



Invensys Building Systems, Inc.
1354 Clifford Avenue
P.O. Box 2940
Loves Park, IL 61132-2940
www.invensysibs.com

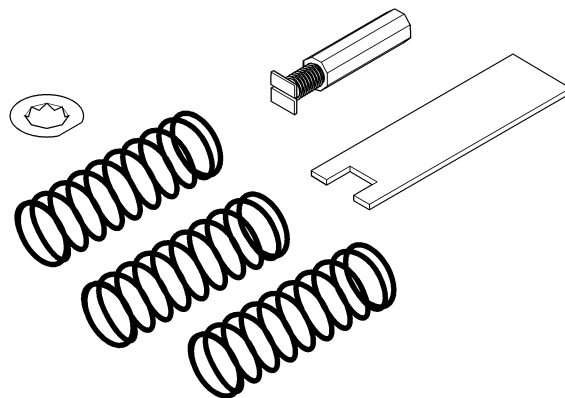
Pneumatic Actuator Valve Linkage Kit for VB-7XXX Series Valves General Instructions

Application

The AV-7400 valve linkage kit is used to field assemble MK-2690 pneumatic actuators to 1/2" through 2" VB-7XXX series valve bodies.

Features

- Springs are provided for all control signal applications, including 3 to 7, 5 to 10, and 8 to 13 psig.
- Kit fits all VB-7XXX series valve bodies.



Applicable Literature

- Invensys Building Systems Cross-Reference Guide, F-23638
- Invensys Building Systems Reference Manual, F-21683
- Invensys Building Systems Application Manual, F-21335
- Invensys Building Systems Catalog, F-25683
- MK-2690 Pneumatic Valve Actuator General Instructions, F-13893
- Invensys Building Systems Valve Selection Guide, F-26094
- EN-205 Water System Guidelines, F-26080

INSTALLATION

Inspection

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

Requirements

- Tools:
 - Screwdriver appropriate for slotted spring compression screw (not provided)
 - Linkage wrench (provided) or TOOL-20-1, packing and linkage wrench (not provided)
- Training: Installer must be a qualified, experienced technician

▼ CAUTION

- Avoid locations where excessive moisture, corrosive fumes, or vibration are present. Do not insulate piping above the actuator mounting nut preventing proper drainage.
 - Install all two-way valves so that they close against the flow. An arrow on the valve body or a tag indicates the proper flow direction.
 - Always install three-way mixing valves with two inlets and one outlet.
 - Always install three-way diverting valves with one inlet and two outlets.
 - Do not install the actuator below the center line of the valve. For steam applications mount the actuators above the valve body at 45° from vertical.
-

Mounting

1. Actuators can be mounted in any upright position above the centerline of a valve body.
2. When selecting a location, allow sufficient room for accessories and for service of the product.
3. Maintain proper flow direction when installing all globe and radiator-type valves. Flow direction is indicated by an arrow on the valve body or by information on the attached tag.

Linkage Kit Installation

The AV-7400 linkage kit used with the MK-2690 actuator on VB-7XXX series valve bodies requires no stem height setting. Refer to the **Invensys Building Systems Valve Selection Guide, F-26094**, for valves accommodating the MK-2690 actuator.

▼ CAUTION

It is essential that the proper parts be used for the valve body on which the linkage is being installed to ensure proper actuator operation and close off.

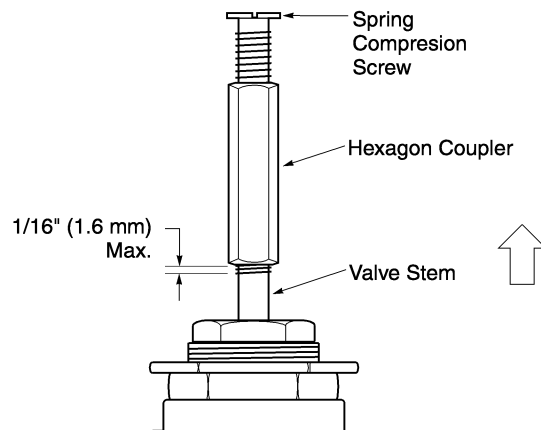


Figure-1 Installation of Hexagon Coupler and Spring Compression Screw onto Valve Stem.

Procedure

The linkage is assembled onto the VB-7XXX valve body with stem in the up position.

1. Thread the hexagon coupler onto the valve stem all the way to the bottom of the stem thread until it is finger-tight (Figure-1).

▼ CAUTION

The hexagon coupler must reach to within 1/16" (1.6 mm) of the smooth section of the stem to assure proper seating.

2. Start the spring compression screw one turn or more into the hexagon coupler. Pull the valve stem completely up (Figure-2).

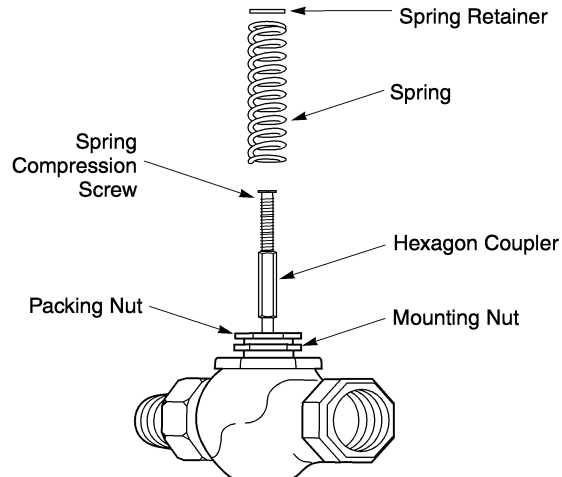


Figure-2 Assembly of AV-7400 Linkage Kit onto VB-7XXX Series Valve.

