

## **Garretson Model KN Fuel Valve Considerations**

### **General**

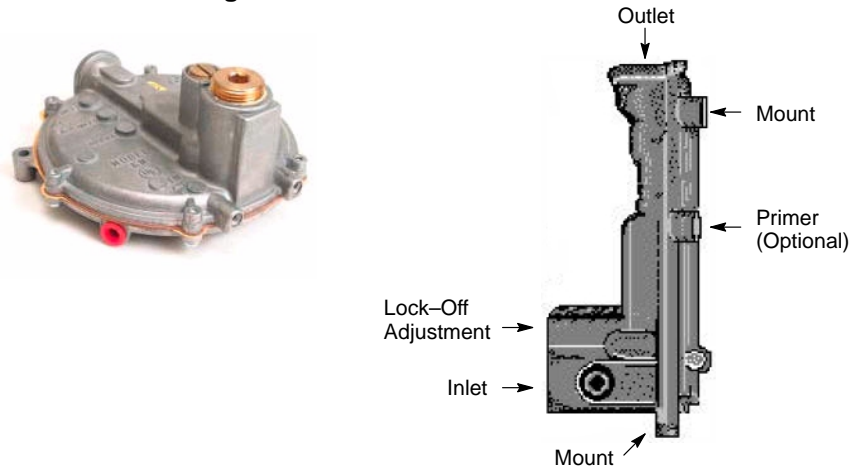
The KN is designed for sensitivity and simple operation. It is used with low-pressure vaporized gaseous fuels, where dependable starting is a requirement. Because of its extreme sensitivity, the KN offers excellent results in most remote starting applications (Standby power generators, etc.). With proper installation and maintenance, the KN will provide years of trouble-free service.

### **Operation**

The KN is an atmospheric zero governor which acts like the float and needle valve in a gasoline carburetor. Air-flow through a venturi in the carburetor creates a vacuum, which acts through the outlet of the KN on the diaphragm. Atmospheric pressure then forces the diaphragm toward the vacuum, depressing the lever and pulling the valve seat away from the orifice, which allows fuel to flow as long as the demand persists. When the vacuum ceases, a spring force pushes on the lever and forces the valve seat against the orifice shutting off the fuel flow. It is important to remember that fuel should not flow through the KN when the engine is not running.

A properly adjusted KN requires a vacuum of only 0.25" to 0.35" of water column to start the opening sequence. Due to this sensitivity, most installations do not need priming to start unless low cranking speeds or restricted and lengthy piping are required. If priming is necessary and a manual primer is installed, use only 1 or 2 second bursts of fuel and immediately try to start the engine. If there is a choke on the carburetor, do not use it as this will probably cause flooding and hard starting. As you can see, the operation of this unit is simple and basic. If you are having trouble operating the engine, in most cases the fuel controller is not malfunctioning. There is generally a problem with the engine or fuel supply, so do not make adjustments or attempt to service the KN until you are sure it is needed.

**Figure 4-25 Garretson KN Fuel Valve**



### **Service**

The KN should be periodically checked for leakage past the valve seat and the vents on the cover kept clean and free of obstructions. If the KN needs service we suggest you take it to a qualified serviceman. If that help is not available Garretson will furnish you a list of repair shops with the proper service information.

## **Installation**

The KN should be mounted as close to the carburetor as possible with the arrow on the cover pointing up and the diaphragm in a vertical position. This helps to minimize the effects of gravity on diaphragm travel. This unit should also be placed for easy access to the primer if provided. There are two sets of mounting holes provided. either set of mounts will adequately support the KN. The bottom set of holes has a 1 3/4" bolt spacing for use with all Garretson universal mounting brackets. The mounting bosses on the cover are spaced (5 3/4") apart for use with 5/16 bolts.

Before installing the fuel supply line, be sure that the gas pressure is no more than the maximum inlet pressure shown on the front of the KN. If the pressure is greater, leakage could result in a fire hazard and or hard starting. The piping to the inlet should be of sufficient size to allow full flow to the KN. This is very important in natural gas installations as any restrictions can affect engine performance. If a solenoid is used ahead of the KN in the low- pressure line, it should have an orifice at least as big as the orifice in the KN. Flexible piping to the inlet should be used to prevent cracking from vibration if the KN is mounted on the engine or other vibrating surface.

Note: Thread sealing compound should be used on all pipe thread fittings between the KN and the fuel supply tank, being careful not to get any inside the inlet or fittings. Excess compound could collect on the seat and orifice and cause hazardous leakage, resulting in poor performance. After piping is complete, turn on the gas and use a soap solution to check all fittings for leaks.

If an electric solenoid primer is used, follow the wiring and adjusting instructions furnished separately. kit by connecting into a pressure line at a reduced pressure, call us. The KN outlet is 3/8 NPT and if an outlet fitting has not been provided, select and insert a suitable vapor fitting taking care not to allow any chips or dirt to enter the outlet. Use of street ells or conventional pipe fittings in the fuel line between the KN and the carburetor is not recommended as they may restrict the flow of fuel.

Once installation of a properly sized fuel hose between the KN and carburetor is completed, if you are installing a complete conversion return to the instructions. For field replacement applications the unit is ready for service.