



# RETROFIT INSTRUCTIONS

## CONTROL END RETROFIT KIT P/Ns 12-8064-60, -61, -62

### PURPOSE

To provide a step-by-step method for retrofitting the Option 3, Option 5 and Option 7 modular control ends onto actuators equipped with older control ends. Refer to Beck Instruction Manual 80-0042-00 for complete calibration instructions.

Maintenance to the Group 42 actuator should be performed in a clean working environment. If possible, the actuator should be removed from its mounting point and taken to a maintenance room or workstation.

### REQUIRED TOOLS

- 1/2" socket or wrench
- 1/4" hex driver
- #1 Phillips head screwdriver
- Torque wrench appropriate for 6 and 10 lb-ft (3/16" hex driver and 1/2" socket)
- Wire cutters
- Loctite® Threadlocker 222™ or equivalent
- 3M™ Scotch-Weld™ Nitrile High Performance Rubber & Gasket Adhesive 847 or equivalent



#### WARNING

**Electrical shock hazard—disconnect power before proceeding. Remove the actuator from line voltage and shut off any external power sources feeding the auxiliary switches.**

### PROCEDURE

*Remove the old control end:*

Refer to Figure 1 for component identification.



#### CAUTION

**Observe precautions for handling electrostatic sensitive devices.**

1. Disconnect the power from the actuator.
  2. Remove the control end cover by loosening the (4) 5/16-18 hex head captive screws.
  3. The control end is a multilevel unit which will be replaced in its entirety. The first level of the control end assembly is the terminal wiring board for the control assembly and the actuator. Record the wire connections attached to this board, being very specific about wire colors and the appropriate wire terminals.
  4. Remove all wire connections from the terminal board on the control end assembly. Cut any cable ties that retain the wiring to the control end assembly.
  5. Remove the wiring conduit connections from the actuator. Retain any fittings for installation on the new control end. Any wires which are routed through the conduit will need to be pulled free of the control end base so that the assembly can be removed.
  6. Locate the three wire connections (red, black, and green) which lead from the control end. If the wire connections are not accessible, remove the capacitor cover located beneath the motor compartment (four 1/4-20 hex head screws). The wire connections are as follows, red is connected to the resistor wire, black is connected to the black motor lead, and the green wire is connected to a terminal on the capacitor. Make sure to record these wire connections for installation of the new control end.
  7. Remove the (4) 5/16-18 socket head screws which retain the control end assembly to the actuator body. These screws are partially hidden behind the P.C. board of the control end assembly, and care must be taken when removing and/or installing them.
  8. Carefully remove the control end assembly from the actuator.
- Inspect the actuator gaskets:*
9. Inspect the control end cover gasket, the conduit (& control end) gasket and, if applicable, the capacitor cover gasket on the actuator body. Replace any worn or damaged gaskets. If the gaskets are in good condition skip to step 13.

11. Clean the gasket face(s) on the actuator body to remove all gasket material and adhesive. Inspect the cover mating face(s) to ensure no gasket material exists. Clean as necessary.
12. To replace the conduit (& control end) gasket or the capacitor cover gasket, apply a thin film of gasket adhesive (3M™ Scotch-Weld™ Nitrile High Performance Rubber & Gasket Adhesive 847 or equivalent) to the mating face(s) of the actuator body.

Firmly press the new gasket(s) into place and allow time for the adhesive to set before continuing.

To replace the control end gasket, peel the backing off of the gasket, then carefully apply the gasket to the control end base. Ensure that the gasket is flat against the base (no kinks or raised areas).

*Install the new control end:*

13. Route the wire connectors through the actuator body and connect the three wire connectors to their appropriate leads. Refer to the connections recorded in step 7.
14. Install the (4) 5/16-18 socket head screws to retain the control end assembly, after applying Loctite® Threadlocker 222™ or equivalent. Torque the screws to 10 lb-ft (14 N•m).
15. Reconnect the conduit fittings to the control end support.
16. Route any external wiring into the actuator through the conduit openings in the control end support.
17. Reconnect all wires to the appropriate terminals on the control end terminal board. Refer to the locations recorded in step 3. A sample wiring diagram is shown in Figure 2.
18. Reinstall the capacitor cover by installing the (4) 1/4-20 hex head screws and tightening to 6 lb-ft (8 N•m).
19. Connect power to the actuator.
20. Calibrate the actuator per Beck Instruction Manual 80-0042-00.
21. Modulate the Demand signal to run the actuator through its full range of motion. Verify the correct actuator response.
22. Modulate the signal to several intermediate levels and note if the actuator attains the proper position.
23. If the actuator responds correctly, reinstall the control end cover, tighten the (4) 5/16-18 hex head captive screws to 10 lb-ft torque, and return the actuator to service.

