

Mounting Type DVC5010 or DVC6010 Digital Valve Controllers on Fisher Type 657 and 667 Actuators

Installation Instructions

November 2004

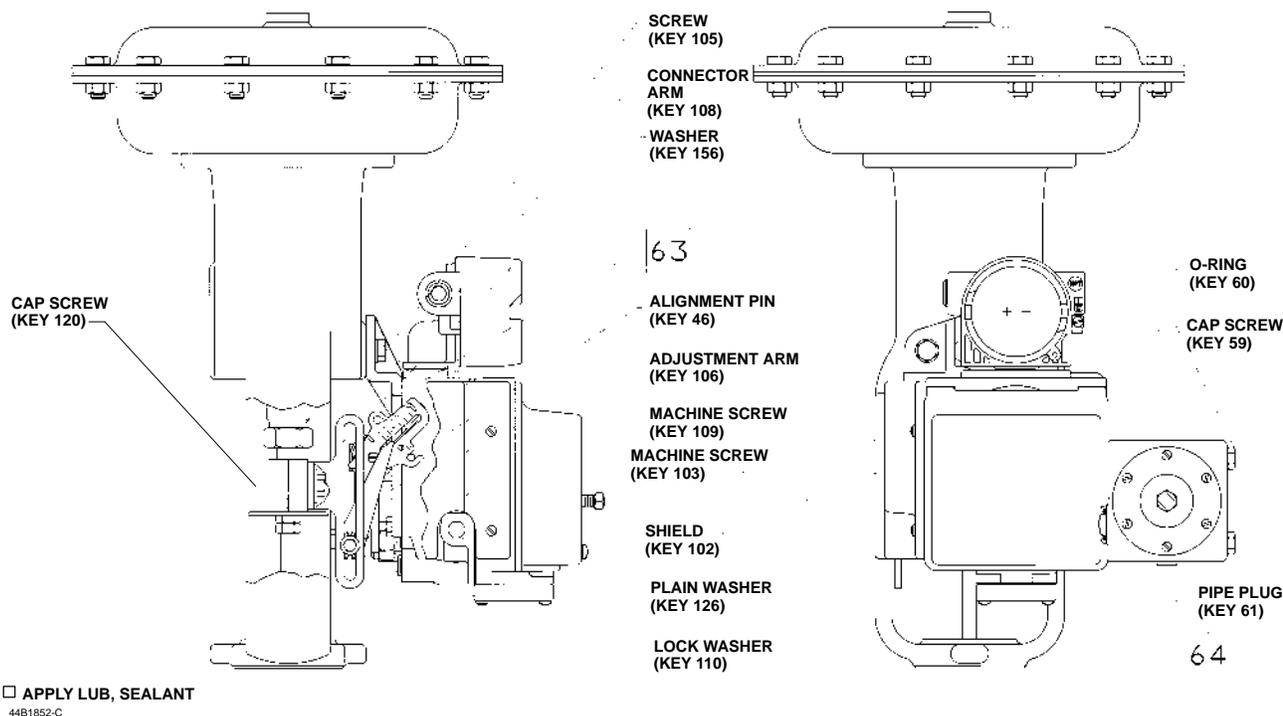


Figure 1. Type DVC5010 or DVC6010 Digital Valve Controller with Integrally Mounted Filter Regulator Yoke-Mounted on Type 657/667 Size 30-60 Actuator

Use these instructions to mount a FIELDVUE® Type DVC5010 or DVC6010 digital valve controller on Fisher Type 657 and 667 actuators.

WARNING

Avoid personal injury or property damage from sudden release of process pressure or bursting of parts. Before performing any maintenance operations:

- Always wear protective clothing and eyewear.
- Disconnect any operating lines providing air pressure, electric power, or a control signal to the actuator. Be sure the actuator cannot suddenly open or close the valve.

- Use bypass valves or completely shut off the process to isolate the valve from process pressure. Relieve process pressure from both sides of the valve. Drain the process media from both sides of the valve.

- Vent the pneumatic actuator loading pressure and relieve any actuator spring precompression.

- Use lock-out procedures to be sure that the above measures stay in effect while you work on the equipment.

- Check with your process or safety engineer for any additional measures that must be taken to protect against process media.



