

# 70 TRACTOR LP-GAS INSTRUCTIONS



JOHN DEERE

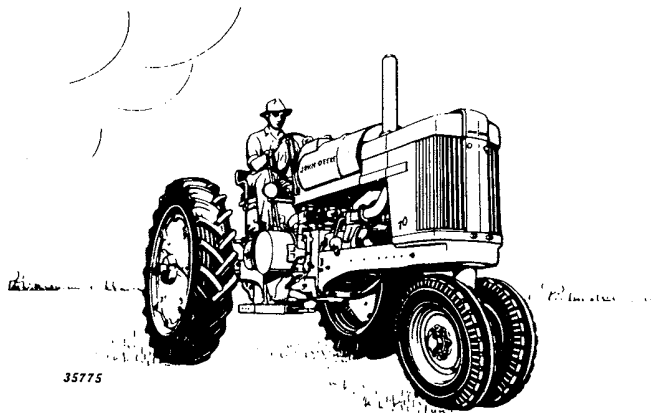
## OPERATORS MANUAL 70 TRACTOR LP-GAS INSTRUCTIONS

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## • TO THE PURCHASER •

In most respects your new John Deere Model "70" LP-Gas Tractor is just like a regular John Deere Model "70" Tractor.

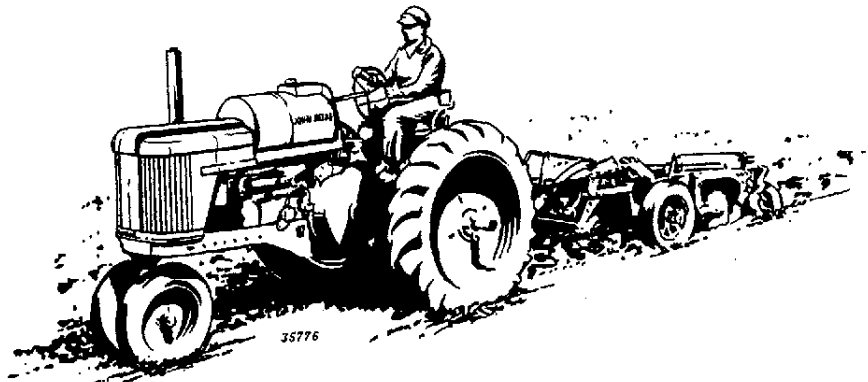
The instructions in this manual supplement those in the Operator's Manual for the regular Model "70" Tractor. This manual covers only those parts of your LP-Gas Tractor which are different from the regular Model "70" Tractor.

Refer to your Model "70" Operator's Manual for description and location of controls, operating instructions, lubrication, and services that will keep your tractor in tip-top shape. Refer to the regular manual often for constructive and helpful suggestions on getting the most out of your "70" LP-Gas Tractor.

Your new John Deere Model "70" LP-Gas Tractor is factory-engineered to run efficiently and economically on liquefied petroleum fuels. The advantages of LP-Gas fuel are fully utilized without sacrificing the established features of John Deere Tractors.

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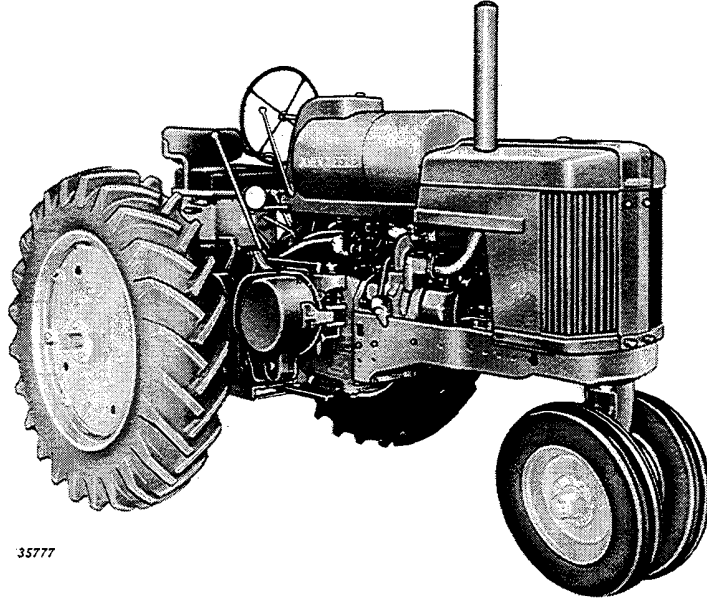
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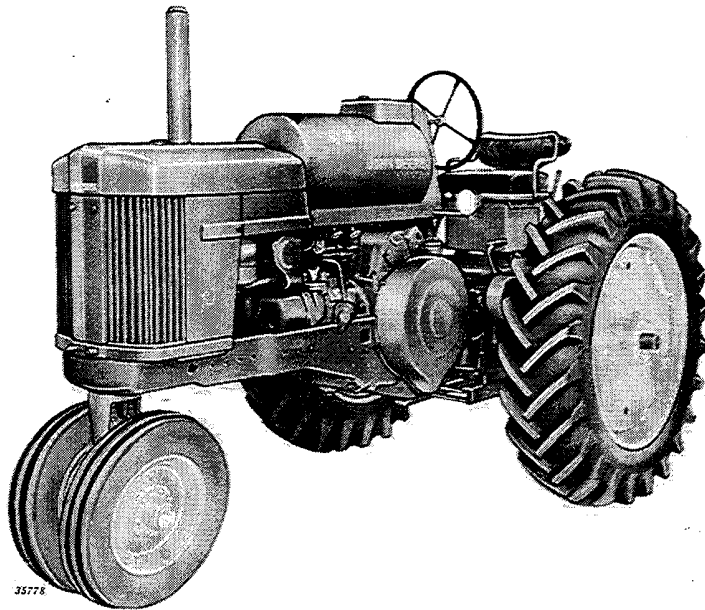
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*John Deere Model "70" LP-Gas Tractor—Pulley Side*



