuel)	20 Gals.
Fuel Tank (85% Full) (LP-Gas)	32-1/4 Gals.
Crankcase	8 Qts.
Transmission	8-1/2 Gals.
Powr-Trol	6-1/2 Qts.
Remote Cylinder	1 Qt.
Power Steering	1 Qt.
Power Shaft Clutch	2-1/2 Qts.
Cooling System	7 Gals.
First Reduction Gear Cover	1-1/2 Qts.

SPEEDS:

Gear	(14-26 Tires) (Low Profile)
1	1-1/2 mph
2	2-1/2 mph
3	3-1/2 mph
4	4-1/4 mph
5	6-1/4 mph
6	10-3/4 mph
Reverse	2-3/4 mph

ENGINE:

Type	Two-cylinder, cast-in-block, valves-in-head.
Engine Speeds:	
Load	1125 rpm
Fast Idle	1260 rpm
Slow Idle	600 rpm
Bore and Stroke	5-1/2" x 6-3/8"
Displacement	302 cubic inches
Compression Ratio (Gas)	6.2 to 1
Compression Ratio (LP-Gas)	8.1 to 1

LUBRICATION SYSTEM:

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

FUEL SYSTEM:

Type	Pressure regulated
Carburetor	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	.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 10-inch dry disks.

BELT PULLEY:

Diameter	12-13/16"
Width	7-3/8"
Rpm (Load)	1125
Belt Speed	3775 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.

Tractor not tested at Nebraska.

(Continued on next page)

SPECIFICATIONS

REAR AXLES:

Diameter..... 2-3/4″
Bearings..... Four tapered roller

REAR WHEELS AND TIRES:

14-26, 6-ply tires, mounted on cast wheels, recommended for average field conditions. 13-26, 6-ply and 14-26, 6-ply low profile tires available as special equipment.

REAR WHEEL BRAKES:

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

FRONT WHEELS:

6.00 x 16″ and 7.50 x 16″, 4-ply tires. Mounted on 4 tapered roller bearings.

POWER TAKE-OFF:

Shaft Diameter.....	1-3/8″
Shaft rpm.....	540
Splined Shaft Above Ground..	19-3/16″

DIMENSIONS:

Wheel-Base.....	75-3/4″
Over-All Height.....	59-1/2″
Height to Radiator Cap.....	57″
Maximum Width....	77-5/8″
Tread Adjustments..	55-7/16″-63-7/16″
Turning Radius.....	13′ 8″

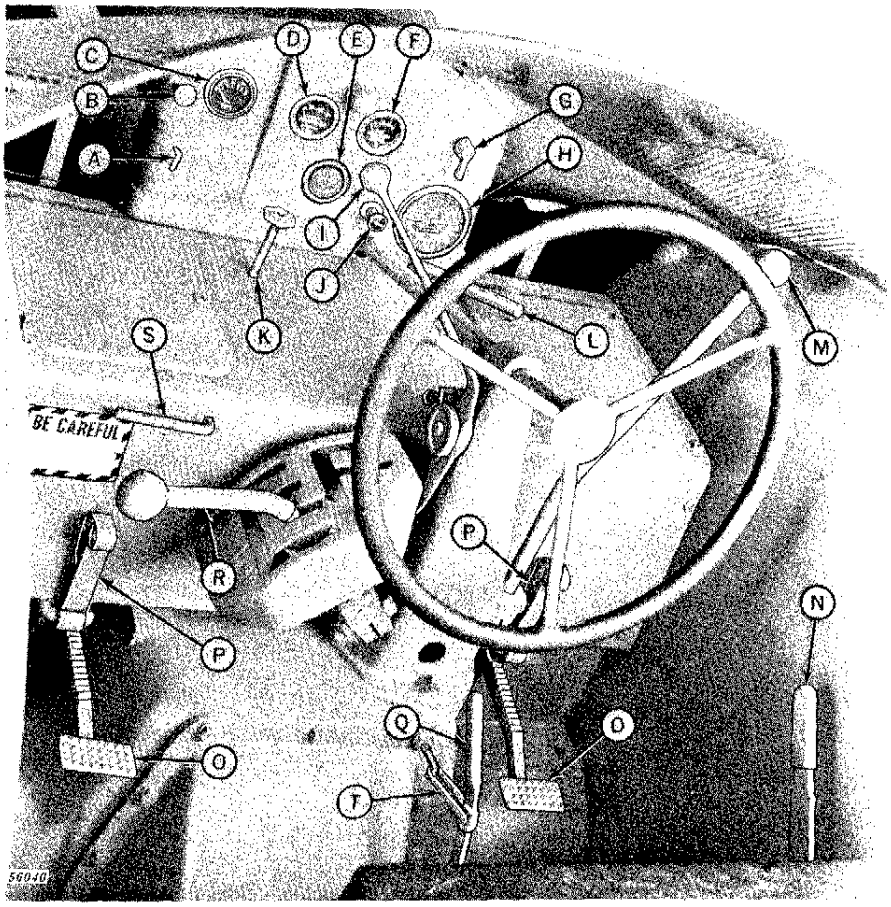
*SHIPPING WEIGHT (Gas). 6345 Lbs.
(LP-Gas) 6645 Lbs.

