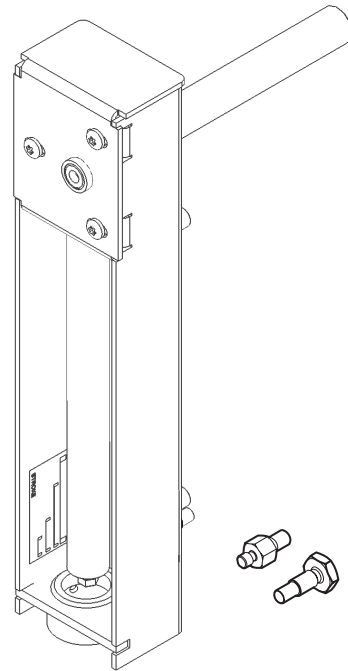


## Application

The AV-602 linkage is designed to connect Schneider Electric SmartX Actuators to 1" to 2" VB-7XXX globe valves.

**Table-1 Actuator/Valve Combinations**

SmartX Actuator	Factory - Assembled Valve Sizes 2-way & 3-way	Field-Assembled to VB Valve Bodies 2-way & 3-way
MX41-707X MX41-715X MX40-717X	1-1/2 to 2 inch 1 to 2 Inch 1-1/4 Inch 1-1/2 to 2 inch	1 to 2 inch



## Applicable Literature

F-Number	Description	Audience	Purpose
F-11366	Valve Selection Chart Steam (two-way valves only)	<ul style="list-style-type: none"> <li>– Application Engineers</li> <li>– Installers</li> <li>– Service Personnel</li> <li>– Start-up Technicians</li> </ul>	Provides charts, equations, and diagrams to assist in the configuration of valve system applications. TOOL-150, valve sizing slide rule may be purchased separately
F-11080	Valve Selection Chart Water		
F-13755	CA-28 Control Valve Sizing		
F-26080	EN-205 Water System Guidelines		Describes Schneider Electric approved water treatment practices.
F-26642	Schneider Electric SmartX Spring Return Two-Position Actuators General Instructions	<ul style="list-style-type: none"> <li>– Sales Personnel</li> <li>– Application Engineers</li> <li>– Installers</li> <li>– Service Personnel</li> <li>– Start-up Technicians</li> </ul>	Describes the actuator's features, specifications, and possible applications. Provides step-by-step mounting instructions.
F-26644	Schneider Electric SmartX Spring Return Floating Actuator General Instructions		
F-26645	Schneider Electric SmartX Series Spring Return Proportional Actuator General Instructions		
F-26742	MA40-717X Schneider Electric SmartX Series Actuators Spring Return Direct Coupled Actuator General Instructions.		
F-26743	MF40-6083, MF40-6153 Schneider Electric SmartX Series Non-Spring Return Direct Coupled Actuator General Instructions.		
F-26747	MS40-6083, MS40-6153 Schneider Electric SmartX Series Non-Spring Return Direct Coupled Actuator General Instructions.		
F-26748	MS40-717X Schneider Electric SmartX Series Spring Return Direct Coupled Actuator General Instructions.		
F-26749	MF40-7173 Schneider Electric SmartX Series Spring Return Direct Coupled Actuator General Instructions.		
F-26752	VX-2000, VX-7000 Series, VB-2000 Series Ball/Linked Globe Valve Assemblies Actuator/Linkage Assemblies Selection Guide		

## INSTALLATION

### Inspection

Inspect package for damage. If damaged, notify carrier immediately. If undamaged, open the package and inspect for obvious damage. Return damaged products.

