

# Valtek Manual Handwheel Actuators

## GENERAL INFORMATION

The following instructions are designed to assist in installing, maintaining and servicing Valtek® manual handwheel actuators. Product users and maintenance personnel should thoroughly review this bulletin prior to installing, operating or disassembling the actuator.

**To avoid possible injury to personnel or damage to actuator parts, WARNING and CAUTION notes must be strictly adhered to. Modifying this product, substituting non-factory or inferior parts, or using maintenance procedures other than outlined could drastically affect performance and be hazardous to personnel and equipment.**

## INSTALLATION

Prior to installation, make sure adequate overhead clearance for the actuator is provided to allow for proper removal and maintenance. Refer to Table I:

**NOTE:** If the handwheel is attached to a valve body assembly, see Installation, Operation, Maintenance Instructions for Mark One and Mark Two Control Valves (IOM 1) for overhead clearances.

**Table I:  
Overhead Clearance for Disassembly**

Actuator Size*	Handwheel Diameter	Minimum Clearance
25	9 or 12-inch	6 inches
50	12 or 18-inch	8 inches
100	18 or 24-inch	9 inches

\* Actuator Size is comparable to standard cylinder actuator size.

## MAINTENANCE

At least once every six months, check for proper operation by following the preventative maintenance steps outlined below. These steps can be performed while the actuator is in service and, in some cases, without interrupting service. If an internal problem is suspected with the actuator, refer to the “Disassembly And Reassembly” section.

1. Examine the actuator for damage caused by corrosive fumes and process drippings.
2. Clean the actuator and repaint any areas of severe oxidation.
3. If possible, extend or retract handwheel stem actuator and check for smooth, full-stroke operation.
4. Make sure the stem clamp is securely fastened to the handwheel stem.
5. Check rubber bellows for wear.
6. Periodically inject general purpose bearing grease into the handwheel mechanism through the yoke grease fitting.

## DISASSEMBLY AND REASSEMBLY

### Disassembling the Actuator

**WARNING:** Depressurize the line to atmospheric pressure and drain all fluids before working on the actuator. Failure to do so can cause serious injury.

To disassemble the manual handwheel actuator, refer to Figure 1 and proceed as follows:

1. If the actuator is installed on a valve, remove it per Installation, Operation, Maintenance Instructions for Mark One and Mark Two Control Valves (IOM 1).

2. Remove stem clamp and stem bellows from the handwheel stem.
3. Remove the handwheel stem by screwing it out of the handwheel nut.
4. Remove the two or more screws holding the cover plate to the handwheel. Remove the cover plate and cover plate gasket.
5. Support the handwheel nut and remove the retaining ring, handwheel and handwheel key from the actuator.
6. Carefully slide the handwheel nut from the yoke.
7. Remove both sets of rollers and races; inspect them for damage or wear.

### Reassembling the Actuator

To reassemble the manual handwheel actuator, refer to Figure 1 and proceed as follows:

1. Thoroughly clean all internal parts of old grease before beginning assembly.
2. With general purpose bearing grease, lubricate both sets of rollers and races. Replace one set of rollers and races on shoulder end of the handwheel nut. Replace the second set in recessed area at the top of the yoke.
3. With general purpose bearing grease, thoroughly lubricate the inside threads and outside surfaces of the handwheel nut and reinstall it in the yoke.
4. Insert the handwheel key into the handwheel nut. Slip the handwheel over the handwheel nut while engaging the key in the handwheel keyslot.

