

**Instructions for
Installing & Operating
LP-GAS EQUIPMENT
on Model LA Series
Tractors**

5643

Reprinted

CASE III






THIS SAFETY ALERT SYMBOL INDICATES IMPORTANT SAFETY MESSAGES IN THIS MANUAL. WHEN YOU SEE THIS SYMBOL, CAREFULLY READ THE MESSAGE THAT FOLLOWS AND BE ALERT TO THE POSSIBILITY OF PERSONAL INJURY OR DEATH.

M171B

If Safety Decals on this machine use the words **Danger, Warning or Caution**, which are defined as follows:

- **DANGER:** Indicates an immediate hazardous situation which if not avoided, will result in death or serious injury. The color associated with Danger is RED.
- **WARNING:** Indicates an potentially hazardous situation which if not avoided, will result in serious injury. The color associated with Warning is ORANGE.
- **CAUTION:** Indicates an potentially hazardous situation which if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. The color associated with Caution is YELLOW.

If Safety Decals on this machine are ISO two panel Pictorial, decals are defined as follows:

- The first panel indicates the nature of the hazard.
- The second panel indicates the appropriate avoidance of the hazard.
- Background color is YELLOW.
- Prohibition symbols such as   and  if used, are RED.




WARNING

IMPROPER OPERATION OF THIS MACHINE CAN CAUSE INJURY OR DEATH. BEFORE USING THIS MACHINE, MAKE CERTAIN THAT EVERY OPERATOR:

- Is instructed in safe and proper use of the machine.
- Reads and understands the Manual(s) pertaining to the machine.
- Reads and understands ALL Safety Decals on the machine.
- Clears the area of other persons.
- Learns and practices safe use of machine controls in a safe, clear area before operating this machine on a job site.

It is your responsibility to observe pertinent laws and regulations and follow Case Corporation instructions on machine operation and maintenance.

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ON
CASE
MODEL LA SERIES
TRACTORS


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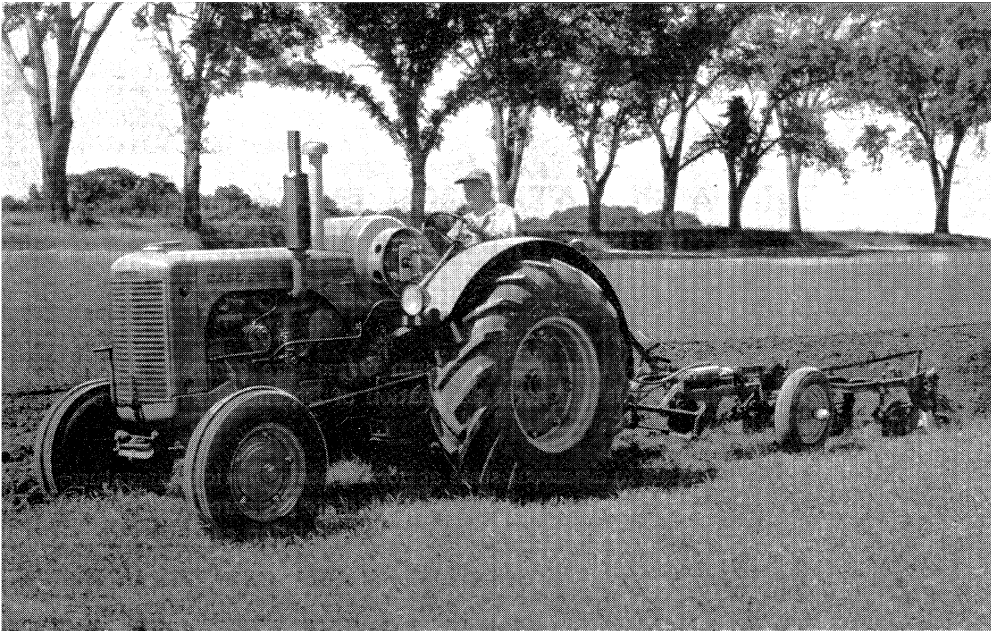


Figure 1.

LP-GAS EQUIPMENT

on

MODEL LA SERIES TRACTORS

THE APPLICATION OF LP-GAS AS A FUEL FOR ENGINE USE

Butane and Propane—Liquefied Petroleum Gases—are generally referred to as LP-Gas. The term is a general designation of Butane or Propane or a mixture of both.