### Requirements

- Training: Installer must be a qualified, experienced technician.
- Tools (not provided):
  - Appropriate wrenches for stem extensions, packing nuts, and bracket nuts
  - 10 mm socket wrench (for shaft clamp nuts on MX40-717X, MX41-707X, MX41-715X)
  - Torque wrench, range to include 55 to 216 lb-in.
  - Pipe wrenches, two
  - TOOL-37, 1-5/8 inch open-end wrench for valve mounting nut
  - 5/16" open-end wrench for jam nuts
  - Vise grip or pliers
  - Appropriate power supply (see the applicable actuator General Instructions sheet for power requirements)

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### Warning:

- Disconnect the actuator power before installation to prevent damage.
  - Make all connections in accordance with the job wiring diagram and in accordance with national and local electrical codes. *Use copper conductors only.*
-

## General Installation

Schneider Electric globe valve linkages are provided as complete assemblies. The following pages contain instructions for installing the AV-602 linkage.

## Mounting

Allow at least 5" (127 mm) above the actuator/linkage assembly for removal and reattachment of the actuator to the installed valve.

## Assembling Actuator and Linkage to Valve Body

### Process Overview

This assembly procedure consists of two sections:

- Section A. Assembling Linkage to Valve — All Valve Types and Actuator Models  
For all actuator models and valve types (2-way and 3-way), follow the instructions in this section to assemble the linkage to the valve.
- Section B. Actuator Mounting and Setup

In this section, choose the subsection that is appropriate for the specific actuator type and valve type, to mount the actuator and adjust the linkage:

- B1. Actuators with Manual Override — 2-Way Valves (Stem Up Closed and Stem Up Open) and 3-Way Valves

These instructions apply to actuators with manual override, to be mounted onto 2-way valves (stem up closed and stem up open) and 3-way valves.

- B2. Spring-Return Actuators without Manual Override — 2-Way Valves (Stem Up Closed and Stem Up Open)

These instructions apply to spring-return actuators, to be mounted onto 2-way valves (stem up closed and stem up open).

- B3. Spring-Return Actuators without Manual Override — 3-Way Valves

These instructions apply to spring-return actuators, to be mounted onto 3-way valves.

Refer to Table-2, below, to determine the assembly path for the specific actuator and valve.

**Table-2 Assembly Process for Mounting Actuator and Linkage to Valve Body.**

Actuator Type	Valve Type	Section A	Section B		
			Subsection B1	Subsection B2	Subsection B3
Actuators with Manual Override	2-Way Stem-Up Open	X	X		
	2-Way Stem-Up Closed	X	X		
	3-Way	X	X		
Spring-Return Actuators without Manual Override	2-Way Stem-Up Open	X		X	
	2-Way Stem-Up Closed	X		X	
	3-Way <sup>a</sup>	X			X

