

GAGES AND FIELD SERVICE

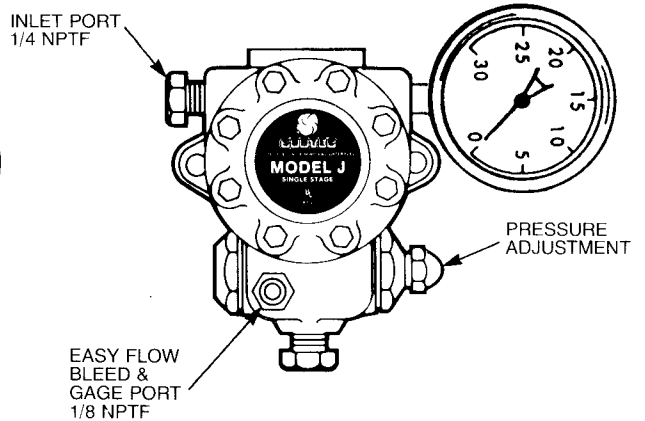
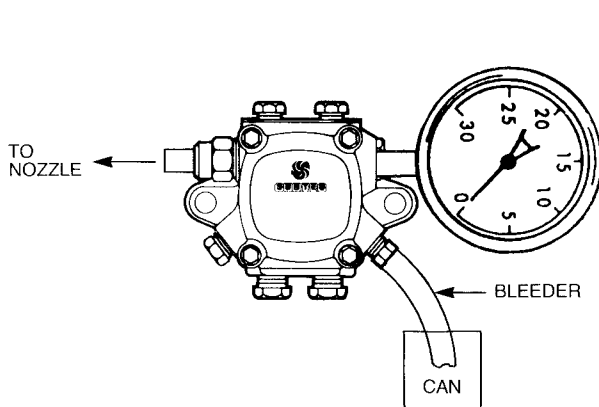
William J. Mitchell, Manager of Field Service

Fuel pumps have pressure, vacuum, and flow ratings for proper sizing to the application. Today's high efficiency furnaces and boilers require these parameters be checked on initial installation and service calls to insure that high efficiency is maintained. During trouble calls it is necessary to take pressure and vacuum readings to isolate pump problems from system problems.

VACUUM TEST FOR PUMPS AND INLET LINES

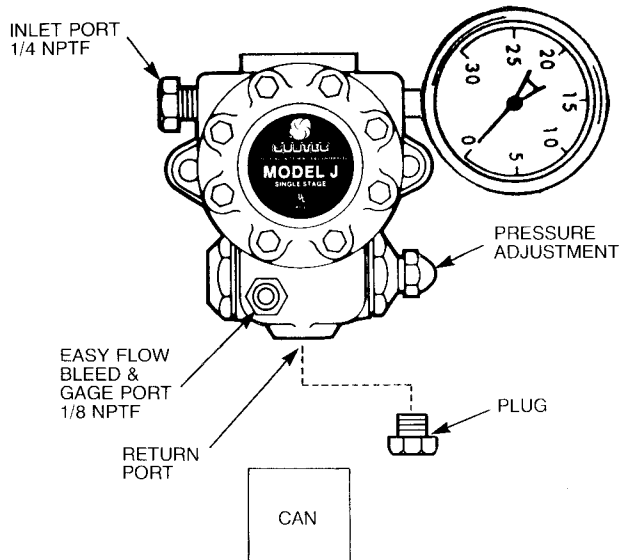
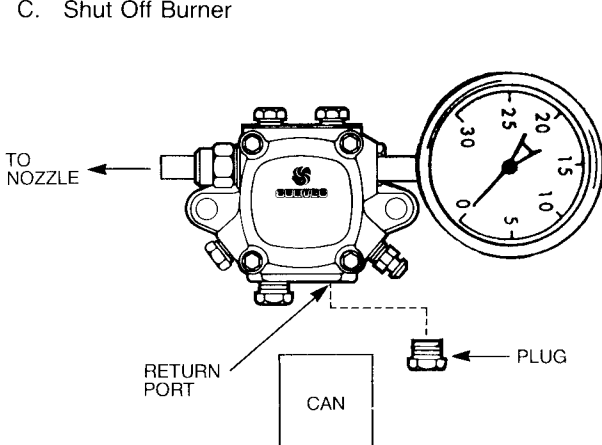
1. Single Pipe Installation

- A. Establish Vacuum With Bleeder Valve Open
- B. Close Bleeder Valve
- C. Shut Off Burner



2. Two Pipe Installation

- A. Establish Vacuum With Return Port Open
- B. Plug Return Port
- C. Shut Off Burner



Vacuum Gage Locations for Pump Vacuum Test

TO CHECK PUMP VACUUM:

Single Pipe

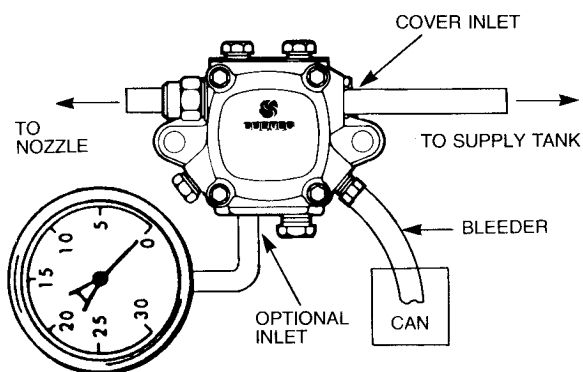
- 1) Remove inlet line and install vacuum gage in the inlet port.
- 2) Turn on burner, open bleed port. When pump reaches 15 in.Hg., close bleed port.
- 3) Pump should hold vacuum for five minutes.

