



USER INSTRUCTIONS

Worcester Series 75 Actuator Potentiometer Kit

Single, Dual

FCD WCENIM2067-01 – 08/18 (Replaces Part 09750)

*Installation
Operation
Maintenance*



Experience In Motion

I. General

The potentiometer, as part of the Series 75 Actuator, is used to obtain feedback representing the actuator position. It requires a power supply, which may be furnished by the end user and/or by optional devices such as a 4-75 (4-20 mA) Position Indicator or AF17 Positioner.

A dual potentiometer is used with the AF17 Positioner or 4-75 Position Indicator when remote resistance indication is required.

The dual potentiometer is required when both AF17 and 4-20 mA position output or DFC17 and 4-75 Position Indicator options are to be used together, one pot for each device.

For example, each potentiometer can serve only one function, remote resistance monitoring and an AF17 cannot share a potentiometer.

For potentiometer wiring with these options or for standard potentiometer wiring, see notes below and the wiring label included with the kit (attached to inside of actuator cover). A wiring diagram is also found in this installation instruction sheet. Also refer to 4-75 (WCAIM2070) and/or AF17 (WCAIM2031) and/or 75 Actuator (WCAIM2013) and/or DFC17 (WCAIM2026) instruction sheets, which can be obtained from your local distributor/supplier, if necessary.

II. Mounting and Wiring Potentiometer

See illustrations on page 2.

- A. Operate the 75 actuator to verify 90° operation from open to closed. Adjust limit switches (1), if required, to obtain 90° operation of the actuator.
- B. With the potentiometer (6) mounted to the potentiometer bracket (7) or (13) and the spur gear (8) loosely fitted to the potentiometer shaft (11), mount the potentiometer bracket (7) or (13), if not already mounted, as follows:

10-23 75 Actuator

Remove the motor module mounting screws (3) on the side of the module farthest away from the actuator shaft (5). Line up potentiometer shaft with center of actuator shaft, position potentiometer bracket (7) holes over screw holes, replace and tighten screws.

25-30 75 Actuator

Line up potentiometer shaft with center of actuator shaft. Attach potentiometer bracket (13) to motor support plate (15) between the terminal strip (4) and actuator shaft (5) with mounting screws (14) as shown.

DUAL POTENTIOMETER

A dual potentiometer is also available. For mounting use the same procedure as for standard potentiometer kit.

- C. Run the potentiometer leads (10) to the terminal strip (4) as shown in the plan views for 10-23 75 and 25-30 75 actuators.
- D. Connect the potentiometer leads to the terminal strip as follows or see **NOTES** below:

Terminal Strip	Wire Color
10	Green
11	White/Black (or White)
12	Purple

NOTES: All wiring to terminal strip should be inserted only to mid-point of terminal strip.

Single potentiometer or “B” potentiometer of dual potentiometer has voltage limit of 30 volts.

For actuator with AF17 and with dual potentiometer: “A” pot (closest to the shaft) is wired directly to TB1 on circuit board; “B” pot (farthest from shaft) is wired to terminal strip terminals 7, 8, 9, if available.

For actuator with 4-75 and with dual potentiometer: “A” potentiometer is wired directly to TB1 on circuit board, “B” potentiometer is wired to terminal strip terminals 10, 11, 12, if available.

For actuator with AF17 and 4-20 mA position output together: “A” potentiometer is wired directly to TB1; “B” potentiometer is wired directly to TB2 on the AF17 circuit board.

For actuator with DFC17 and 4-75 position indicator together: “A” potentiometer is wired directly to TB1 on DFC17 circuit board; “B” potentiometer is wired to terminal block on 4-75 circuit board.

If terminals as noted above are not available for use, potentiometer wires are to be spliced to wires of external device.

III. Adjusting Potentiometer

A. 10-30 75 Actuator

Place the large face gear (12) over the actuator shaft with the gear teeth down and secure with snap ring (16).

