

# CLEANING, ROTOR REPLACEMENT & ALIGNMENT INSTRUCTIONS

## MW & UW MULTI-POSITION SELECTORS ON MICRO-ELECTRIC OR UNIVERSAL ELECTRIC ACTUATORS (KEYED HARDWARE)

### Technical Note 715

**CAUTION: Perform all other system checks before working on the valve. Since any contact between the interior of the valve body and the metal of the rotor is likely to cause damage, do not take the valve apart unless system malfunction is definitely isolated to the valve. If valve disassembly is absolutely necessary, carefully observe the instructions listed below for disassembly, cleaning and reassembly.**

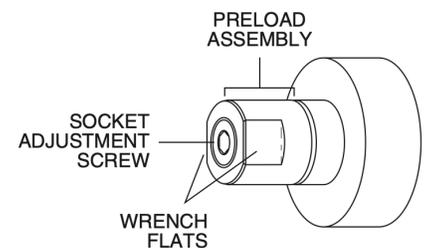
#### DISASSEMBLY

Perform all disassembly operations in a clean, well-lighted area. Flush all hazardous or toxic materials from the valve before starting.

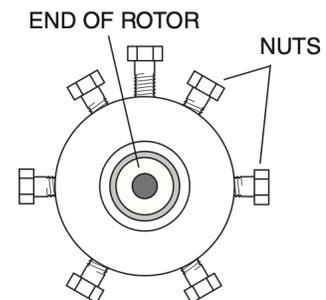
1. Unscrew the preload assembly from the valve body. Wrench flats are provided for this purpose (**Figure 1**).
2. Engage the end of the rotor (**Figure 2**) with a pencil-type magnet, available from VICI Valco or any electronic components supplier.
3. Step the actuator through several positions to break apart the sealing surfaces and carefully withdraw the rotor from the valve body with the magnet.
4. Send the actuator to the Home position (position 1).
5. **For a valve on a standoff:** Use a 7/64" hex driver to loosen the 6-32 x 5/8" socket head screw in the clamp on the end of the standoff (not the clamp that holds the standoff to the actuator) and remove the valve from the actuator/ standoff assembly.

**For a closemount valve:** Use a 7/64" hex driver to loosen the 6-32 x 5/8" socket head screw in the clamp ring between the valve and the actuator, and remove the valve from the actuator.

**FIGURE 1: Valve**



**FIGURE 2: Valve viewed from preload end**



## CLEANING

1. Using clean dry air, blow any loose debris from the valve body and the rotor.
2. Using a strong solvent and an optical quality lint-free wiper such as a Kimwipe, wipe away any loosely bound seal material which may have worn free and adhered to either surface. Avoid using halocarbon solvents if the valve is to be used in a system with electron capture detection, since some of the solvents may persist at the trace level. Consult the Manufacturer's Data Safety sheet for whatever solvent is utilized

NOTE: If the valve has been used with aqueous buffer solutions and some leakage has occurred, wipe the sealing surfaces of the valve with a water-moistened Kimwipe before using a non-polar solvent to clean any seal material still adhering to the valve's interior.

3. Visually inspect the interior of the valve body. The conical surface should appear uniform as well as highly polished. If scratches are visible between the ports or anywhere which suggests a potential leakage path or wear source, the valve should be returned to the factory for regrinding. If the rotor's sealing surface shows any scratches and/or a narrowing of the surface flow passages, replacement is necessary. If the valve body interior is in good condition, a field replacement of the rotor may be effected using the following procedure.

## REASSEMBLY (NEW OR EXISTING ROTOR)

1. Insert the rotor in the valve body with the letter denoting the rotor material pointed at the keyhole in the valve body. (Figure 3) Be careful not to touch the polished interior surface of the valve body with any of the metal parts of the rotor.

Ideally, the rotor tab should point precisely at the keyhole. However, that is not required; the shaded area in Figure 3 indicates an acceptable range of placement. Since the tab may rotate to the left a slight amount when the preload is installed, don't start with it nearly out of range in that direction.

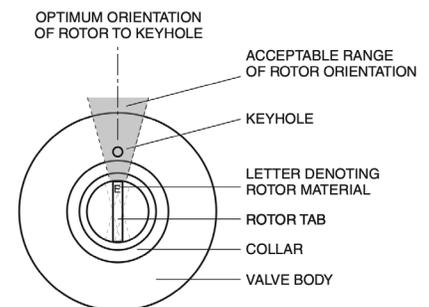
2. Install the preload assembly and recheck the orientation of the tab on the rotor to make sure that it didn't rotate out of the acceptable range when the preload was being tightened.
3. Make sure the actuator is in position 1. If the standoff has been removed from the actuator for some reason, reinstall it as indicated in Figure 4. Make sure that the driveshaft is oriented so that the cutouts on the end are in line with the key, as indicated in Figure 5.