3. Choose the correct spring for the desired actuator operating pressure range:
 - Yellow spring — 3 to 7 psig (21 to 48 kPa)
 - Black spring — 5 to 10 psig (34 to 68 kPa)
 - Blue spring — 8 to 13 psig (55 to 89 kPa)
4. Slip the spring over the coupler and the spring compression screw.
5. Place the retainer over the screw. Twist the retainer 45° to lock it in place on the spring compression screw.
6. Insert the linkage wrench (supplied with kit, also included on TOOL-20-1) through the spring coils to hold the hexagon coupler.
7. Tighten the spring compression screw. To establish proper linkage height, run the spring compression screw down until the screw end bottoms firmly on the stem top (Figure-3).
 - On stem up closed valves (VB-722X) or three-way valves (VB-73XX), you can feel the screw bottom.
 - On stem up open valves (VB-721X), the stem and hexagon coupler begin to turn.

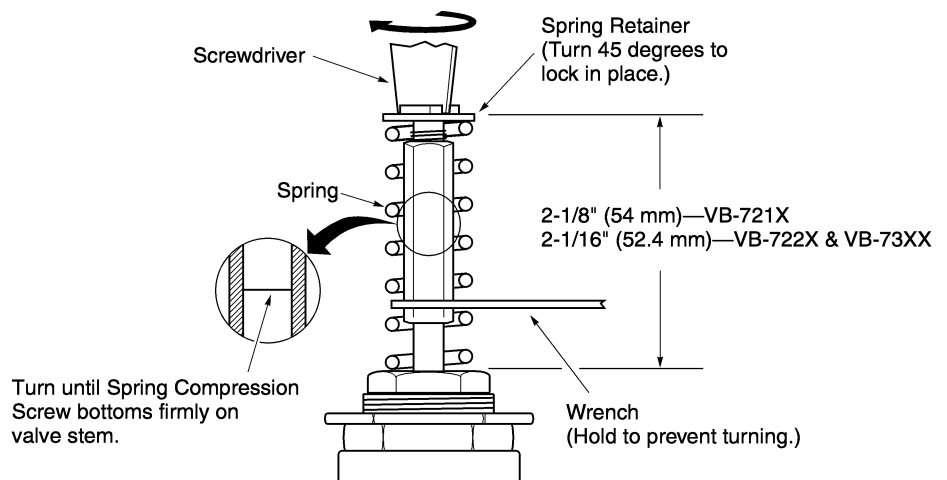


Figure-3 Installation of Linkage Spring.

8. Confirm the stem height setting (Figure-3):
 - 2-1/8" (54 mm) maximum after installation on stem up open valves (VB-721X).
 - 2-1/16" (52.4 mm) maximum on stem up closed valves (VB-722X) or three-way valves (VB-73XX).
9. Center the spring on top and bottom to assure smooth actuator operation.
10. Install the actuator onto the valve by screwing the actuator base onto the mounting nut (Figure-4). The actuator may be rotated as desired to facilitate making the pneumatic connection.

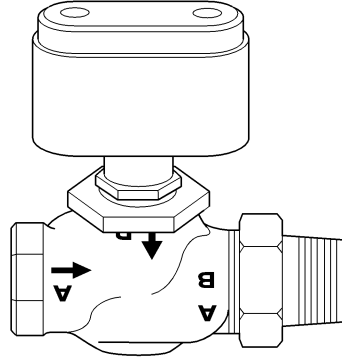


Figure-4 MK-2690 Actuator Mounted on VB-7XXX Valve.

MAINTENANCE

The actuator linkage requires no maintenance.

Regular maintenance of the total system is recommended to assure sustained, optimum performance. Hard water leaves abrasive deposits and reduces component life. To maximize valve life, consult **EN-205 Water System Guidelines, F-26080**.

FIELD REPAIR

Individual parts of the actuator linkage are not repairable. Replace an inoperative actuator linkage with a functional unit, or replace individual parts as necessary (Table-1 and Figure-5).

Table-1 AV-7400 Replacement Parts.

Item (See Figure-5)	Part No.	Description
1	PNV-144-043	Yellow Spring for 3 to 7 psig (21 to 48 kPa)
	PNV-145-045	Black Spring for 5 to 10 psig (34 to 68 kPa)
	PNV-145-048	Blue Spring for 8 to 13 psig (55 to 89 kPa)
2	YBA-559	Spring Retainer
3	NYBA-80	Stem Coupler (hexagon)
	NYBA-78	Spring Compression Screw
4	NYBA-82	Linkage Wrench

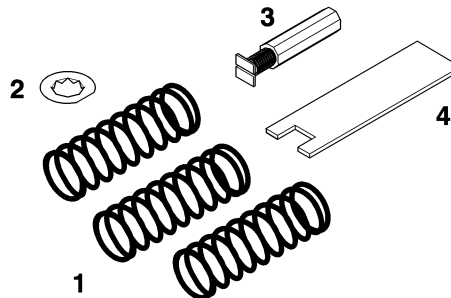


Figure-5 AV-7400 Pneumatic Actuator Valve Linkage Kit.