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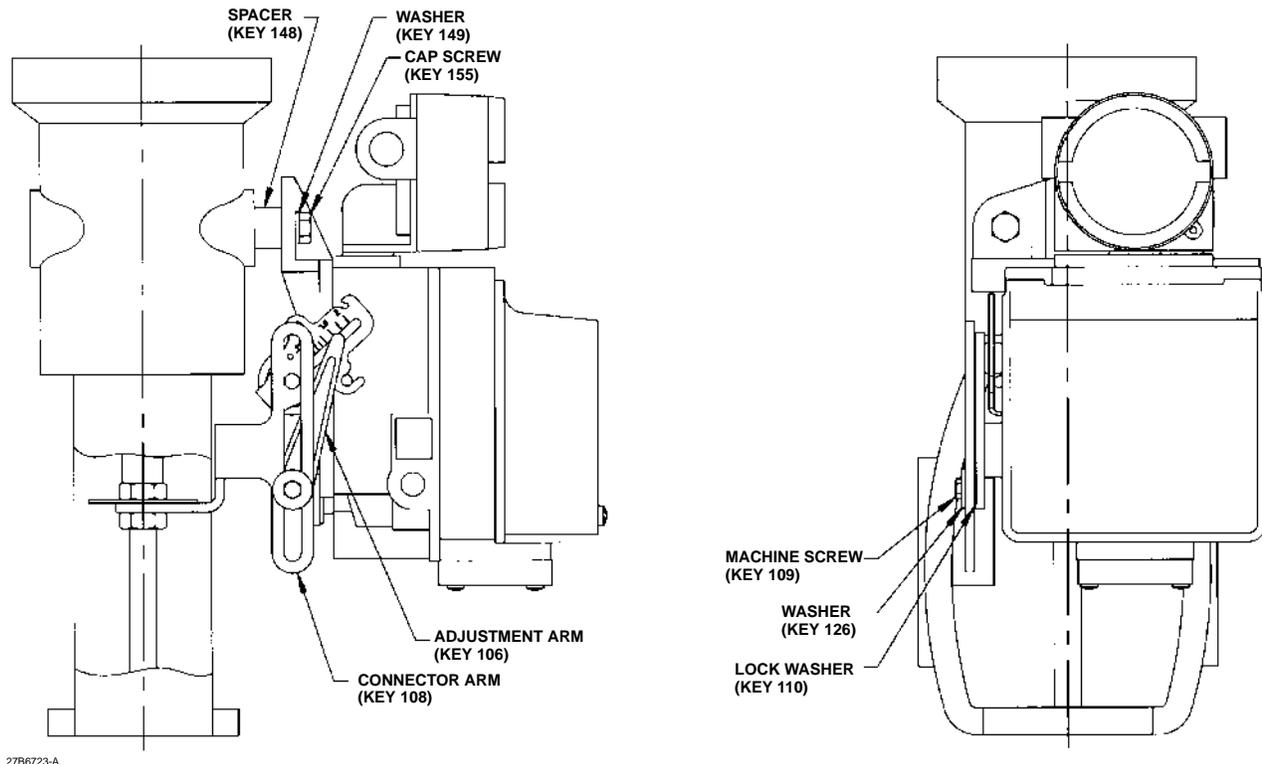


Figure 2. Type DVC5010 or DVC6010 Digital Valve Controller Mounted on Type 657/667 Size 34-60 Actuator with Side-Mounted Handwheel

Mounting on Size 30-60 Actuators

Refer to figures 1 and 2 for mounting parts identification. Refer to the FIELDVUE DVC5000 Series Digital Valve Controllers Instruction Manual - Form 5335 for DVC5010 digital controller parts identification, and the FIELDVUE DVC6000 Series Digital Valve Controllers Instruction Manual - Form 5647 for DVC6010 digital valve controller part identification. Refer to the appropriate actuator instruction manual for actuator installation, operation, maintenance and parts identification.

1. Isolate the control valve from the process line pressure, release pressure from both sides of the valve body, and drain the process media from both sides of the valve. Shut off all pressure lines to the actuator, releasing all pressure from the actuator. Use lock-out procedures to be sure that the above measures stay in effect while you work on the equipment.

2. Attach the connector arm (key 108) to the valve stem as follows:

- On actuators without side-mounted handwheel, refer to figure 1.

a. Remove one of the stem connector screws. Insert one of the cap screws (key 120) included in the kit through the connector arm (key 108) and start it in the stem connector. Tighten the screw so that the stem connector clamps the valve and actuator stems but still permits the connector arm to be moved.

b. Remove the second stem connector screw. Swing the connector arm into place and start the second screw (key 120) from the kit. Tighten both screws.

- On actuators with side-mounted handwheel refer to figure 2. Loosen the lock nut below the travel disc. Insert the connector arm beneath the travel disc and tighten the lower lock nut against the connector arm.