*(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.



A —Fuel Control Lever (All-Fuel Only)
B —Choke Control
C —Fuel Gauge
D —Temperature Gauge
E —Ammeter
F —Oil Pressure Gauge
G —Ignition and Light Switch
H —Speed-Hour Meter
I —Speed Control Lever
J —Cigarette Lighter
K —Starter Button
L —Power Shaft Shift Lever
M—Clutch Lever
N —Powr-Trol Lever
O —Brake Pedal
P —Brake Latch
Q —Power Shaft Clutch Lever
R —Gear Shift Lever
S —Hydraulic Pump Control Lever
T —Power Shaft Clutch Lever Latch

Starting and Operating Controls (Gasoline and All-Fuel Illustrated)
(For LP-Gas Tractor Controls, See Page 10)

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.

STARTER BUTTON.

The engine is started by the button located in convenient reach of the operator.

CHOKE CONTROL (GASOLINE AND ALL-FUEL TRACTORS).

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

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.

SPEED CONTROL LEVER.

The lever mounted on the left-hand side of the steering shaft 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 forward position.*

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.

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.*

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.

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.

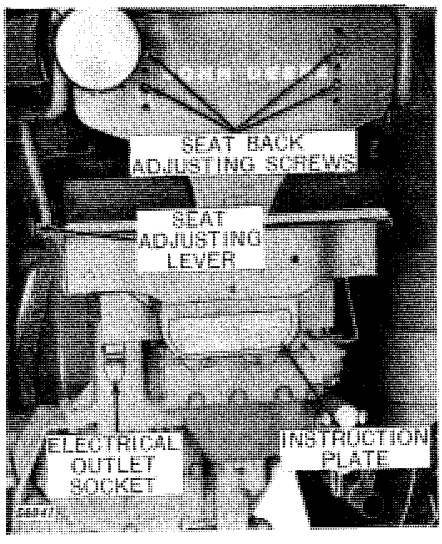
SEAT AND ELECTRICAL OUTLET SOCKET.

Standard Seat.

There is an adjustment on the left-hand side of the seat for moving it 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.

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.



Float Ride Seat

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

Electrical Outlet Socket.

A convenient electrical outlet socket is located under the seat on the left-hand side.

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 19.**

POWER SHAFT CLUTCH LEVER.

Pulling up the clutch lever engages the clutch; pushing the lever down disengages the clutch and applies a partial brake to power shaft. Additional downward pressure on the lever brings in added brake action and effects a faster stopping of the power shaft.

The power shaft clutch lever is provided with a latch to lock the clutch in the disengaged or stopped position.

HYDRAULIC SYSTEM PUMP CONTROL LEVER.

The hydraulic pump is engaged by pushing the lever to the left. The pump must be engaged before the power steering system will become effective or the hydraulic remote cylinder will operate.

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.

POWR-TROL OPERATING LEVER.

The lever at the side of the seat operates the Powr-Trol. The lever has five operating positions: neutral, slow raise, fast raise, slow drop, and fast drop. Implements are raised by pulling the lever rearward and lowered by pushing the lever forward. For further information, see page 21.

STEERING.

If your tractor is equipped with power steering, it is necessary to have the hydraulic pump engaged before the power steering will operate.

MANIFOLD HEAT CONTROL VALVE (GASOLINE AND ALL-FUEL TRACTORS).

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 41. 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.

• INSTRUMENTS •

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.

FUEL GAUGE.

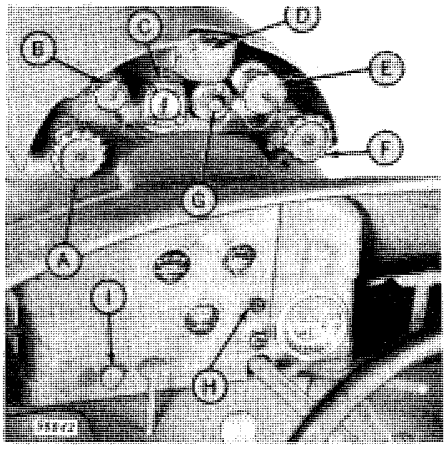
The fuel gauge indicates the quantity of fuel in the fuel tank.

