

# KEYSTONE

**Anderson, Greenwood & Co.**  
A Subsidiary of Keystone International, Inc.

**INSTALLATION, OPERATION AND  
MAINTENANCE INSTRUCTIONS FOR  
H1()-4R10 & H1()-44R10  
HAND VALVES**

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**INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS H1()-4R10 and H1()-44R10  
HAND VALVES****1.0 INTRODUCTION**

Anderson, Greenwood and Co. H1()4R10 and H1()-44R10 hand valves belong to the H1 design family. These valves feature below the thread packing in the o-ring packed design and replaceable soft seats. These valves are also supplied with 0.250" diameter orifice which allow better flow characteristics than the standard 0.187" diameter orifice valves. The maximum pressure/temperature rating of this is 10,000 psi at 200°F.

**2.0 INSTALLATION**

2.1 Immediately prior to valve installation, check the piping to which the valve is to be connected for cleanliness and freedom from foreign materials.

2.2 Threaded pipe joints depend on a good intimate fit between the male and female pipe threads, therefore the use of a thread sealant is recommended and the pipe fitting connections must be made up tight.

**2.3 PANEL MOUNTING VIA THE BONNET**

The following procedure must be followed for panel mounting H1V()-()R10 hand valves via the bonnet. See Figure 2 for part reference.

2.3.1 Turn the bonnet handle (item 7) to the full open position.

2.3.2 Loosen the handle bolt and remove the handle.

2.3.3 Loosen and remove the packing nut (item 6) and then the panel nut (item 8) on the bonnet.

2.3.4 Place the valve bonnet through the panel hole and attach with the panel nut.

2.3.5 Thread the packing nut back onto the valve bonnet.

- 2.3.6 Fit the handle over the stem and tighten the handle bolt onto the flattened part of the stem (item 2) to 10-12 ft lb.
- 2.3.7 Tighten the packing nut with a wrench till resistance is felt while turning the bonnet handle.

### 3.0 OPERATION

Valves which have been reasonably matched to a typical valve service application and properly installed in its piping system can expect to have a long service life with a minimum of attention. However, these valves have moving and wearing parts and depend on long term preservation of highly finished surfaces on these parts for satisfactory valve performance.

- 3.1 The use of a "cheater" to operate the valve handle is not necessary and not recommended. This practice can cause valve damage.
- 3.2 All valves have rising stems with right hand thread. Rotate the handle counterclockwise to open and clockwise to close.
- 3.3 Bonnets with rising stems are provided with a backseat. Backseats in rising stem bonnets should be considered basically as stops to prevent overtravel when opening valves. It is recommended not to leave the upper stem in the backseated position. Note MSS SP-92, "MSS Valve User Guide", paragraph 4.3.

### 4.0 HAND VALVE MAINTENANCE

The importance performance parameters are pressure boundary integrity, actuating force required, and internal leak tightness. Maintenance should logically address the importance of preserving the performance parameters.

Valves which remain in one position for long periods of time may be subject to some degree of inoperativeness as a result of loss of effective lubricant in the threads, aging of the packing surface, corrosion of moving parts or accumulation of harmful solids. In some applications it may be desirable to schedule periodic partial or full cycle exercising of these valves.

- 4.1 In the Teflon packed valve, stem seal leakage usually results from packing wear and can usually be corrected by tightening the packing nut. Over tightening can cause high stem friction, accelerated wear and shortened packing life.
- 4.2 If stem seal replacement is needed, the following steps should be followed after the valve has been isolated from the line pressure and pressure bled off.

O-ring Packed Valve

- a. Refer to Figure 1 for parts identification.
- b. Remove bonnet lock pin (item 13) from the valve body by using heavy duty pliers or wire cutters.
- c. Unscrew bonnet assembly counterclockwise to remove it from valve body.
- d. Remove handle (item 7) by loosening handle bolt.
- e. Remove dust boot (item 6) from the bonnet (item 1).
- f. Remove stem (item 2) from bonnet by screwing it downward.
- g. Remove the retaining ring (item 5), two back-up rings (item 3) and O-ring (item 4) from the bonnet (item 1).
- h. Clean all bonnet assembly parts with acetone or alcohol.
- i. Inspect parts for damage, particularly the stem threads and plug end. Replace both stem and bonnet if threads do not engage smoothly.
- j. Install one of the back-up rings (item 3), new O-ring (item 4), the other back-up ring (item 3), & retaining ring (item 5) onto the bonnet (item 1).
- k. Lubricate the stem threads with the appropriate lubricant specified on the assembly drawing and screw it up into the bonnet from the bottom of the bonnet. Use care in doing this not to damage the O-ring just installed.
- l. Install dust boot (item 6) over stem and down onto the bonnet.

