



# **High Pressure Equipment Company**

## **Standard Operating and Maintenance Instructions for Gas Boosters Model GBS - 30**



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## **Standard Operating and Maintenance Instructions for Gas Booster Model GBS - 30:**

### Description:

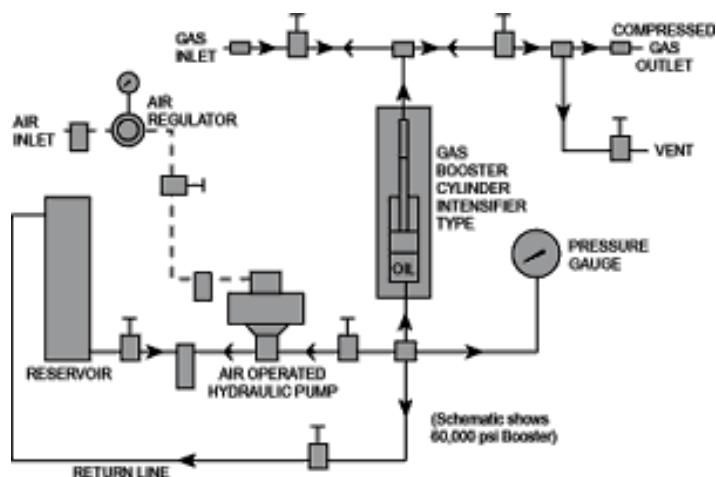
The Model GBS-30 Gas Booster Systems are complete and ready to operate. All that is required is an air supply for the pump (approximately 70 psi) and a commercially available container of compressed gas.

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-30 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.

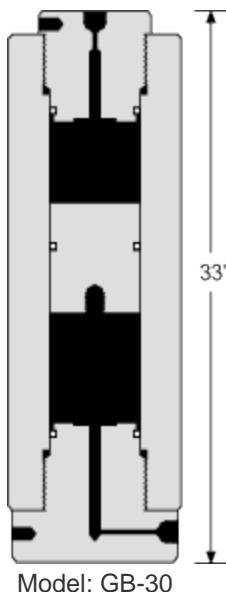
These systems should not be used with hydrogen or oxygen.



The Model GB-30 Gas Booster is rated for use up to 30,000 psi and has a 1:1 ratio. Displacement per stroke is 112 cubic inches.

Material of construction is 17-4PH stainless steel for the body and covers. The piston is supplied in brass with other materials available as an option. Standard O-ring material for the covers and piston is BUNA-N (nitrile).

Standard connections supplied are for 1/4" O.D. High Pressure tubing (HF4 connection) at each end. The Model GB-30 can be supplied as a separate unit or with the complete system (Model GBS-30).



#### Special Notes:

The compression cylinder has a direct 1:1 ratio. Thus the pressure shown on the gauge will equal the pressure of the compressed gas at all times except when the piston reaches the top of its stroke or when the oil vent valve is in the open position.

Do not over tighten high pressure valves, these valves will shut off with a minimum amount of torque.

Installation:

1. An air supply of 70 psi minimum is required for operation of the unit. This should be connected to the air inlet located on the side of the cabinet. This connection is for  $\frac{1}{2}$  inch NPT pipe.
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  $\frac{1}{4}$  inch coned and threaded tubing.
3. The compressed gas outlet must be connected to the reactor or apparatus which is to be pressurized. This connection is an HF4 also.
4. The gas vent outlet should be connected to a suitable exhaust line or may be vented to the atmosphere.
5. The reservoir should be filled with a suitable petroleum based hydraulic oil having a very low viscosity.

Operating Instructions:

1. Set the air regulator at the desired pressure range as indicated on the air regulator chart and the small regulator gauge.
2. Open Valve A, Gas Outlet Valve, Oil Vent Valve, and the Gas Inlet Valve. Gas Vent Valve and the Air Inlet Valve should be closed. The gas compression cylinder will now be charged from the gas supply and the piston will be forced to its lowest position.
3. Open the Air Inlet Valve to the pump and close the Oil Vent Valve. The pump will now begin to operate and force the piston upwards, compressing the gas. When the piston reached the top of its compression stroke, the needle of the pressure gauge will climb rapidly but will stop upon reaching the pressure range at which the regulator has been set.
4. Close the Air Inlet Valve and open the Oil Vent Valve allowing the oil from the compression cylinder to return to the reservoir and the piston to return to its bottom position.
5. The Oil Vent Valve should be closed after the oil has ceased returning to the reservoir and the pump may once again be operated by opening the Air Inlet Valve. The gas will now be further compressed. Note that the piston must be recycled as per Step 4 above until the desired pressure range is reached. The number of times that the piston must be recycled will be completely dependent upon the volume of gas to be compressed. The inlet pressure of the gas and the pressure at which it is desired to compress gas.

Venting the System:

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

Regulator Settings for Indicated Pump Pressure 30,000 PSI Pump	
Regulator Setting	PSI Delivered From Pump
32	12,500psi
36	15,000 psi
44	17,500 psi
48	20,000 psi
53	22,500 psi
60	25,000 psi
65	27,500 psi
70	30,000 psi