Two Pipe

- 1) Remove inlet line and install vacuum gage in the inlet port.
- 2) Remove return line.
- 3) Start burner.
- 4) When 15 in.Hg. vacuum is established, block return port and turn off burner.
- 5) Vacuum should hold for five minutes.

If pump cannot attain 15 in. Hg. or hold for five minutes, the pump should be repaired or replaced.

TO CHECK SYSTEM VACUUM



- 1) Install vacuum gage in optional inlet or tee into supply line at pump. (If optional inlet used for line, install gage in cover inlet.)
- 2) Turn burner on.
- 3) Bleed pump if on one pipe system.
- 4) Close bleed valve and observe gage.

If vacuum reading exceeds the following specifications:

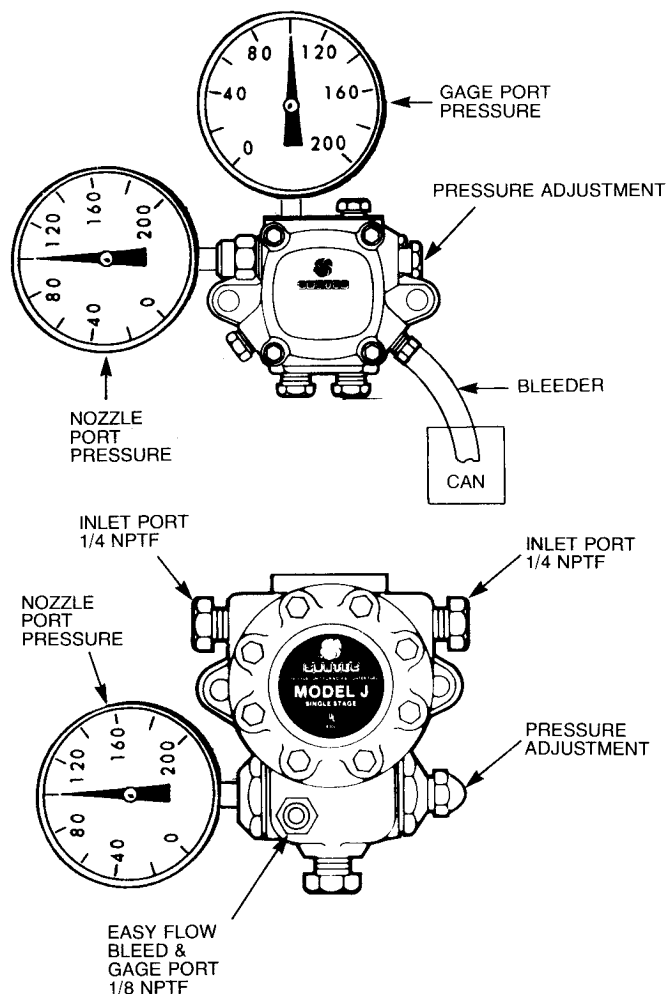
- 1) 6 in.Hg. if single pipe single stage (A or J) or two stage (B or H)
- 2) 10 in.Hg. if two pipe single stage (A or J)
- 3) 15 in.Hg. if two pipe two stage (B or H)

If there is a problem with the piping or application:

- 1) Check the installation bulletin for the pump:
 - a) Form #440100 for A's and B's.
 - b) Form #400245 for two step and high pressure B's
 - c) Form #1011 for E's and F's
 - d) Form #440041 for J's and H's
- 2) If the lift and run is not excessive for the pump model, the problem is being caused by one of the following:
 - a) Number and types of bends in the piping (includes kinks and flattening)
 - b) Number and types of fittings in the piping
 - c) Number, types, and condition of filters and strainers
 - d) Number and types of valves in the system
 - e) Level of contaminate buildup on inside walls of the piping.

If the vacuum level is not excessive, and there is air in the oil, it is usually indicative of a leak in the piping. This can be checked by closing the tank valve and pulling a vacuum on the system by the pump. Shut the burner off and the vacuum should hold five minutes.

PRESSURE TEST OF PUMPS AND SYSTEMS



Pressure Gage Locations for Operating Pressure Test

TO CHECK PRESSURE WHILE OPERATING SYSTEM

- 1) Install gage in gage port
 - a) If pump is on a positive head system, shut off tank valve before installing gage.
 - b) If pump is on a lift system, single pipe, bleed pump at bleed valve following gage installation.
- 2) Turn on burner and observe gage.
 - a) Disregard slight jiggling of gage as the mechanical resonance of small gages is close to gearset frequency.
 - b) If setting is high or low, readjust pressure adjustment screw.
 - On J's and H's there can be some leakage with the acorn nut removed. This stops when the nut is replaced.
- 3) Turn off burner. The pressure should fall to zero or the amount of head on the pump.

TO CHECK OPERATING AND CUTOFF PRESSURE

- 1) Install gage into nozzle port of the pump.
- 2) Turn on burner and observe gage. Readjust pressure if necessary.
- 3) Turn off burner and observe gage. It should fall to 80% or higher and stop.
 - a) If it continues to fall, the pump has a cutoff problem and should be repaired or replaced.

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