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*John Deere Model "70" LP-Gas Tractor—Flywheel Side*

## 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.

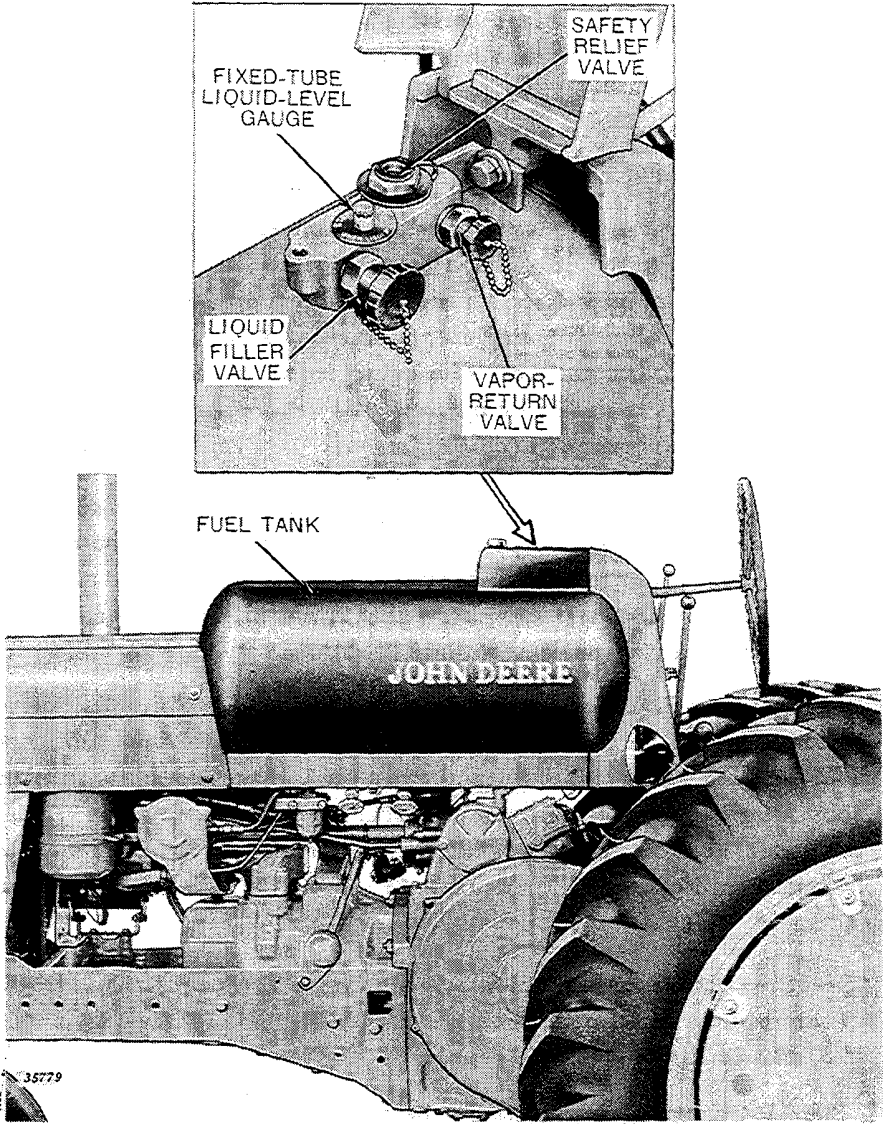
Liquefied petroleum has a high octane rating which permits an increase in compression ratio. In the John Deere Model "70" LP-Gas Tractor the ratio is 7.3 to 1.

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.

# LP-GAS EQUIPMENT AND CONTROLS

The equipment necessary to use LP-Gas as a fuel is illustrated and described on the following pages.

Approval by the Underwriters' Laboratories has been granted.



