

Semi-Automatic Switchover System R2100 Series

Operation Manual



Introduction

The GENTEC R2100 Series Semi-Automatic Switchover System is used for adjusting, controlling, small flow, compressed gas manifold systems without interrupting the system during switchover. The switchover occurs automatically, once the primary bank (in use) gas supply runs low, the reserve bank becomes the primary bank. The arrow on the handle bar on the right end bank regulator indicates the designed primary bank, which the operator may change. The outlet pressure may be calibrated to meet customer needs.

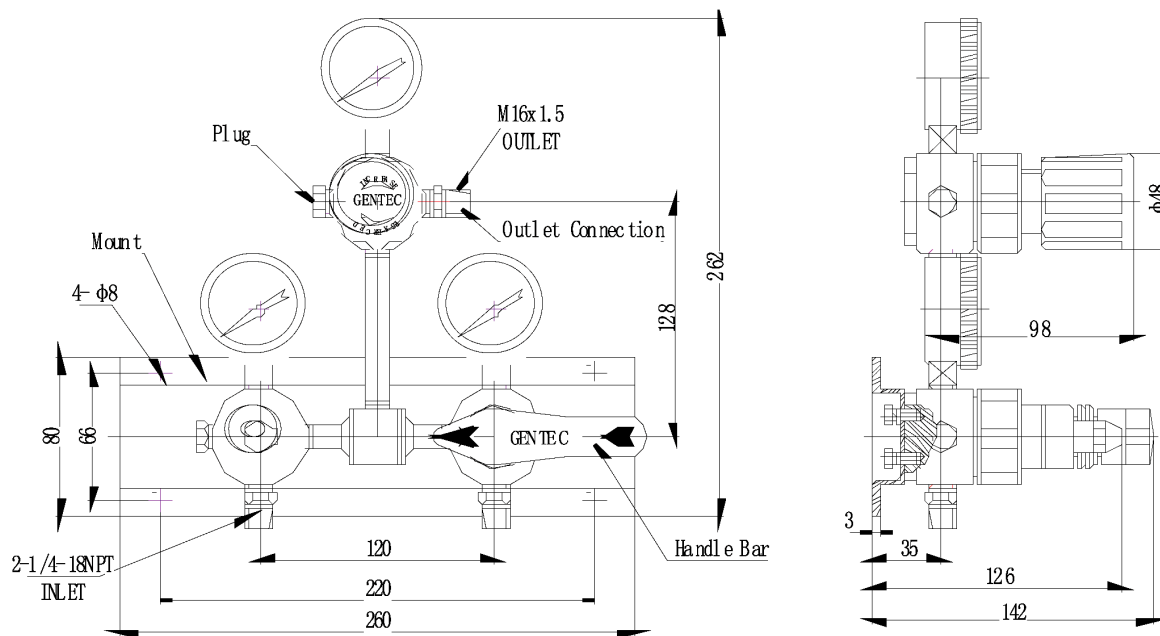


Figure 1

Installation

See Figure 1 for a diagram of the switchover system.

1. Measure the position at which the switchover system is to be assembled, ensure that it is at a location convenient for both the operator and maintenance personnel. The switchover system shall be placed in a well-ventilated facility, and must be away from flammable materials and open fire. There are four 8mm assembly holes on the mount, which are intended to be used with 6mm expansion screws or bolts to mount the switchover system against the wall or assembly rack.

2. The switchover system inlet/outlet connections are pipe threaded. The inlet connections are 1/4-18 Male NPT and connected with either pigtailed or header bars. The outlet connections are M16x1.5 Male. Depending on the piping system, the operator may want to readjust the outlet port horizontally to the left or right end, or vertically (pointing up). To adjust the outlet connection horizontally to either left or right end, switch the position of the plug and outlet connection. To adjust the outlet port vertically, switch the position of the outlet connection and the pressure gauge.
3. The inlet and outlet connections have protection sleeves to prevent damages to the threading and foreign matter for entering the ports. Remove the sleeve before assembling.
4. The switchover system must comply to NFPA99, CGA-4.1-1996, and other applicable standards to carry through with purging, assembling, and testing.