4. Replace the driver on the rotor tab and place the valve on the standoff or closemount clamping. (Figure 5) Make sure that the pin in the driver is engaged by the cutouts in the standoff drive shaft or slotted coupling. If the rotor is perfectly oriented toward the keyhole, the keyhole will slide right onto the key and the valve face will be flush against the face of the clamping.

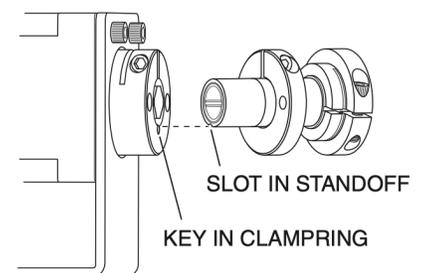
If the rotor is off a little, firmly grip the valve body and rotate it until the key slides into the keyhole. This action actually rotates the driveshaft of the actuator.

5. While making sure that the valve is held completely flat against the clamping, firmly tighten the clamping screw. This is critical for all valve models, but especially so for larger or higher pressure valves which require a lot of force to actuate. It is a good indication that the screw is tight enough if the hex key begins to "twist" a little as the screw is tightened.

**FIGURE 3: Rotor orientation**



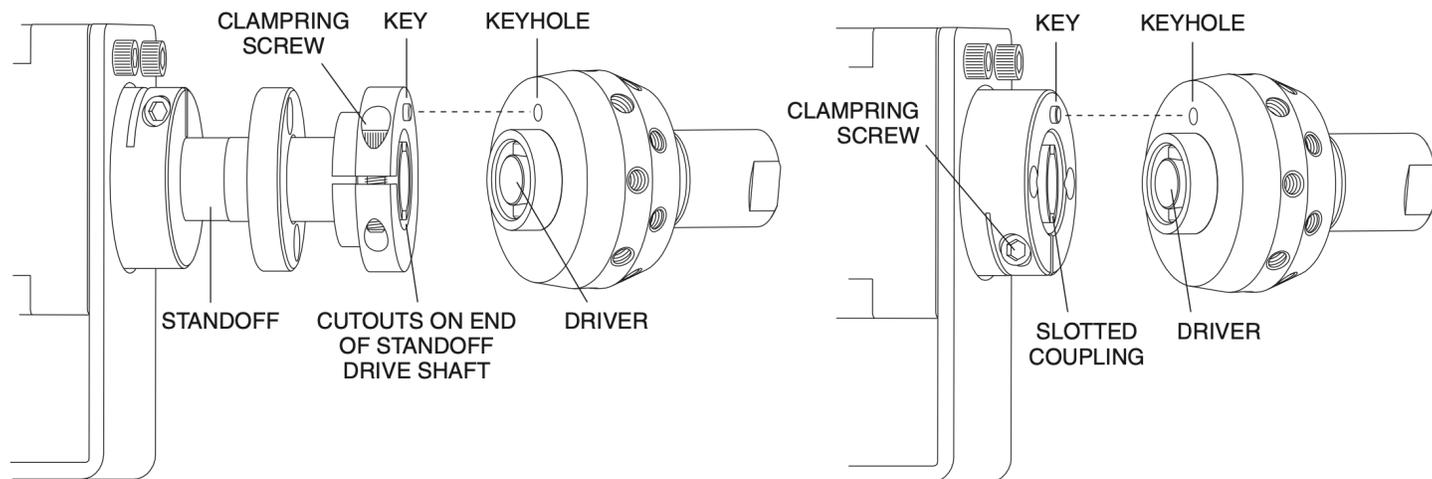
**FIGURE 4: Standoff keyed to actuator**



6. Step the actuator to position 2, then step it 4 positions in the opposite direction.
7. Send the actuator to Position 1 (home).

The valve and actuator should now be properly aligned. It is a good idea to do a simple test by establishing a flow of air into the inlet and then stepping the valve through all positions, in both directions, listening for flow anomalies. If you detect uneven flow, contact VICI technical support.

**FIGURE 5: Keyed standoff assembly (left) and keyed closemount assembly (right)**



## CONDITIONING PROCEDURE FOR HIGH TEMPERATURE VALVES

**CAUTION: This information applies only to valves with Valcon "T" rotors. Do not perform the conditioning procedure unless you are certain that the valve has a "T" rotor.**

With carrier gas (oxygen-free) flowing through all the ports, rapidly heat the valve to 330°C. After this temperature is reached, actuate the valve through 2 or 3 complete revolutions. The valve may be slightly sticky or hard to turn on the first cycle, but should be free on subsequent actuations. The valve may then be cooled back to ambient temperature or to the actual usage temperature.

## LEAK DETECTION

The valve should be tested with a gas leak detector. If a leak detector is unavailable, an alternative is to pressurize the valve with an appropriate gas and immerse it in a solvent with low surface tension, e.g. 2-propanol (isopropyl alcohol). Be careful to test for gross leaks before immersing the valve.

If the valve leaks, it must be returned to the factory for repair.