NOTE: The face gear utilizes a friction fit to the shaft. For best results, wipe off any lubricant that may be on the shaft before sliding on the face gear.

▲ CAUTION: Do not overstretch the snap ring. Use the minimum opening to allow it to slip over the gear.

B. Adjust the potentiometer spur gear (8) until there is approximately 1/16" engagement with the large face gear. Tighten the spur gear set screw (9). If necessary, slightly bend potentiometer bracket to get proper engagement.

C. Rotate the face gear back and forth to ensure smooth and easy operation of the potentiometer.

D. For 90° Valves

With the actuator either in the OPEN (full CCW) or CLOSED (full CW) position, and **power off**, rotate the face gear, thus turning the potentiometer shaft, until the resistance between the white/black lead (terminal 11) and the green lead (terminal 10) or the white/black lead (terminal 11) and the purple lead (terminal 12), respectively, as measured by ohmmeter, is between 80 and 90 ohms.

(Refer to instruction sheets listed in section I for potentiometer lead locations and adjustments with other options.)

NOTE: It is not necessary to loosen or remove face gear snap ring to rotate gear.

E. Power the actuator to the opposite position from where resistance was measured.

F. At this position, with **power off**, measure the resistance at the same terminals as stated above. The resistance reading should be greater than 700 ohms. If not, then power actuator back to original position and adjust potentiometer again, if necessary, as stated in paragraph E above.

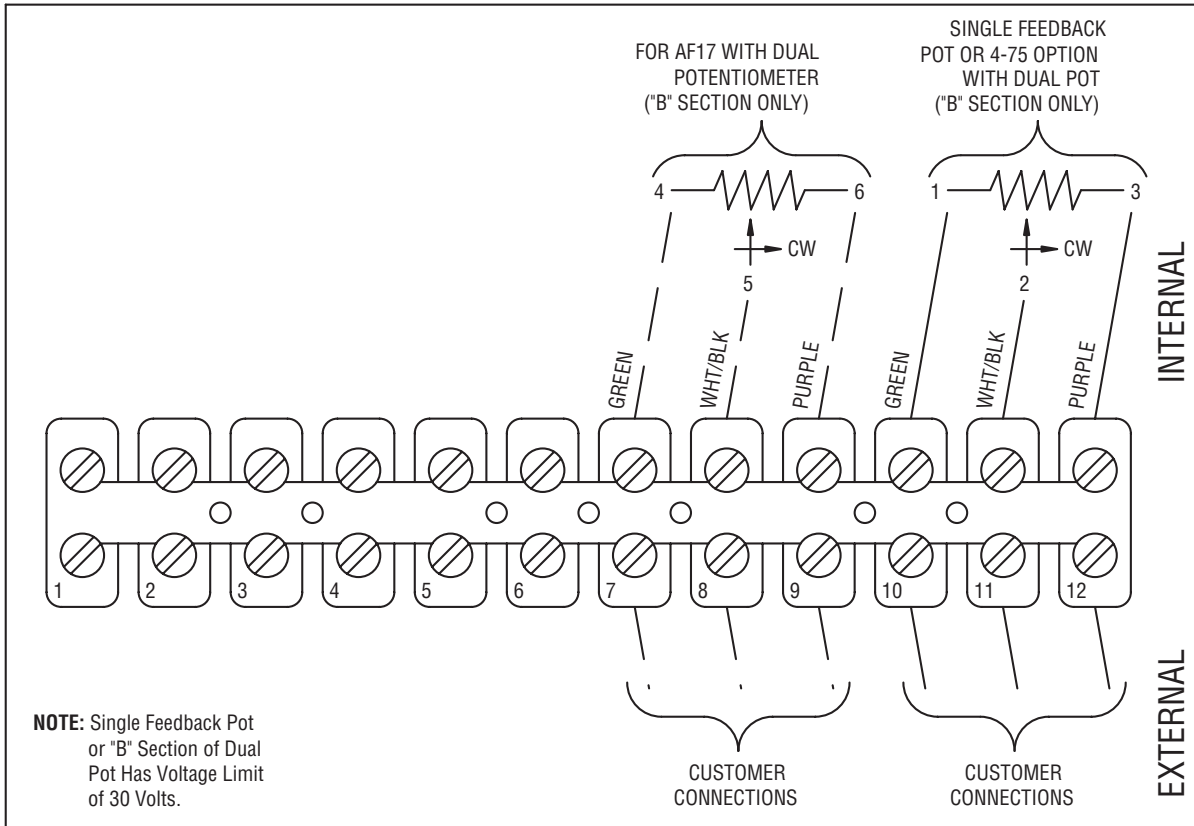
NOTE: If unsuccessful in getting proper resistance readings, potentiometer is defective and should be replaced.