SPEED-HOUR METER.

The speed-hour meter, 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

• LP-GAS CONTROLS •



A —Liquid Withdrawal Valve
B —Vapor Return Valve
C —Fuel Gauge
D —Safety Relief Valve
E —Liquid Filler Valve
F —Vapor Withdrawal Valve
G —Fixed-Tube Liquid Level Gauge
H —Fuse
I —Fuel Choke Control

Liquid and Vapor Withdrawal Valves

AUXILIARY FUEL CONNECTOR.

The connector at the rear of the fuel strainer provides a handy means of attaching a portable pressure tank of LP-Gas fuel if the tractor tank is empty and it is necessary to run the tractor to the fuel storage tank, page 42.

FUEL GAUGE.

The fuel gauge, located above the instrument panel, indicates the liquid level in the fuel tank. It is calibrated to show the **percentage** of liquid fuel in the tank.

LIQUID AND VAPOR WITHDRAWAL VALVES.

These valves control the flow of fuel to the engine and are located at the rear of the fuel tank above the instrument panel. When opened, the VAPOR valve supplies vapor from the top of the fuel tank for starting the engine.

The LIQUID valve permits withdrawal of liquid fuel from the tank for normal operation.

Both valves are equipped with excess-flow valves which automatically close whenever the flow exceeds the normal amount used to operate the tractor. These valves must be opened slowly to prevent closing the excess flow valves. If a fuel line is accidentally broken, the excess-flow valve instantly trips and permits only a small amount of gas to flow; the excess-flow valves do not shut off the flow completely. If one of the excess-flow valves closes, it can be reset by closing the withdrawal valve manually.

FUEL CHOKE CONTROL.

The fuel choke control is used as an aid in starting the engine during extremely cold weather. Pulling out on the choke reduces fuel flow and provides a proper starting mixture.

SAFETY RELIEF VALVE.

The safety relief valve, as its name implies, will open and permit vapor to escape if the pressure in the tank becomes too great. The valve is set to open at 312 pounds per square inch pressure. If the safety relief valve continually opens in hot weather, consult your fuel dealer. He may be able to supply a different blend of fuel, especially prepared for use in hot weather.

FUELS

• GASOLINE AND ALL-FUEL •

IMPORTANCE OF USING PROPER FUELS.

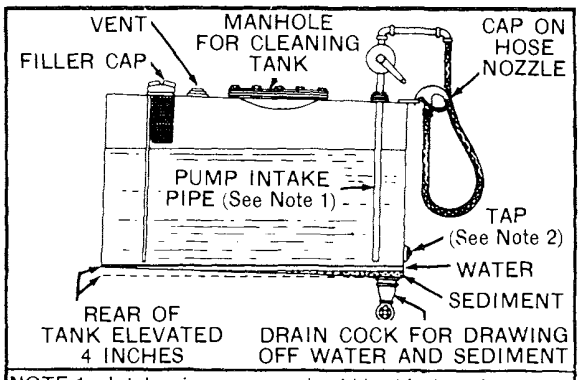
Now that you are familiar with the controls, your next consideration before starting your tractor is the type of fuel you are going to use.

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-1215-54T. 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.



One Type of Fuel Storage Tank

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

• LP-GAS FUEL •

Liquefied petroleum (LP-Gas) is a fuel composed of gaseous petroleum compounds, principally propane or butane, or a mixture of both. Propane and butane are gases at ordinary temperatures but they can be changed to liquids by compressing them into a tank. These liquids boil at low temperatures. For instance, butane boils at +31°F. and propane at —44°F. Mixtures of the two gases have boiling points between these two values. To maintain the fuel in the liquid state, it must be kept under pressure at all times. This pressure ranges from a few pounds in cold weather up to extremely high pressures in hot weather.

