



High Pressure Equipment Company

Standard Operating and Maintenance Instructions for Gas Boosters Model GBS - 60



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Standard Operating and Maintenance Instructions for Gas Booster Model GBS - 60:

Description:

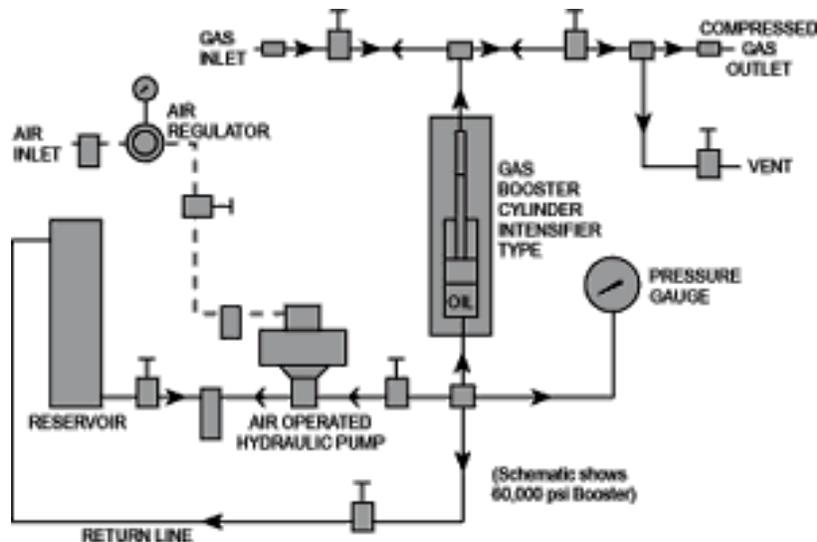
The Model GBS-60 Gas Booster Systems are complete and ready to operate. All that is required is an air supply for the pump (approximately 70 psi) and a commercially available container of compressed gas.

The steel console is 26" wide, 24" deep, 40" high and includes manual valves, air regulator, filter and lubricator, air gauge, high pressure gauge, reservoir, oil filter, pump, gas booster and related high pressure tubing and fittings.

Operation is by means of an air operated hydraulic pump which pressurizes one end of the gas booster which then compresses the gas in the opposite end of the booster. To accomplish this, the gas inlet valve is opened to permit gas to fill the gas end of the booster. Check valves are provided to permit gas flow in one direction only. With the gas outlet valve open, the hydraulic pump is operated in order to pressurize the hydraulic end of the booster. Thus, the gas is compressed in the booster. If required pressure is not reached by the end of the stroke, the gas booster can easily be recycled for additional strokes.

Note the gauge on these systems is connected to the hydraulic side of the booster. On the Model GBS-60 which has a 1:1 ratio, there is a direct reading of the pressure in the gas end of the booster. An additional gauge can be furnished for connection to the gas end of the booster to provide direct pressure readings of the gas pressure.

Only use non-flammable and non-explosive fluids and gases. These systems should not be used with hydrogen or oxygen.

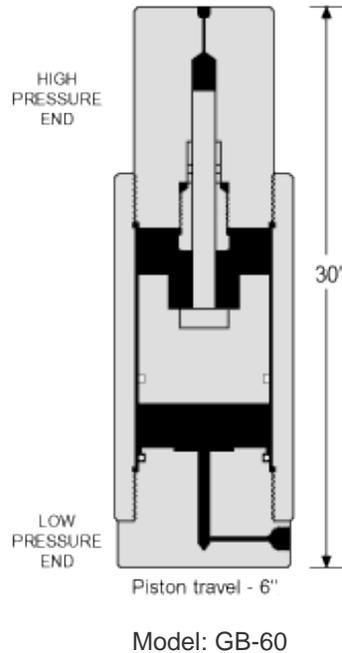


The Model GB-60 Gas Booster is rated for use up to 60,000 psi and has a 30:1 ratio. Thus, 60,000 psi can be obtained at the high pressure end using only 2,000 psi inlet pressure. Displacement per stroke is 4.7 cubic inches (77 ml).

Material of construction is Type 4340 alloy steel (or equivalent) properly heat treated for use at high pressure. Other internal materials include 17-4PH stainless steel and aluminum bronze. Seals include BUNA-N (nitrile) O-rings and a Parker Poly Pak®.