## Section A. Assembling Linkage to Valve — All Valve Types and Actuator Models

1. Assemble the linkage to the valve, according to Figure-1.

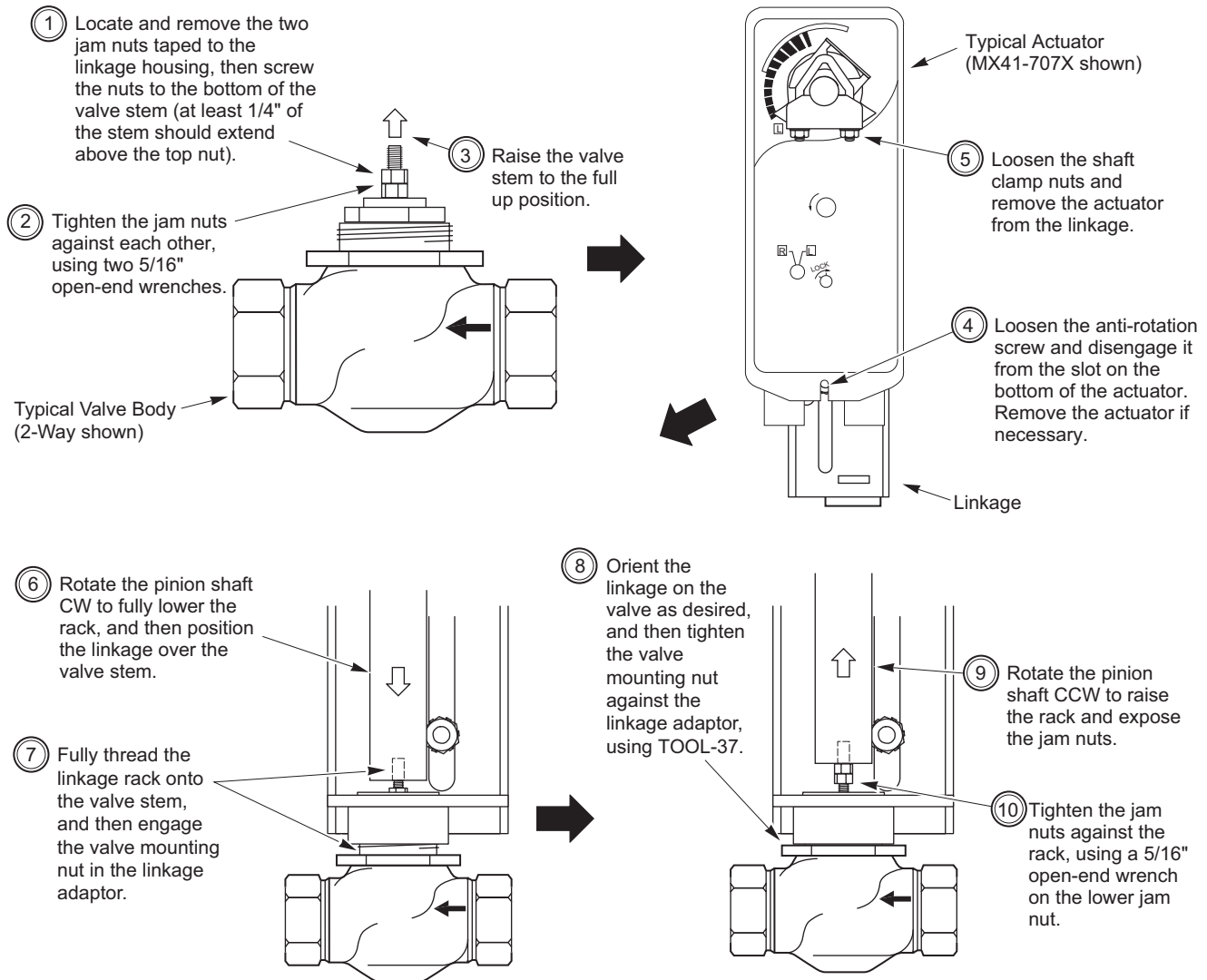


Figure-1 Assembling Linkage to Valve.

2. Continue the assembly process according to the following section, "Section B. Actuator Mounting and Setup."

## Section B. Actuator Mounting and Setup

To mount the actuator and set up the assembly, refer to the subsection that applies to the specific actuator type and valve type.

### B1. Actuators with Manual Override — 2-Way Valves (Stem Up Closed and Stem Up Open) and 3-Way Valves

#### MX41-707X, MX41-715X

- a. Install the actuator onto the linkage and valve, and set up the assembly, according to Figure-2.

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**Note:** □ The MX41-707X and MX41-715X actuators feature a manual override mechanism that may be used to reposition the actuator's output shaft. Refer to the *MX40-6XXX-2XX Series and MX4X-7XXX-2XX Series Actuator / Linkage Assemblies for Globe Valves General Instructions, F-26750*.

