

# INSTRUCTION MANUAL

## Type R110 and Type R960 Series

### WARNING

Install, use, and maintain this equipment per Fisher instructions and all applicable federal, state, local laws and codes, and NFPA standards. Inspection and/or maintenance of the unit is recommended each time the cylinders are refilled. Only personnel trained in the proper procedures, codes, etc. should install or service this equipment.

### THINGS YOU SHOULD TELL THE USER OF THIS EQUIPMENT:

1. Make sure the regulator assembly is always installed with the vent opening, see Figure 3, pointed vertically down.
2. Stress that the vent opening must remain unobstructed and that frequent inspection of the vent opening is necessary.
3. Show the user the shutoff valves on the cylinders. Tell him to close these valves immediately if he smells LP-gas, appliance pilot lights fail to stay on, or any other abnormal situation occurs.
4. Inform the user that the supply cylinder is not completely empty until the red warning flag is fully visible in the indicator window (B), Figure 2.

### TYPE NUMBER EXPLANATION

**Type R110** — This automatic changeover manifold withdraws gas from one cylinder until pressure drops to 7 psi and then automatically switches to the reserve cylinder. A built-in indicator signals with a red flag when the changeover occurs. The R110 must be used in conjunction with a second stage regulator. Outlet pressure to the second stage regulator is either 15 psig (supply cylinder) or 5 psig (reserve cylinder).



Figure 1—Type R110

**Type R960** — Automatic changeover regulator composed of the R110 connected to the inlet of a Type Y200 second stage regulator. Outlet pressure setting is 11" W.C.; capacity is 112,500 BTU/Hr. (based on gas being withdrawn from the reserve cylinder).

**Type R961** — Automatic changeover assembly with the Type 912 used as the second stage regulator. Outlet pressure and capacity are the same as the Type 960.

**Type R962** — Automatic changeover assembly with the Type 922 used as the second stage regulator. Outlet pressure setting is 11" W.C.; capacity is 500,000 BTU/Hr. (based on gas being withdrawn from the reserve cylinder).

**NOTE:** These instructions assume that the R110 has been assembled to some second stage regulator, whether it be Fisher's Y200, 912, or 922 or some other unit.