## GROUP 42 CONTROL END RETROFIT KITS

### 12-8064-60 (Option 3)

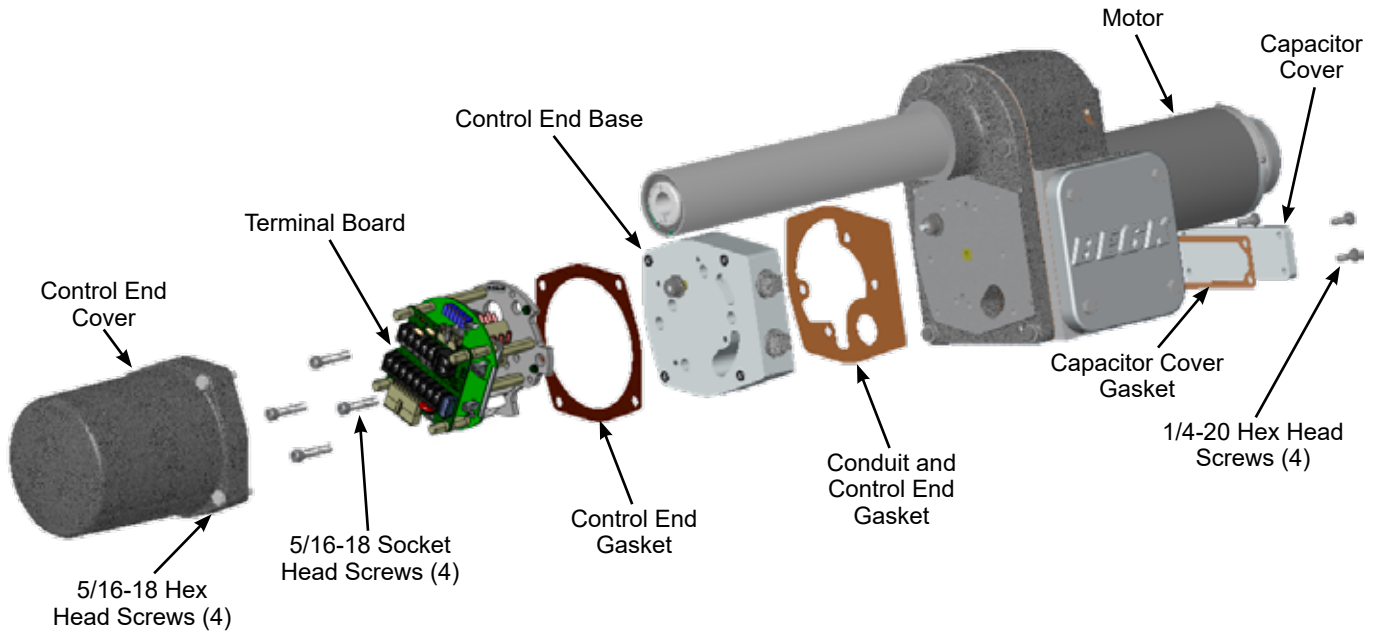
Part Number	Description
23-2143-03	Option 3 Control End Assembly
23-2142-01	Control End Base Assembly
20-0661-39	Conduit & Control End Gasket
10-8080-02	Control End Gasket
20-0661-36	Capacitor Cover Gasket
30-0323-60	Screw, .25-28 x .625 (3)
30-0329-33	Screw, .31-18 x 1.5 (4)
80-4284-50	Retrofit Instructions

### 12-8064-61 (Option 5)

Part Number	Description
23-2143-05	Option 5 Control End Assembly
23-2142-01	Control End Base Assembly
20-0661-39	Conduit & Control End Gasket
10-8080-02	Control End Gasket
20-0661-36	Capacitor Cover Gasket
30-0323-60	Screw, .25-28 x .625 (3)
30-0329-33	Screw, .31-18 x 1.5 (4)
80-4284-50	Retrofit Instructions