*Fuel Tank and Filling Equipment*

### FUEL TANK.

The fuel tank is of heavy welded steel construction with a fuel capacity of 33 gallons. *NOTE: The tank has a total volume of 39 gallons but it **must never** be filled with more than 33 gallons, which is 85% of its total volume, because LP-Gas expands as the temperature rises. A tank 85% full of fuel will be 100% full after a temperature increase of 80°F.*

### FILLER VALVE.

The FILLER valve, located on top of the fuel tank, is used for filling the tank. A double check valve, built into the filler valve, automatically prevents any fuel withdrawal or escape.

### VAPOR-RETURN VALVE.

The VAPOR-RETURN valve, located behind the filler valve, is also used when filling the tank. The purpose of this valve is to permit vapor to return to the storage tank, as the tractor fuel tank is being filled with liquid, thus equalizing the pressures between the two tanks and permitting easier filling. A built-in excess-flow valve automatically closes if flow through the vapor-return valve becomes excessive. This is a safety measure designed to stop flow of vapor if the vapor return line is broken.

### FIXED-TUBE LIQUID-LEVEL GAUGE.

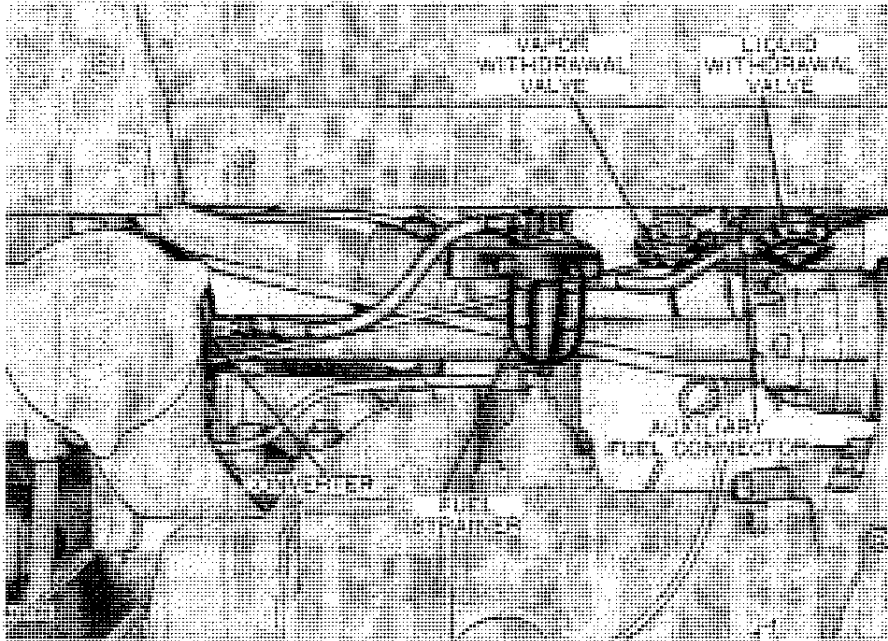
This gauge, located above the filler valve, is used when the tank is being filled. By opening the gauge when the tank is partially full, a fog or mist of fuel can be seen coming from the outlet. When the tank is 85% full, the fog or mist will change to a spray of liquid fuel. **During the filling process the gauge should be opened only momentarily at frequent intervals. It should never be left open to let vapor escape while liquid is being pumped into the tank. To do so is extremely hazardous and violates all fire and safety codes. Use the vapor-return valve to reduce the pressure in the tractor fuel tank.** (See illustration on page 11.)

### 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.

### LIQUID AND VAPOR WITHDRAWAL VALVES.

These valves control the flow of fuel to the engine. The VAPOR valve is the foremost of the two valves. When opened, this valve supplies vapor from the top of the fuel tank for starting the engine.



*Vapor and Liquid Withdrawal Valves, Fuel Strainer, and Connector*

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 leak develops in a fuel line or if a 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.

### AUXILIARY FUEL CONNECTOR.

The connector between the liquid and vapor withdrawal valves 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.



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### FUEL STRAINER.

The fuel strainer removes particles of dirt or other foreign matter from the fuel after it leaves the tank. An electrically operated fuel shut-off valve is built into the strainer as an additional safety factor. When the ignition switch is turned on the shut-off valve opens; when the switch is turned off the valve automatically closes to prevent fuel from entering the engine or other parts of the system. If, for any reason, the electrical system fails to operate, the shut-off valve will close.

### CONVERTOR.

From the fuel strainer the fuel enters a convertor which converts the liquid fuel into a gas and reduces the pressure until it is just right for efficient operation in the engine.

Heat must be applied to vaporize the fuel and to prevent freezing of the convertor parts which get extremely cold due to heat being absorbed by the fuel as it expands from a liquid into a gas. This heat for vaporizing the fuel is supplied from the tractor cooling system. Coolant is taken from the cylinder water outlet and flows through passages in the convertor. The outgoing coolant is piped to the thermostat cover.

Since the engine is started on vapor from the top of the fuel tank, no initial heat is required.



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