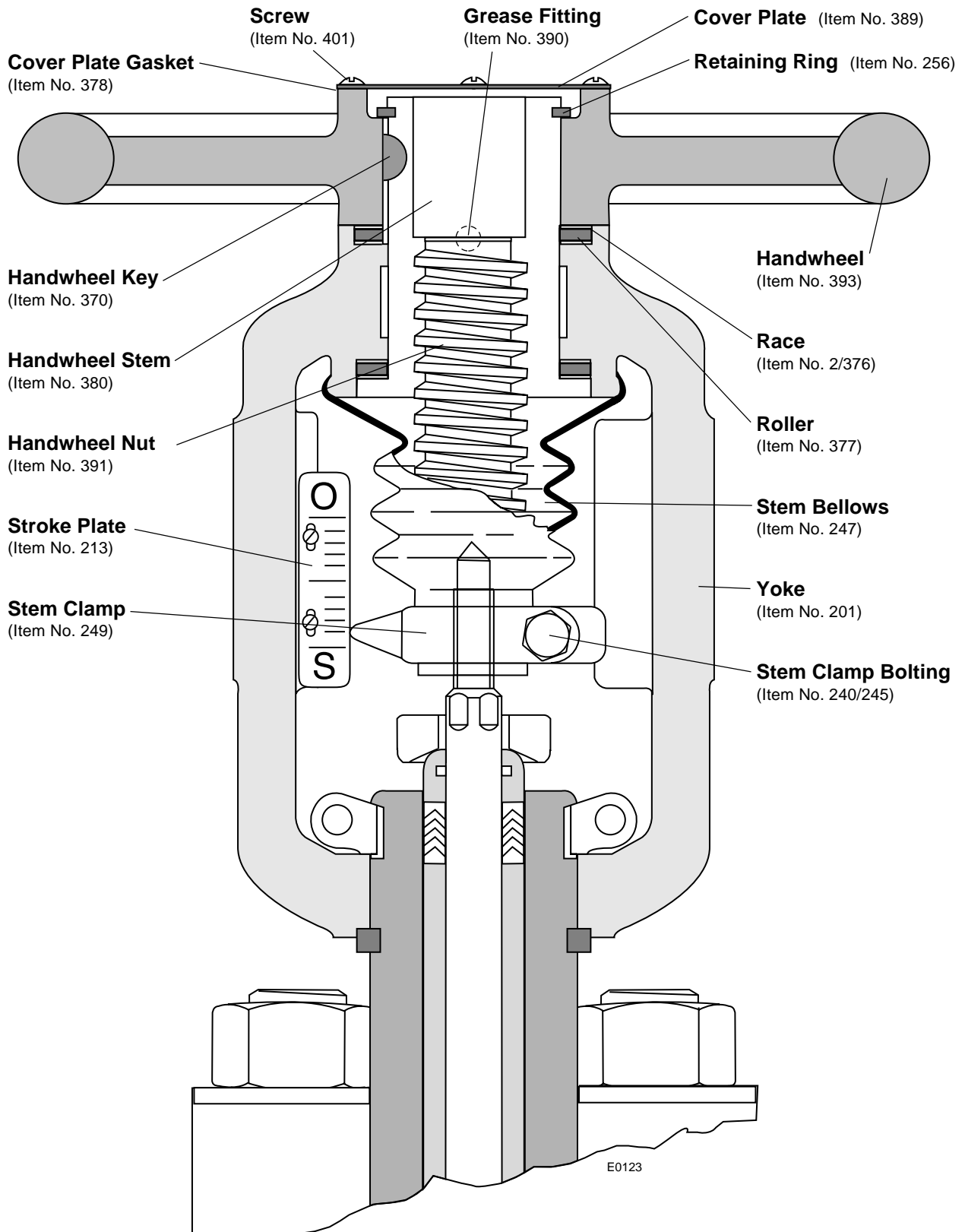
5. Install the retaining ring into the groove located in the handwheel nut. This should securely fasten the handwheel to the handwheel nut.