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3. The parts referenced in this step are part of the digital valve controller. Refer to the digital valve controller instruction manual for parts identification. Attach the mounting bracket (key 107) to the digital valve controller housing with screws (key 104).

4. Attach the digital valve controller to the actuator as follows:

- On actuators without side-mounted handwheel:

- a. Loosely install a hex flange screw (key 105) in the right hole of the lower actuator mounting boss.

- b. Position the digital valve controller so the hole in the mounting pad of the mounting bracket goes onto the mounting screw (key 105). Slide the digital valve controller to the left to expose the left hole. Install the left screw (key 105). Tighten both screws (key 105).

- On actuators with side-mounted handwheel:

- a. Insert a cap screw (key 155) through a washer (key 149) and spacer (key 148). Loosely install the cap screw in the right hole of the lower actuator mounting boss.

- b. Position the digital valve controller so the hole in the mounting pad of the mounting bracket goes onto the mounting screw (key 155). Be sure the washer is between the screw head and the mounting bracket.

- c. Slide the digital valve controller to the left to align the left hole in the mounting bracket with the left hole in the actuator yoke.

- d. Place the second spacer (key 148) between the actuator yoke and the mounting bracket. Insert the left screw (key 155) with washer (key 149) through the hole in the mounting bracket and spacer. Tighten both screws (key 155).

Note

The alignment pin (key 46) is stored inside the digital valve controller housing. It is located above the supply pressure gauge.

5. Set the position of the feedback arm on the digital valve controller by inserting the alignment pin (key 46) through the hole on the feedback arm marked "A" for Type 667 actuators or the slot marked "B" for Type 657 actuators.

6. Apply lubricant (key 63) to the pin of the adjustment arm (key 106). Place the pin into the slot of the feedback arm so that the bias spring loads the pin against the side of the arm with the valve travel markings.

7. Install the external lock washer (key 110) on the adjustment arm. Position the adjustment arm in the slot of the connector arm (key 108) and loosely install the washer (key 126) and screw (key 109).

8. Slide the adjustment arm pin in the slot of the feedback arm until the pin is in line with the desired valve travel marking. Tighten the screw (key 109).

9. Remove the alignment pin (key 46) and store it in the module base next to the I/P assembly.

10. Attach the shield (key 102) with two screws (key 103).

For additional information concerning mounting, setup, calibration and maintenance, refer to the FIELDVUE DVC5000 Series Digital Valve Controllers Instruction Manual - Form 5335 for DVC5010 digital controllers, and the FIELDVUE DVC6000 Series Digital Valve Controllers Instruction Manual - Form 5647 for DVC6010 digital valve controllers.

Mounting on Size 70-100 Actuators

Refer to figure 3 for mounting parts identification. Refer to the FIELDVUE DVC5000 Series Digital Valve Controllers Instruction Manual - Form 5335 for DVC5010 digital controller parts identification, and the FIELDVUE DVC6000 Series Digital Valve Controllers Instruction Manual - Form 5647 for DVC6010 digital valve controller part identification. Refer to the appropriate actuator instruction manual for actuator installation, operation, maintenance and parts identification.

1. Isolate the control valve from the process line pressure, release pressure from both sides of the valve body, and drain the process media from both sides of the valve. Shut off all pressure lines to the actuator, releasing all pressure from the actuator. Use lock-out procedures to be sure that the above measures stay in effect while you work on the equipment.