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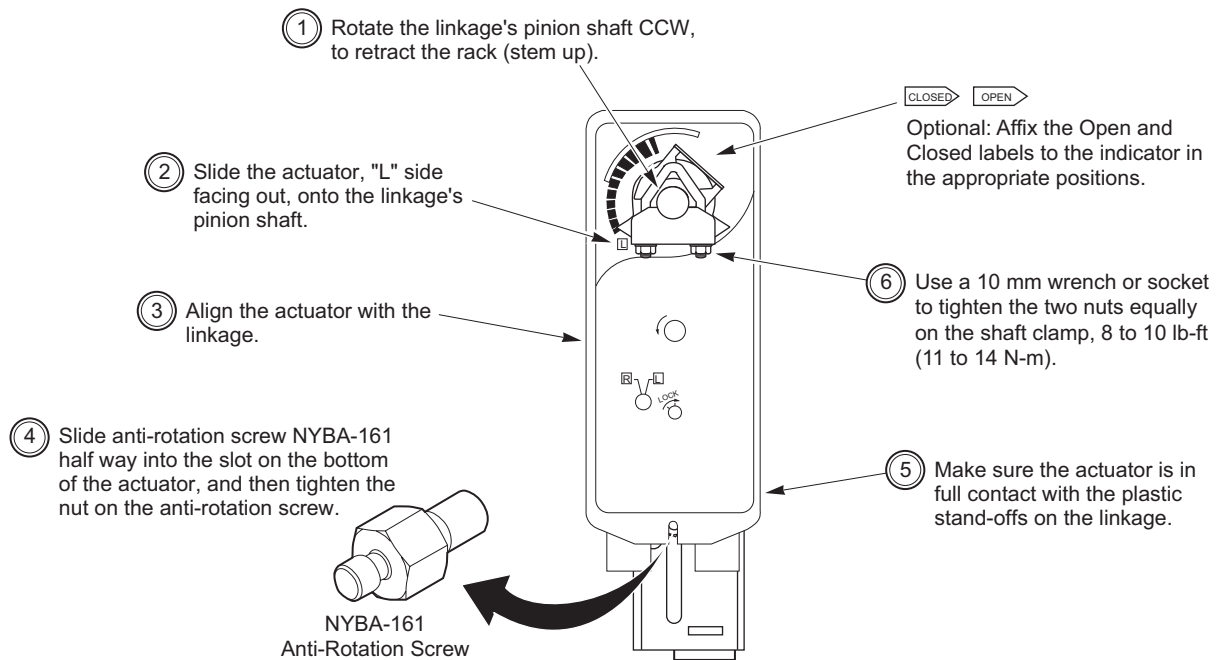


Figure-2 Mounting MX41-707X or MX41-715X and Setting Up Actuator/Linkage/Valve Assembly.

- b. Apply power to the actuator and check the system's operation for heating or cooling output, in response to the control signal.
- c. Refer to the appropriate actuator General Instructions sheet for actuator wiring and application information (see "Applicable Literature" on page 2). For valve body installation and application information, refer to the appropriate valve body General Instructions sheet.

## B2. Spring-Return Actuators without Manual Override — 2-Way Valves (Stem Up Closed and Stem Up Open)

### MX40-707X, MX40-715X, MX40-717X

- a. Install the actuator onto the linkage and 2-way valve, and set up the assembly, according to Figure-3.