Standard connections supplied are for 1/4" O.D. High Pressure tubing (HF4 on the high pressure end and AF4 on the low pressure end).

The Model GB-60 can be supplied as a separate unit or with the complete system (Model GBS-60). The Model GB-60 should not be used with hydrogen or oxygen.



Installation:

1. Connect an air supply to the air inlet connections located on the side of the cabinet. This connection should be ½ inch NPT pipe minimum. Pressure supply should be 60 psi minimum.
2. The gas supply must be connected to the Gas Inlet connection located on the side of the cabinet. This is a HF4 connection for use with ¼" coned and threaded tubing.
3. Connect the Gas Outlet to the item or system which is to be pressurized.
4. Connect the gas vent to a suitable outlet for use in the venting the system.

The reservoir is built directly into the cabinet and should be filled with a petroleum base hydraulic oil.

Operating Instructions:

To begin operation of the unit close the "vent valve" and the "air inlet valve". All other panel mounted valves should be in the open position. The air regulator should be set at approximately 60 PSI as indicated on the panel mounted regulator gauge. The gas supply will now fill the high pressure side of the gas booster and force the piston toward the oil end.

To begin operation of the pump, the "oil vent" valve should be closed and the "air inlet" valve opened. The pump will now force oil into the oil end of the gas booster thus compressing the gas in the high pressure end. When the desired gas pressure is reached, the "air inlet" valve should be closed.

If the desired gas pressure is not obtained in one stroke of the gas booster, the unit must be recycled by the following steps:

1. With the "air inlet" valve in the closed position, open the "oil vent" valve. Pressure from the gas inlet will now force the piston back to the oil end of the booster and return oil to the reservoir.
2. When the piston has fully returned to the oil end of the booster, close the "oil vent" valve and open the "air inlet" valve. The gas will now be further compressed until the desired pressure is reached.

Note: The number of times that the gas booster must be cycled will be fully dependent upon the volume being pressurized and the type gas being used.

Position of the gas booster piston: The position of the gas booster piston may be determined by the reading on the 3,000 psi gauge. As the piston reaches the end of its compression stroke, the gauge will climb rapidly until the pump automatically stalls out and the unit must be recycled.

Venting the System:

To vent the pressure from the system, open the Oil Vent Valve and the Gas Vent Valve.

Reading pressure on the gauge:

The standard unit is equipped with a 3,000 psi gauge located on the front panel. This gauge indicates the hydraulic pressure on the oil end of the gas booster. As the ratio of the gas booster is 30: 1, the reading on the 3,000 psi gauge will be 1:30th the gas pressure. If the component or system being pressurized is not already equipped with a high pressure gauge, it is recommended that one be installed. This will provide more accuracy and eliminate the necessity of having to multiply the pressure shown on the 3,000 PSI gauge by 30 in order to determine the actual gas pressure.

Valve A:

This valve may be used to control pump pulsations causing rapid fluctuations of the gauge.

Gas Inlet and Gas Outlet Valves:

Once the desired gas pressure has been obtained both the gas inlet and the gas outlet valves should be closed. The oil vent valve may then be opened in order to vent the system of pressure.

Valves:

It is not necessary to close the high pressure valves extremely tight for maximum shut off. This will tend to damage the valve seat and the stem.

Maintenance:

The airline is equipped with a filter and lubricator. The air filter is provided to filter water from the air supply. Depending upon the amount of water in your air supply, the filter bowl will fill up over a period of time. This is easily drained by opening the small drain on the bottom of the bowl and allowing the water to drain into a container.

The lubricator is provided in order to lubricate the air portion of the pump. This has been set at the factory for typical air flow conditions. An oil flow of approximately 1 to 5 drops per minute is recommended. This lubricator should be periodically checked and filled with lubricating oil of approximately 150 to 200 s.s.u (100°F, S.A.E. 10).

The fluid within the reservoir should be kept clean in order to provide maximum life of the pump. When the fluid becomes excessively dirty, it is easily drained through the drain plug located at the bottom of the reservoir. A filter is provided between the reservoir and the pump. It is recommended that the disposable cartridge be removed and replaced should it become clogged with an excess of dirt. The valve between the reservoir and filter should be closed before removing the filter.