2. Attach the connector arm (key 108) to the valve stem connector.

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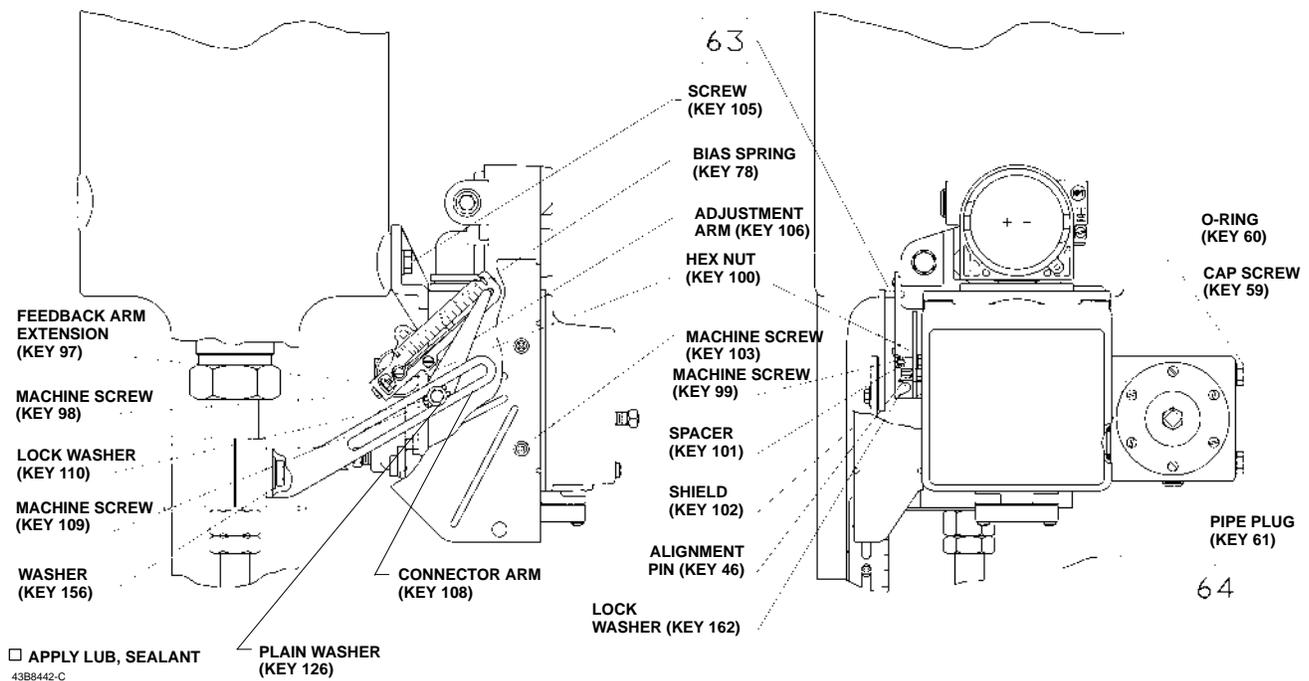


Figure 3. Type DVC5010 Digital Valve Controller with Integrally Mounted Filter Regulator Yoke-Mounted on Type 657/667 Size 70-100 Actuator

3. Refer to figure 3. If valve travel exceeds 2 inches, a feedback arm extension (key 97) is required. Remove the bias spring (key 78) for up to 2-inch travel from the feedback arm. Attach the bias spring (key 78) for up to 4-inch travel to the feedback arm extension. Attach the feedback arm extension to the feedback arm with screw (key 98), screw (key 99), spacer (key 101), lock washers (key 162), and hex nuts (key 100). Remove the pipe plug from the output connection on the back of the housing, apply sealant (key 64), and reinstall it in the output connection on the side of the housing.

4. Loosely install a hex flange screw (key 105) in the right hole of the lower actuator mounting boss.

5. Position the digital valve controller so the hole in the mounting pad of the mounting bracket goes onto the mounting screw (key 105). Slide the digital valve controller to the left to expose the left hole. Install the left screw (key 105). Tighten both screws (key 105).

Note

The alignment pin (key 46) is stored inside the digital valve controller housing. It is located above the supply pressure gauge.

6. Set the position of the feedback arm on the digital valve controller by inserting the alignment pin (key 46) through the hole on the feedback arm marked "A" for Type 667 actuators or the slot marked "B" for Type 657 actuators.

7. Apply lubricant (key 63) to the pin of the adjustment arm (key 106). Place the pin into the slot of the feedback arm so that the bias spring loads the pin against the side of the arm with the valve travel markings.

8. Install the external lock washer (key 110) on the adjustment arm. Position the adjustment arm in the slot of the connector arm (key 108) and loosely install the washer (key 126) and screw (key 109).

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9. Slide the adjustment arm pin in the slot of the feedback arm until the pin is in line with the desired valve travel marking. Tighten the screw (key 109).
10. Remove the alignment pin (key 46) and store it in the module base next to the I/P assembly.
11. Attach the shield (key 102) with two screws (key 103). On Type 657 or 667 size 70-100 actuators, start the screws before installing the shield.

For additional information concerning mounting, setup, calibration and maintenance, refer to the FIELDVUE DVC5000 Series Digital Valve Controllers Instruction Manual - Form 5335 for DVC5010 digital controllers, and the FIELDVUE DVC6000 Series Digital Valve Controllers Instruction Manual - Form 5647 for DVC6010 digital valve controllers.

Note

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Emerson Process Management

Fisher

Marshalltown, Iowa 50158 USA
Cernay 68700 France
Sao Paulo 05424 Brazil
Singapore 128461

www.Fisher.com