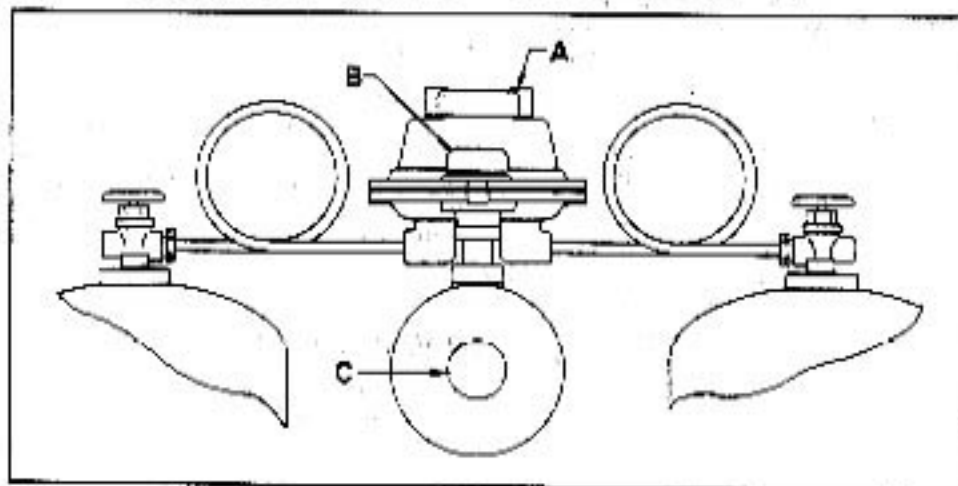


Figure 2—Typical Installation

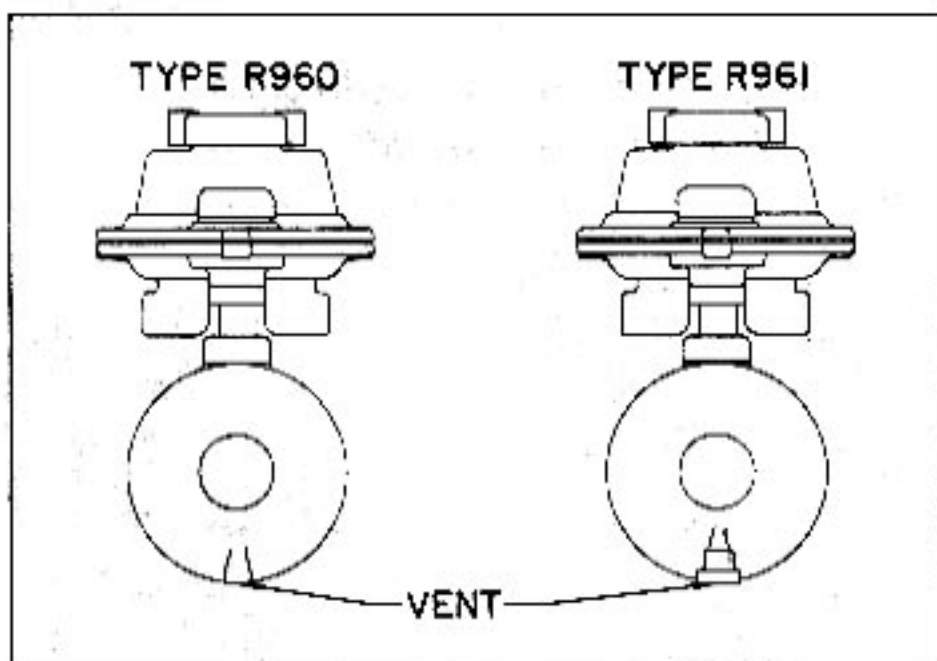


Figure 3—Regulator vents

## INSTALLATION

The outlets of the cylinder valves should be cleaned thoroughly to remove dirt or water. One method of doing this is by cracking the cylinder valve open for a short time to blow out the dirt. Install the regulator in an upright position as shown in Figure 3 with the vent opening pointing down. The regulator should be installed so as the regulator vent opening shall not be affected by the elements, such as sleet, snow, freezing rain, ice, mud, insects, or road splatter. A suitable hood or enclosure for the regulator is recommended.

Always use a suitable pipe compound on the male threads when making connections to the regulator outlet. Avoid excessive strain on the regulator when connecting the regulator outlet to the appliance piping.

## OPERATION

Place one of the two cylinders in supply by rotating the changeover knob (A), see Figure 2, either way as far as it will go. The arrow denotes the supply service side. Open both cylinder valves slowly.

Gas will now flow from both cylinders through the pigtailed or hose into the first stage regulator section of the Type R110. When a pressure of approximately 7 psig registers beneath the R110 diaphragm, the closing spring in the inlet fitting shuts off gas from the reserve cylinder. Gas from the supply cylinder continues to enter the first stage regulator in the inlet fitting until approximately 15 psig is maintained. The second stage regulator (Type Y200 in the case of Type R960) reduces this pressure to 11" W.C. needed for the appliances.

The supply side of the first stage regulator will continue to supply gas at 15 psig as long as sufficient gas remains in the supply cylinder. When pressure in this cylinder drops to about 7 psig, the reserve side of the first stage regulator will open and maintain 5 psig pressure to the second stage regulator, which continues to regulate at 11" W.C. At the time the supply cylinder becomes exhausted, a red warning flag (B) appears at the R110 indicator window.

## EXCHANGE OF CYLINDERS

Before removing the empty cylinder, be sure to rotate the changeover knob (A) so that it will point to the cylinder currently supplying gas. The red warning flag in the indicator window should not be showing after the knob is rotated. Close the cylinder valve on the empty cylinder before removing cylinder. After putting the full cylinder in place, slowly open its cylinder valve. If only one cylinder is left connected, the pigtail or hose must be capped to prevent leakage.

## ADJUSTMENT

Type R110 is factory set and is nonadjustable. If it becomes necessary to increase the outlet pressure of the second stage regulator, remove the closing cap (C), see Figure 2, and turn the adjusting screw clockwise. Turn the adjusting screw counterclockwise to decrease the outlet pressure. Always replace the closing cap after adjustment is made.

## ORDERING PARTS

When ordering replacement parts, be sure to give the complete type number of the regulator.