**NOTE:** *If the handwheel does not feel securely fastened, check to see if both sets of rollers and races are installed correctly.*

6. Replace the cover plate gasket and cover plate. Fasten both parts to the handwheel with two or more screws.
  7. Screw the handwheel stem into the handwheel nut. Place the stem clamp on the handwheel stem until  $\frac{1}{16}$ -inch of the stem appears underneath the clamp. If the stem clamp does not point to the closed position on the stroke plate, remove the stem clamp and screw the handwheel stem in or out of the handwheel nut until the stem clamp is at correct height (when positioned correctly on the handwheel stem).
  8. Replace the stem bellows and stem clamp. Tighten the stem clamp bolting.
- NOTE:** *If the actuator is installed on a valve, refer to Installation, Operation, Maintenance Instructions 1 for correct plug stem thread engagement.*
9. Inject general purpose grease into the handwheel mechanism through the yoke grease fitting until the mechanism is filled.
  10. Using the handwheel, retract the actuator to check for full stroke operation.

## Troubleshooting Manual Handwheel Actuators

Problem	Probable Cause	Corrective Action
Jerky or sticking stem travel	<ol style="list-style-type: none"> <li>1. Lack of lubrication</li> <li>2. Worn or damaged races and rollers</li> <li>3. Internal valve problem</li> </ol>	<ol style="list-style-type: none"> <li>1. Inject general purpose bearing grease into handwheel mechanism through yoke grease fitting</li> <li>2. Replace races and rollers</li> <li>3. Refer to valve's maintenance instructions</li> </ol>
Less than full stroke	<ol style="list-style-type: none"> <li>1. Handwheel stem not fully engaged</li> <li>2. Internal valve problem</li> </ol>	<ol style="list-style-type: none"> <li>1. See step 7 in "Reassembly" section</li> <li>2. Refer to valve's maintenance instructions</li> </ol>



**Figure 1: Manual Handwheel Actuator**

**NOTE:** Item numbers correspond directly to actuator's bill of material. Refer to it for specific part numbers.

Flowserve Corporation has established industry leadership in the design and manufacture of its products. When properly selected, this Flowserve product is designed to perform its intended function safely during its useful life. However, the purchaser or user of Flowserve products should be aware that Flowserve products might be used in numerous applications under a wide variety of industrial service conditions. Although Flowserve can (and often does) provide general guidelines, it cannot provide specific data and warnings for all possible applications. The purchaser/user must therefore assume the ultimate responsibility for the proper sizing and selection, installation, operation and maintenance of Flowserve products. The purchaser/user should read and understand the Installation Operation Maintenance (IOM) instructions included with the product, and train its employees and contractors in the safe use of Flowserve products in connection with the specific application.

While the information and specifications presented in this literature are believed to be accurate, they are supplied for informative purposes only and should not be considered certified or as a guarantee of satisfactory results by reliance thereon. Nothing contained herein is to be construed as a warranty or guarantee, express or implied, regarding any matter with respect to this product. Because Flowserve is continually improving and upgrading its product design, the specifications, dimensions and information contained herein are subject to change without notice. Should any question arise concerning these provisions, the purchaser/user should contact Flowserve Corporation at any of its worldwide operations or offices.

For more information, contact:

For more information about Flowserve and its products, contact [www.flowserve.com](http://www.flowserve.com) or call USA 972 443 6500

**Regional Headquarters**

**Quick Response Centers**

1350 N. Mt. Springs Prkwy.  
Springville, UT 84663  
Phone 801 489 8611  
Facsimile 801 489 3719

5114 Railroad Street  
Deer Park, TX 77536 USA  
Phone 281 479 9500  
Facsimile 281 479 8511

12 Tuas Avenue 20  
Republic of Signapore 638824  
Phone (65) 862 3332  
Facsimile (65) 862 4940

104 Chelsea Parkway  
Boothwyn, PA 19061 USA  
Phone 610 497 8600  
Facsimile 610 497 6680

12, av. du Québec, B.P. 645  
91965, Courtaboeuf Cedex, France  
Phone (33 1) 60 92 32 51  
Facsimile (33 1) 60 92 32 99

1300 Parkway View Drive  
Pittsburgh, PA 15205 USA  
Phone 412 787 8803  
Facsimile 412 787 1944

Flowserve and Valtek are registered trademarks of Flowserve Corporation.