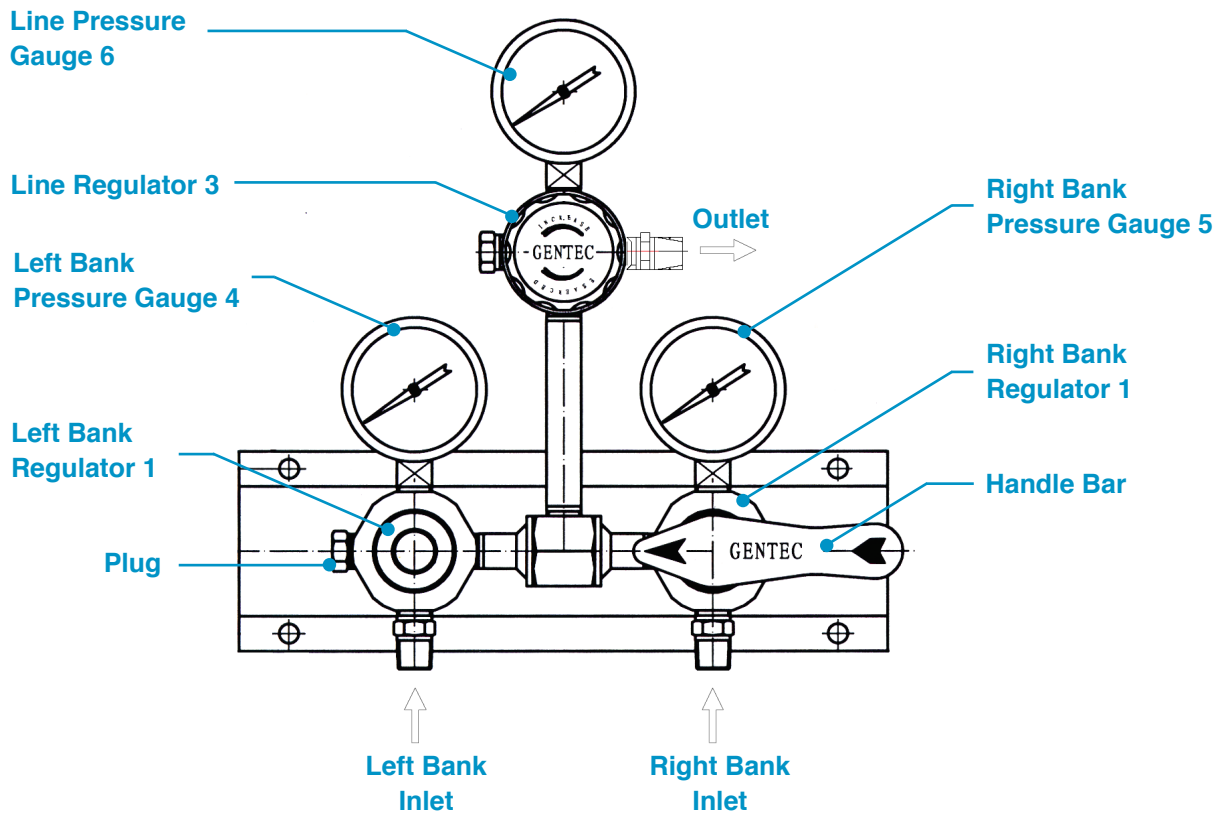


Figure 2

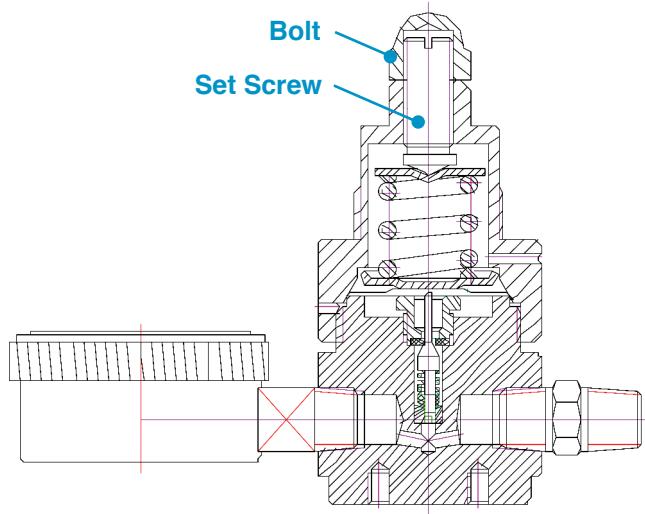


Figure 3

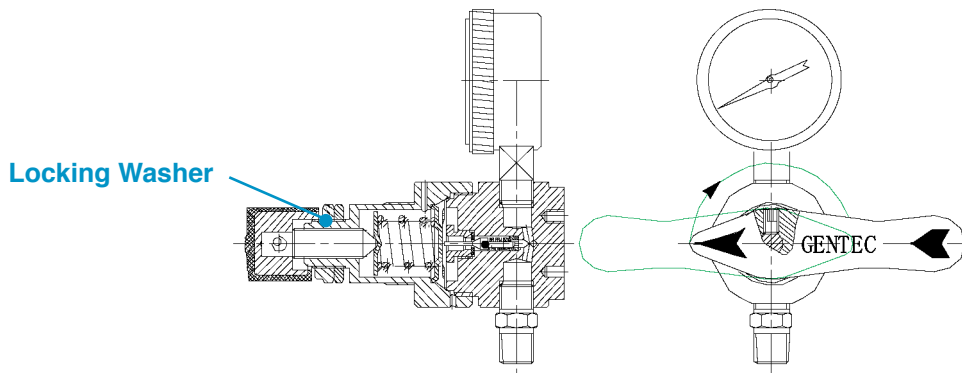


Figure 4

Principles

See Figure 2 for a diagram of the switchover system.