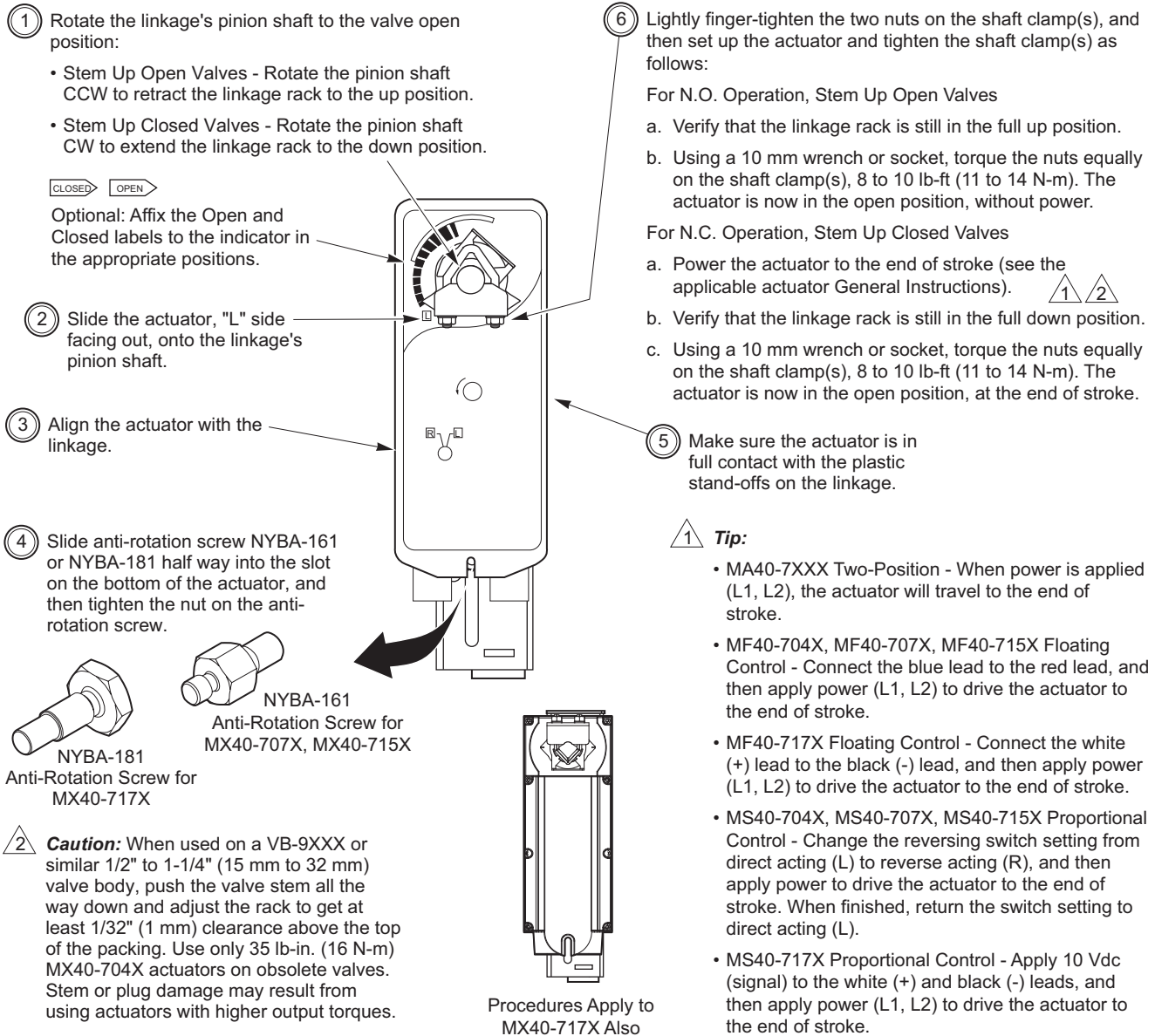


Figure-3 Mounting Spring-Return Actuator on 2-Way Valve and Setting Up Actuator/Linkage/Valve Assembly.

- b. Apply power to the actuator and check the system's operation for heating or cooling output, in response to the control signal.
- c. Refer to the appropriate actuator General Instructions sheet for actuator wiring and application information (see "Applicable Literature" on page 2). For valve body installation and application information, refer to the appropriate valve body General Instructions sheet.

### B3. Spring-Return Actuators without Manual Override — 3-Way Valves

#### MX40-707X, MX40-715X

- a. Install the actuator onto the linkage and 3-way valve, and set up the assembly, according to Figure-4.