- m. Install handle (item 7) onto the stem and tighten the handle bolt to 10-12 ft lb torque. Make sure that the handle bolt contacts the stem on the flat area provided for it.
- n. Apply a small amount of lubricant to the bonnet threads and screw it into the body. Make sure that the plug is fully retracted into the bonnet and torque the bonnet down to 35-40 ft lb.
- o. Install bonnet lock pin (item 13) into one of the two holes that one of the flats on the bonnet hex best centers covers.

#### Teflon Packed Valve

- a. Refer to Figure 2 for parts identification.
- b. Remove bonnet lock pin (item 13) from the valve body by using heavy duty pliers or wire cutters.
- c. Unscrew bonnet assembly counterclockwise to remove it from valve body.
- d. Remove handle (item 7) by loosening handle bolt.
- e. Unscrew packing nut (item 6) from the bonnet (item 1).
- f. Remove stem (item 2) from bonnet by screwing it downward.
- g. Remove follower (item 5), packing (item 4) and packing washer (item 3) from the bonnet.
- h. Clean all bonnet assembly parts with acetone or alcohol.
- i. Inspect parts for damage, particularly the stem threads and plug end. Replace both stem and bonnet if threads do not engage smoothly.
- j. Lubricate the stem threads with the appropriate lubricant specified on the assembly drawing and thread it into the bottom of the bonnet.

- k. Install the packing washer (item 3), new packing (item 4) and the follower (item 5) into the bonnet (item 1).
- l. Thread the packing nut (item 6) onto the bonnet.
- m. Install handle (item 7) onto the stem and tighten the handle bolt to 10-12 ft lb torque. Make sure that the handle bolt contacts the stem on the flattened area provided for it.
- n. Apply a small amount of lubricant to the bonnet threads and screw it into the body. Make sure the plug is fully retracted in to the bonnet and torque the bonnet into the body to 35-40 ft lb torque.
- o. Install bonnet lock pin (item 13) into one of the two holes that one of the flats of the bonnet hex best centers over.

#### 4.3 Seat Replacement

If seat replacement is needed, safe practice requires depressurizing the valve before removal of the bonnet.

- a. Refer to Figures 1 and 2 for part identifications.
- b. Remove bonnet lock pin (item 13) from the valve body by using heavy duty pliers or wire cutters.
- c. Unscrew bonnet assembly counterclockwise to remove it from valve body.
- d. Remove seat (item 14) from seat cavity. The seat may be removed from the seat cavity with any smooth surfaced bar used as a pry bar inserted into one of the orifice holes in the seat.
- e. Clean seat cavity with acetone or alcohol.
- f. Inspect seat cavity for damage, such as scratches that go from one hole to the other, or heavy corrosion in the area where the seat (Item 14) goes. If seat cavity has become damaged the body must be replaced.
- g. Make sure that indexing pin (item 15) is still securely installed into the hole in the bottom of the seat cavity.

- h. Install new seat (item 14) making sure that the notch in the side of the seat is centered over the indexing pin (item 15).
- i. Apply a small amount of lubricant to the bonnet threads and screw it into body. Make sure the plug is fully retracted up into the bonnet.
- j. Tighten bonnet to 35-40 ft lb.
- k. Install bonnet lock pin (item 13) into one of the holes in the body that one of the bonnet hex best centers over.

#### 5.0 POST ASSEMBLY INSPECTION

Turn the handle to open and close the valve. Check for binding, rubbing or any resistance to smooth operation.