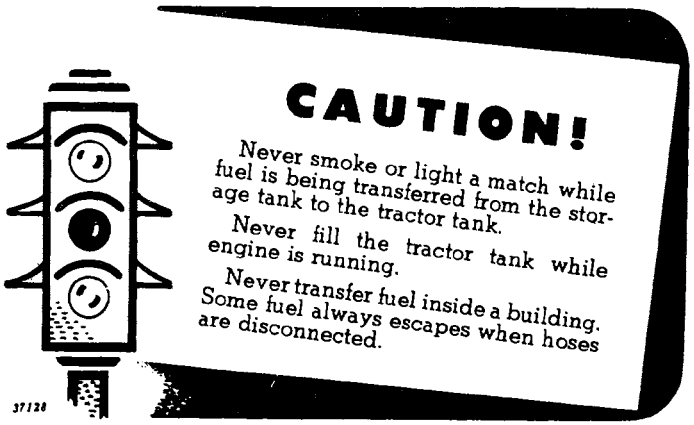
LP-Gas is not unduly hazardous but since its characteristics are somewhat different than those of gasoline and other fuels, it requires different methods of handling. When handled **carefully** LP-Gas is as safe as any other fuel; when handled **carelessly** it is as dangerous as any other fuel. **The use of common sense, based on a knowledge of the fuel's characteristics and what can happen if it gets loose, will prevent accidents.**

Both propane and butane are heavier than air and will settle in low quiet spots if they escape from the storage tank or tractor fuel system. This is one of the reasons it is so important to prevent leaks, and to ventilate low spots thoroughly if escaped gas is detected, before any spark or flame is produced.

The National Board of Fire Underwriters' Pamphlet No. 58 is the accepted guide for the safe handling and use of LP-Gas. Make sure that all LP-Gas storage facilities or equipment used in connection with your John Deere LP-Gas Tractor complies with the specifications and regulations given in the pamphlet. This pamphlet can be obtained from the National Board of Fire Underwriters, 85 John St., New York 38, New York.

Liquefied petroleum has a high octane rating which permits an increase in compression ratio. In the John Deere LP-Gas Tractor the ratio is 8.1 to 1.

The LP-Gas engine is essentially the same as a gasoline engine except that the fuel enters the carburetor in the gaseous state. In the carburetor the gas is mixed with air in the proper proportions and metered to the cylinders.



• FILLING THE LP-GAS FUEL TANK •

Fuel transfer equipment and complete instructions for handling liquefied petroleum fuel should be obtained from the dealer distributing the fuel in your community. He is fully informed on local and state regulations and will give you valuable advice on good safety practices.

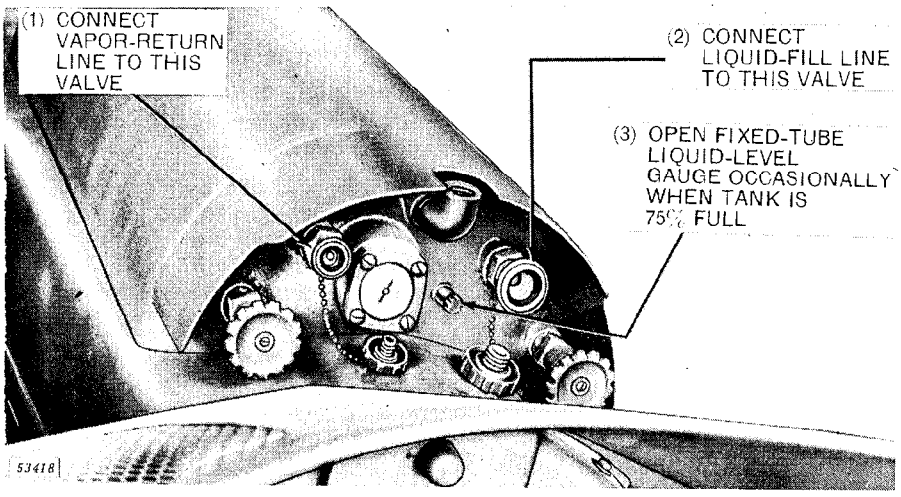
Many fuel companies furnish fuels of different composition for winter or summer use. These fuels are properly blended to give best performance during the prevailing season. Consult your fuel dealer before having your storage tank filled.

This John Deere LP-Gas Tractor is designed to use a mixture composed of a maximum of 60% butane. A greater percentage of butane can result in excessive detonation under heavy loads in hot weather due to the lower octane rating of this fuel. Also, difficult starting in cold weather may be encountered due to lack of fuel pressure.

Before filling the tank or operating the tractor, familiarize yourself thoroughly with all safety precautions relative to the handling and use of LP-Gas. Also, be sure to comply with all regulations specified in the National Board of Fire Underwriters' Pamphlet No. 58.

It is a good idea to open the VAPOR withdrawal valve, close the LIQUID withdrawal valve and run the engine on vapor for about a half hour before filling the tractor fuel tank. This will reduce pressure in the tank and make filling easier.