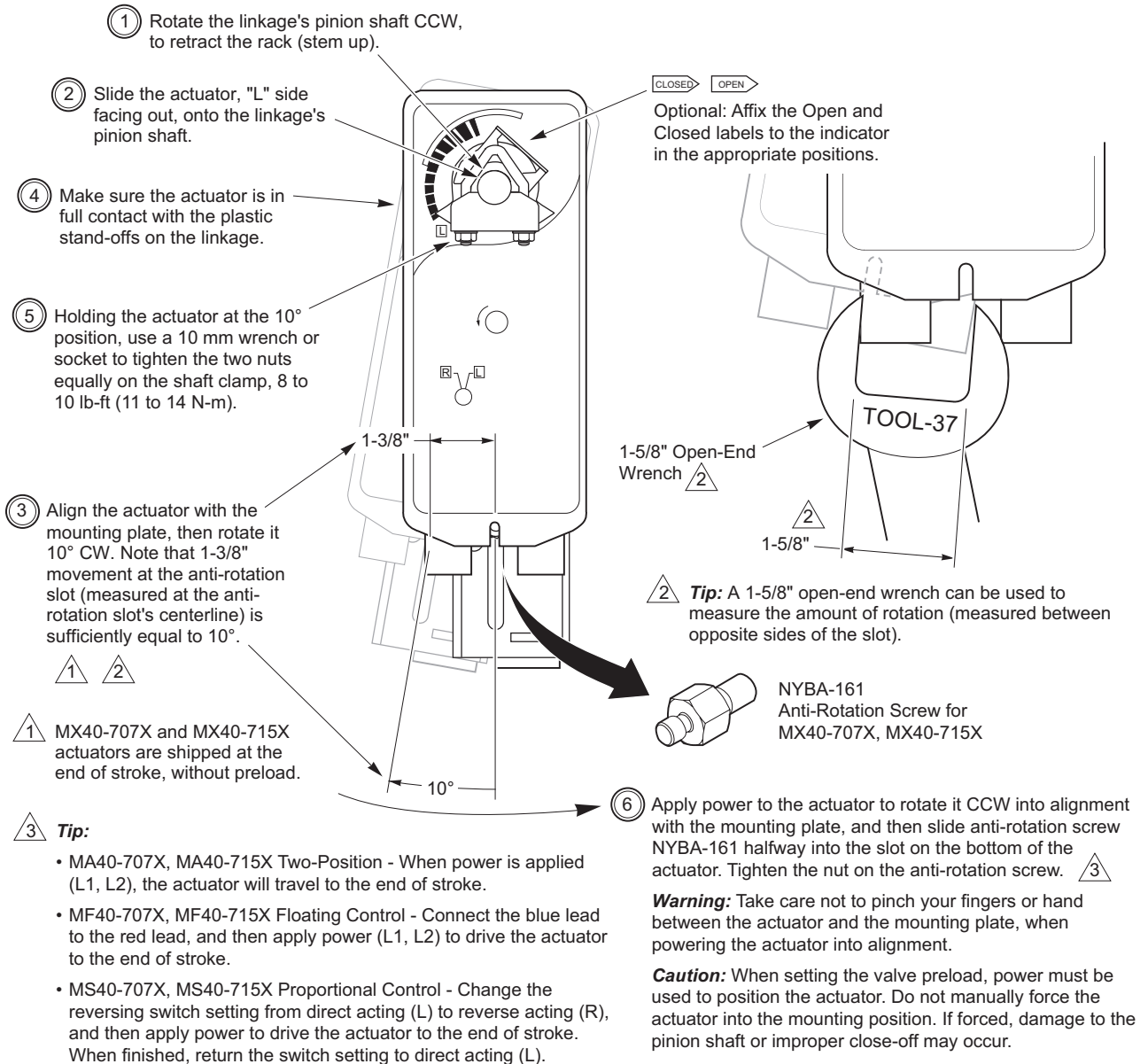


Figure-4 Mounting MX40-707X or MX40-715X and Setting Up Actuator/Linkage/Valve Assembly.

- b. Apply power to the actuator and check the system's operation for heating or cooling output, in response to the control signal.
- c. Refer to the appropriate actuator General Instructions sheet for actuator wiring and application information (see "Applicable Literature" on page 2). For valve body installation and application information, refer to the appropriate valve body General Instructions sheet.

#### MX40-717X

- a. Install the actuator onto the linkage and 3-way valve, and set up the assembly, according to Figure-5.