Left Bank Regulator 1 (See Figure 3) outlet pressure is preset, at a pressure of P_i . Right Bank Regulator 2 (See Figure 4) pressure is adjustable only within a certain range (180° movement), due to the locking screw restricting the handle bar (arrow). When the arrow is pointing left, the outlet pressure is P_1 , and when the arrow is pointing right, the outlet pressure is P_2 , where pressure $P_2 > P_1$. Left Bank Regulator pressure P_1 is equal to $(P_1 + P_2)/2$. While the arrow is pointing left, $P_1 < P_i$, therefore the gas is supplied through the left bank. While the arrow is pointing right, $P_2 > P_i$, therefore the gas is supplied through the right bank. Line Regulator 3 (See Figure 5) outlet pressure can be adjusted within $0 \sim P$ (See Table 1). Left Bank Pressure Gauge 4 and Right Bank Pressure Gauge 5 display the left and right bank inlet pressure, respectively. Line Pressure Gauge 6 displays the system outlet pressure.

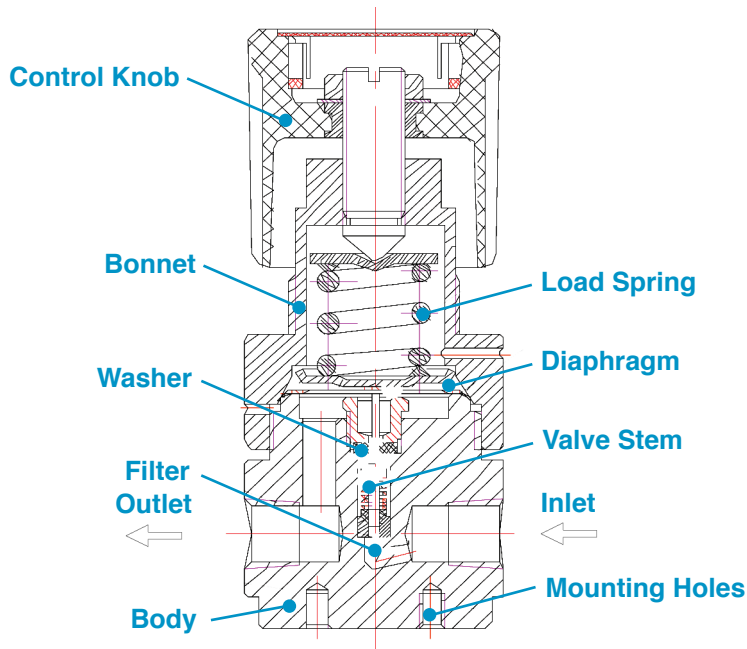


Figure 5

Table 1 - Technical Data

Model Number	Material	Maximum Inlet Pressure	Left Bank Outlet Pressure P_1	Right Bank Outlet (Pointing Left) P_1	Right Bank Outlet Pressure (Pointing Right) P_2	Line Regulator Outlet Pressure P	Maximum Flow (Air, SCFH)	Gas Service
R2100B-125	Brass	3000psig	180psig	160psig	200psig	0-125psig	380	H ₂ , N ₂ , Ar O ₂ , Air He
R2100B-80	Brass	3000psig	180psig	160psig	200psig	0-80psig	380	H ₂ , N ₂ , Ar O ₂ , Air He
R2100SL-125	316	3000psig	180psig	160psig	200psig	0-125psig	380	H ₂ , N ₂ , Ar O ₂ , Air He
R2100SL-80	316	3000psig	180psig	160psig	200psig	0-80psig	380	H ₂ , N ₂ , Ar O ₂ , Air He

Calibration

1. R2100 Series semi-automatic switchover system has already been calibrated according to customer needs.
2. After assembly, please check the inlet and outlet connections for leakage. When verifying that the calibration is correct, use high purity compressed air at a testing pressure equivalent to the maximum working pressure.
3. If the customer requires the calibration data, please contact Genstar Technologies Co., Inc. or its distributors.

Principles

1. Primary bank and reserve bank setup:

While both bank cylinders are full, the operator may designate which side to become the primary bank. For example, in Figure 2, the arrow is pointing to the left, designating the left bank as the primary bank and the right bank as the reserve bank. If the operator chooses to turn the arrow to the right first, then the right bank would be designated as the primary bank and left bank becomes the reserve bank.

2. Replacing cylinders and operation:

When the primary bank gas supply is almost depleted, the switchover will occur automatically, meaning the reserve bank is now in use. The operator may verify that one bank is depleted by reading the inlet pressure gauge. When the switchover occurs, the operator must replace the cylinders on the depleted bank immediately.

Note: Before replacing the cylinders, remember to turn the arrow 180° to designate that the other bank is now the primary bank and that it is in use.

3. Adjusting the system outlet pressure:

The outlet pressure is displayed by the pressure gauge 6. The line regulator 3 (See Figures 2 and 5) determines the outlet pressure, while turning the adjusting screw clockwise, the pressure will increase and vice versa. See technical data for pressure ranges.

Maintenance

Daily maintenance should be done by trained personnel only:

1. Record the outlet/piping pressure.
2. Verify that the regulator, header bar, pigtail connections do not have leakage.
3. Check the regulator for creep; must maintain regulator immediately if creep is present.