The feedback potentiometer is now adjusted for use in the 75 actuator.

Attach the potentiometer caution label to the outside of the actuator cover.

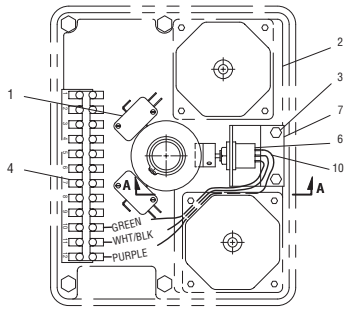
IMPORTANT: The feedback potentiometer is calibrated for only one 90° quadrant of valve operation. If the output shaft is repositioned to another 90° quadrant or if the output shaft is rotated a multiple of 360° from its original position, the feedback potentiometer will no longer be in calibration and must be recalibrated.

Wiring for 10-30 P/D 75 Feedback Potentiometer Option

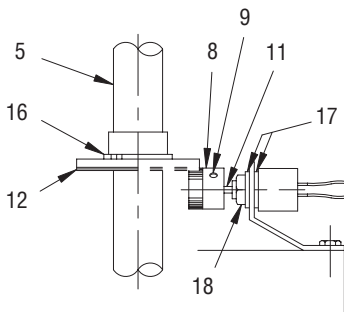


Illustrations show single potentiometer only.

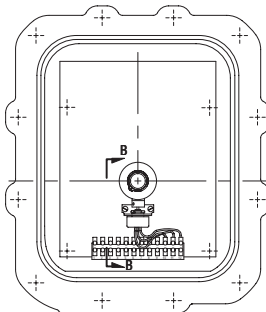
10-23 75 Plan View (See **NOTES** in Section II, D)



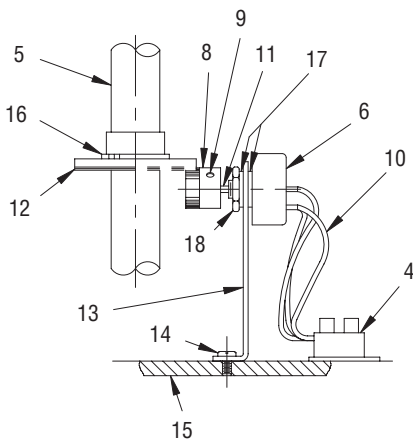
View A-A



25/30 75 Plan View (See **NOTES** in Section II, D)



View B-B



Item	Description
1	Limit Switches
2	Motor Module
3	Motor Module Mtg. Screws (2)
4	Terminal Strip
5	Actuator Shaft
6	Potentiometer
7	Potentiometer Bracket
8	Spur Gear
9	Spur Gear Set Screw
10	Potentiometer Leads
11	Potentiometer Shaft
12	Face Gear
13	Potentiometer Bracket
14	Mounting Screws (2)
15	Motor Support Plate
16	Snap Ring
17	Lockwashers (2)
18	Nut



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United States
FLOWSERVE CORPORATION
1978 Foreman Drive
Cookeville, TN38501
Phone 931-432-4021
Fax 931-432-5518
www.flowserve.com

FCD WCENIM2067-01 08/18 Printed in USA. (Replaces Part 09750)

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