LP-Gas, which exists in a gaseous state at normal atmospheric temperatures and pressures, is liquefied by the application of moderate pressures. When considering the utilization of LP-Gas for the internal combustion engine, it is well to bear in mind that the liquid fuel under pressure is constantly striving to return to its gaseous state under which it was first captured at the refinery and liquefied. One need only crack a valve on the tank and the liquid spews out in force in much the same manner as steam is released. The liquid almost instantly turns into a vapor and disappears in the atmosphere.

After the fuel has reached the vapor stage, the pressure must be dropped to a uniform, workable value. When LP-Gas expands and vaporizes, it increases in volume very rapidly, thereby causing a refrigerating effect which would freeze up the mechanism were it not for the application of heat or a differential in temperature between the expanding LP-Gas and the expansion chamber.

The principle of operation, broken down into four stages for close examination, are shown on the flow diagram, Figure 2, in the following order:

- 1—**Primary or high pressure regulation.** LP-Gas is dropped from tank pressure (20 to 175 pounds) down to a regulated 4 to 6 pounds.
- 2—**Application of heat to the rapidly expanded fuel.** This function is performed by the vaporizer, a device heated by engine circulating water.
- 3—**Low pressure regulation.** The thoroughly vaporized and expanded LP-Gas must be dropped further in pressure from the initial 4 to 6 pounds to slightly below atmospheric pressure. The low pressure regu-

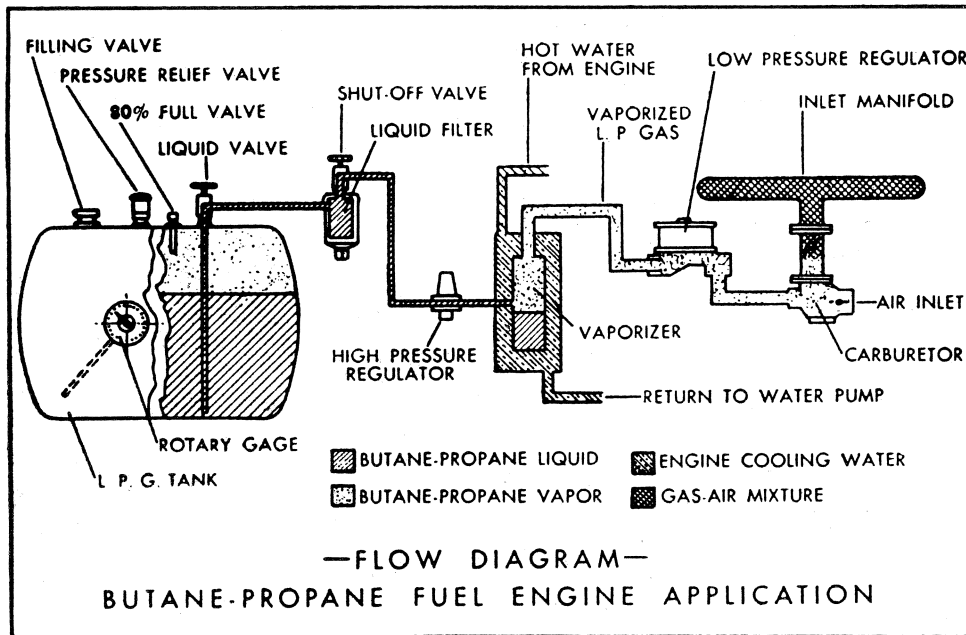


Figure 2.

lator or metering regulator must not only shut off the fuel a little below atmospheric pressure, preventing any leakage, but must also be so designed as to instantly permit vaporized LP-Gas to flow to the carburetor and engine in metered volumes to conform automatically to every engine demand.

- 4—**Carburetion.** This last stage is a mixing function—mixing fuel and air—and a means for proportioning or measuring out gas and air for the right mixture strengths. Coordination between the low pressure regulator or metering regulator and carburetor must be perfect throughout the entire range of engine speeds and loads, from fast acceleration to wide open throttle and back to idle. Flow characteristics of the carburetor and regulator must follow very closely the engine demand. This performance must be instant and without periods of erratic over-richness or lean flat-spot operation.

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