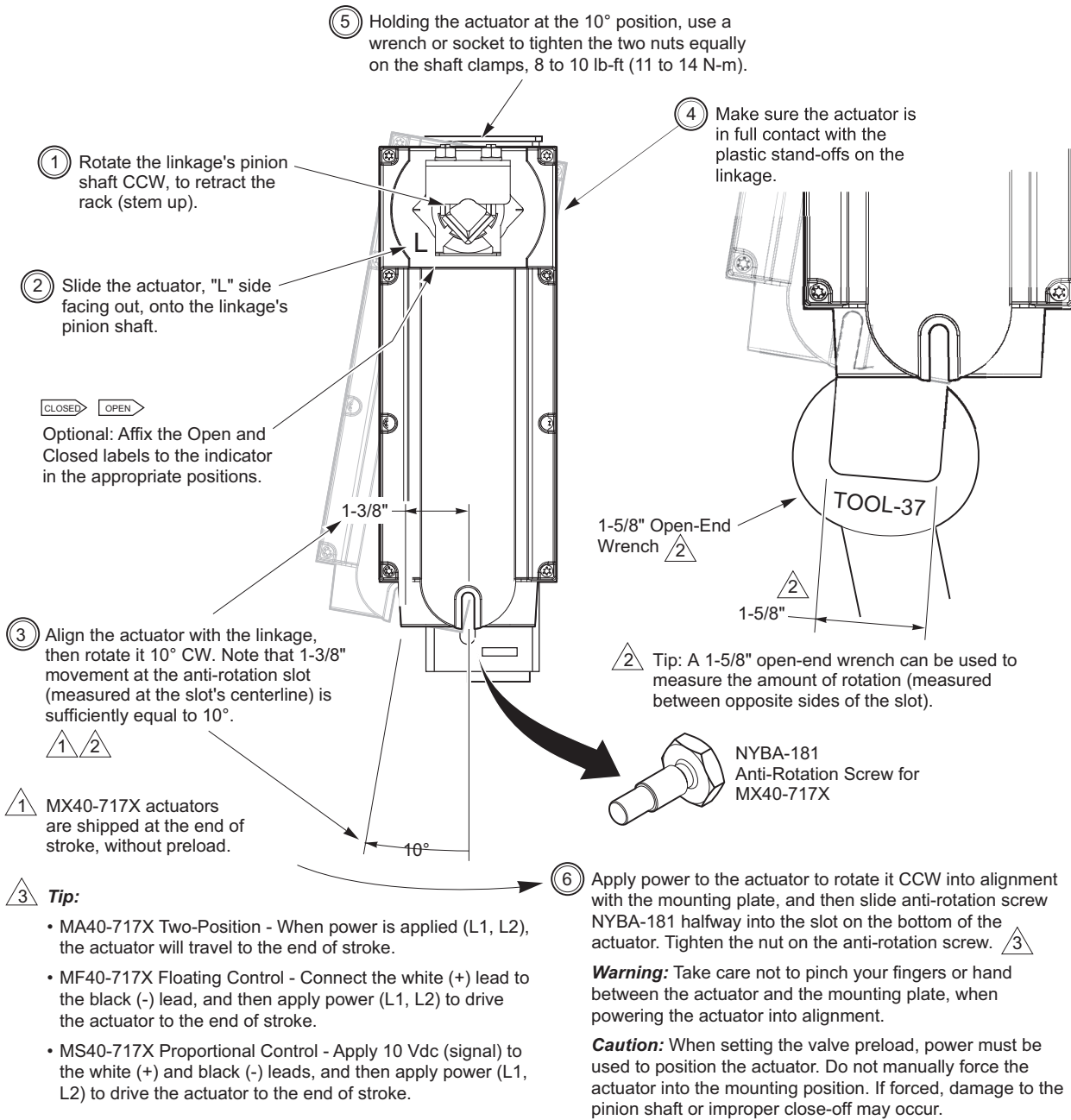


Figure-5 Mounting MX40-717X and Setting Up Actuator/Linkage/Valve Assembly.

- b. Apply power to the actuator and check the system's operation for heating or cooling output, in response to the control signal.
- c. Refer to the appropriate actuator General Instructions sheet for actuator wiring and application information (see "Applicable Literature" on page 2). For valve body installation and application information, refer to the appropriate valve body General Instructions sheet.