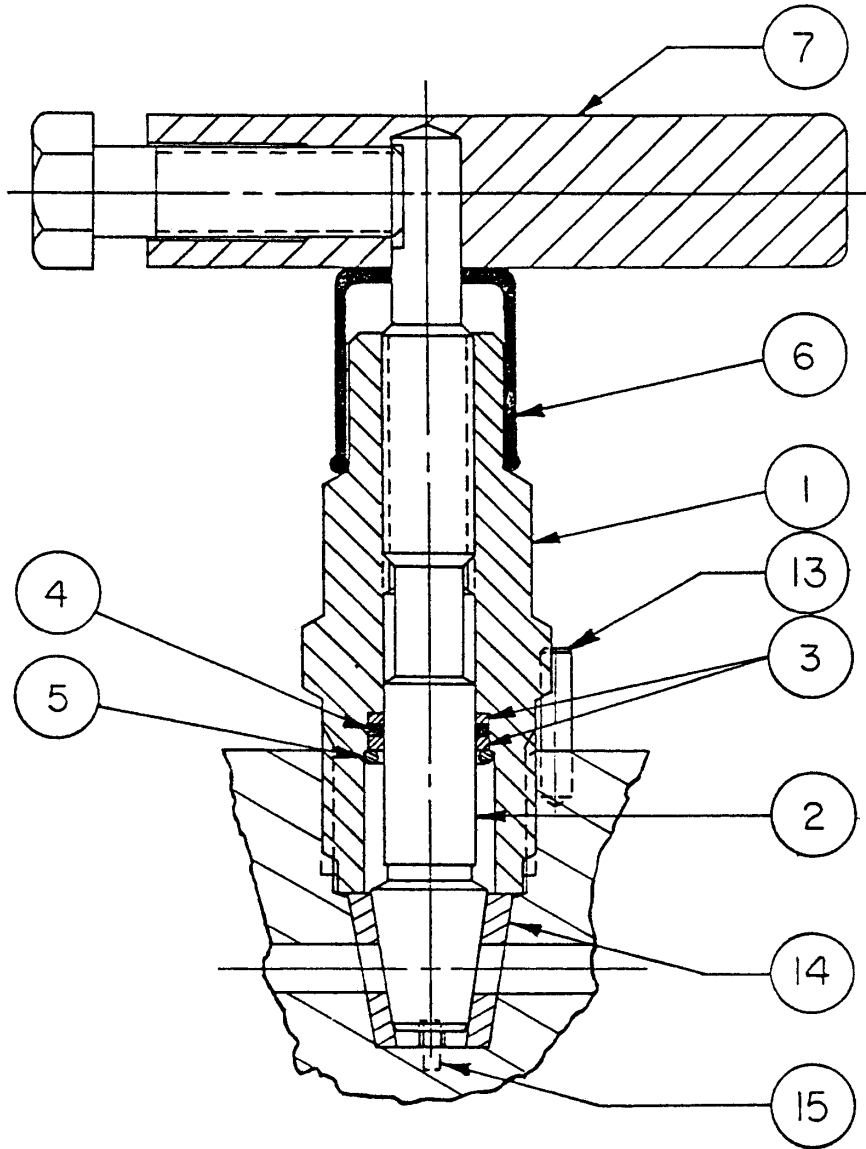


FIGURE 1

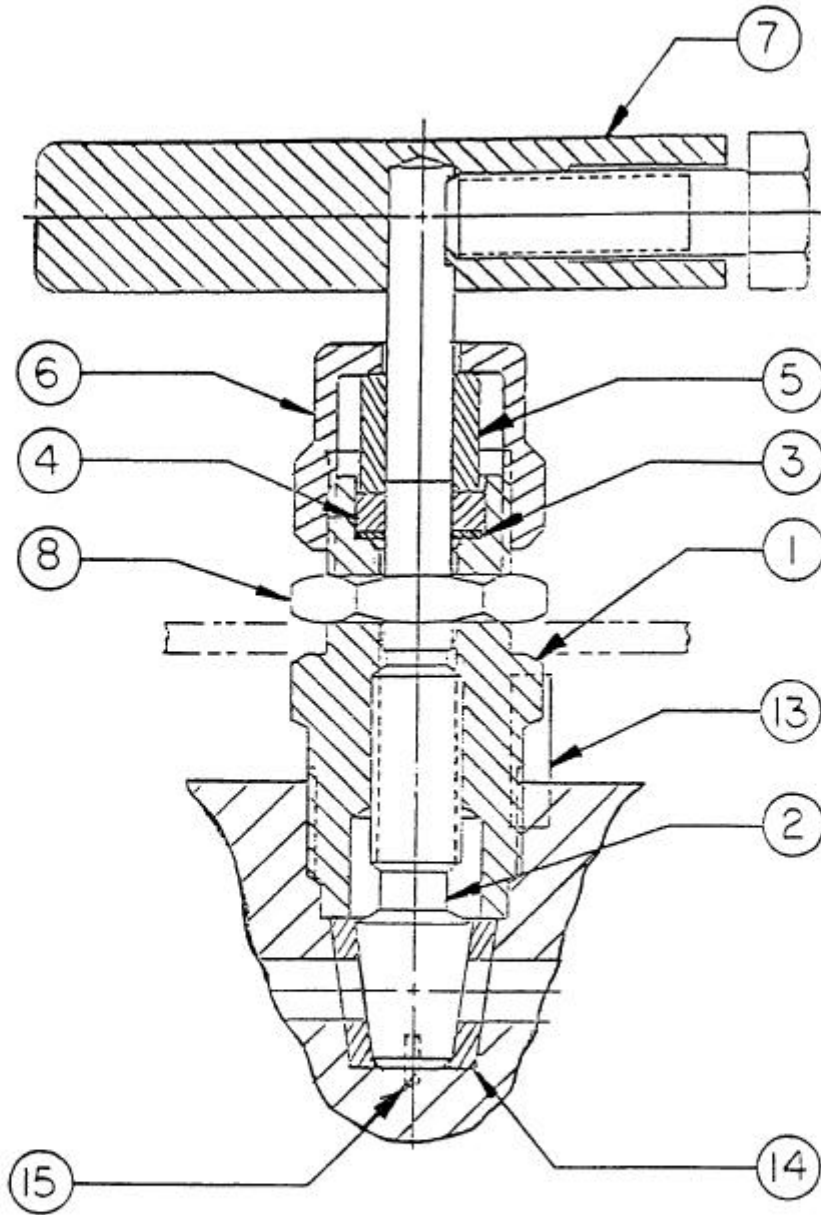


FIGURE 2