Attach the VAPOR-RETURN LINE from the storage tank to the VAPOR-RETURN valve on the tractor fuel tank. The vapor-return valve is the smaller of the two valves. Always connect the vapor-return line first to equalize the pressure in the two tanks.



Fuel Tank Filling Connectors

Attach the LIQUID-FILL LINE from the storage tank to the FILLER valve.

Watch the fuel gauge on the instrument panel and, when it shows the tank to be about 75% full, begin opening the fixed-tube liquid-level gauge momentarily at frequent intervals. When fuel comes out of this gauge in the form of a liquid spray, the tank is 85% full. The tank should never be filled beyond this point.

Operators have been known to open the fixed-tube, liquid-level gauge to let pressure escape to atmosphere so the tank will fill faster. **This is particularly hazardous; the practice is strictly prohibited by all fire and safety codes, and common sense should forbid such procedure.**

CAUTION: Never smoke or light a match while fuel is being transferred from the storage tank to the tractor tank. Never fill the tractor tank while engine is running or while tractor is in a closed building.

OPERATING INSTRUCTIONS

• STARTING THE LP-GAS ENGINE •

(1) See that gear shift lever is in neutral and that clutch is disengaged (pulled to the rear).

(2) In cold weather disengage the hydraulic pump and the power shaft shift lever to relieve drag on cranking motor caused by cold oil.

(3) Set speed-control lever in the closed or slow-idle position.

(4) Open the VAPOR withdrawal valve slowly. If the valve is opened too fast it may cause the excess flow valve to close and prevent normal flow of vapor. If this happens, close the vapor withdrawal valve to reset the check valve, then open the vapor withdrawal valve slowly.

(5) Turn ignition-light switch to "I" position.

(6) Crank the engine with the cranking motor.

(7) In cold weather, if the engine does not start immediately, pull the fuel choke lever all the way out, then gradually push it in until engine starts. Normal running position is with choke lever all the way in.

(8) After the engine is started, operate it on vapor until the cooling system is warm, then slowly open the LIQUID withdrawal valve and close the VAPOR withdrawal valve.

Suggest:

If the above button click is invalid.

Please download this document

first, and then click the above link

to download the complete manual.

Thank you so much for reading

(9) Regulate engine speed by the speed control lever. The engine is set to run at the correct speed when the tractor leaves the factory; 1125 rpm for full load; 600 rpm for slow idle; and approximately 1260 for fast idle. **CAUTION: Under no circumstances should the engine be operated at a fast idle speed over 1270 rpm.**

(10) Watch the oil pressure gauge when the engine starts. If the hand on the gauge is not between "M" and "H" when the speed control lever is pushed forward, stop the engine immediately and determine the cause of the low oil pressure.

• STARTING THE GASOLINE AND ALL-FUEL ENGINE •

All-Fuel Tractors Only.

(1) Close the carburetor drain cock.

(2) Turn on gasoline by setting the fuel control lever to the mark 'G."

All Tractors.

(3) Set gear shift lever in neutral and pull the clutch lever back into disengaged position.

(4) In cold weather disengage the hydraulic pump and the power shaft shift lever to relieve drag on cranking motor caused by cold oil.

(5) Pull speed control lever all the way to the rear. Engine will start easier if lever is not advanced.

(6) Turn ignition-light switch to "I" position.

(7) Pull out the choke button.

(8) Depress starter pedal.

(9) As soon as engine starts, push the choke button in except during cold weather when it may be necessary to leave choke partially open for the first few minutes.

(10) Regulate engine speed by the speed control lever. The engine is set to run at the correct speed when the tractor leaves the factory: 1125 rpm for full load; 600 rpm for slow idle; and approximately 1260 rpm for fast idle. **CAUTION: Under no circumstances should the engine be operated at an idle speed over 1270 rpm.**

(11) Watch the oil pressure gauge when the engine starts. If the pointer is not between "M" and "H" when the speed control lever is pushed forward, stop the engine immediately and determine the cause of the low oil pressure.

All-Fuel Tractors Only.

(12) For satisfactory operation of the All-Fuel tractor on tractor fuel, warm up the engine before turning fuel control lever to mark "F" to switch from gasoline to tractor fuel.

• WARM-UP PERIOD •

Before placing your tractor under full load, be sure it is warmed up to proper operating temperature. When starting to work with a cold tractor it is best to operate for about 30 minutes in a lower gear than is normally required for the load. This will give the oil a chance to circulate freely and will prevent undue wear on engine and transmission parts.