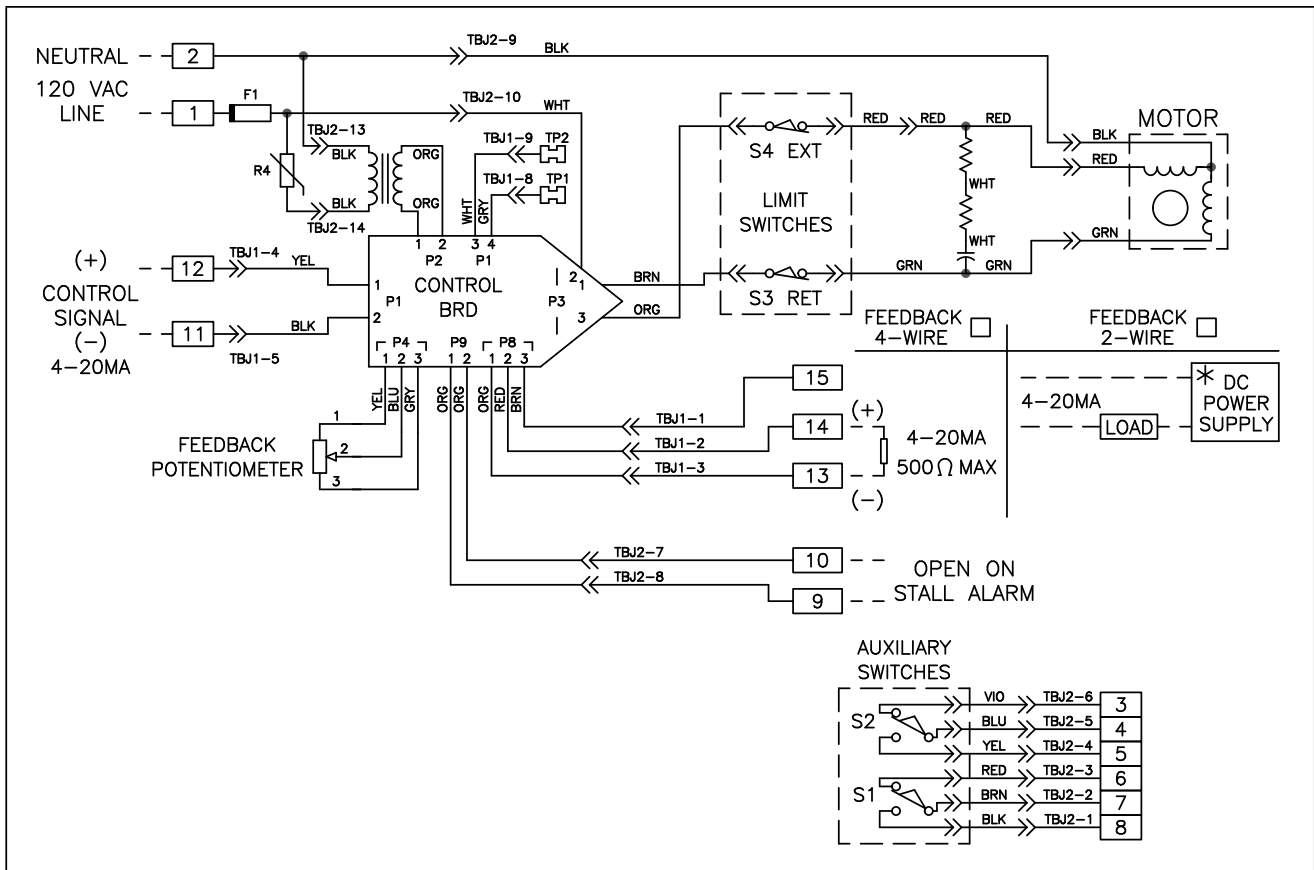
### 12-8064-62 (Option 7)

Part Number	Description
23-2143-07	Option 7 Control End Assembly
23-2142-01	Control End Base Assembly
20-0661-39	Conduit & Control End Gasket
10-8080-02	Control End Gasket
20-0661-36	Capacitor Cover Gasket
30-0323-60	Screw, .25-28 x .625 (3)
30-0329-33	Screw, .31-18 x 1.5 (4)
80-4284-50	Retrofit Instructions



**CONTROL END ASSEMBLY**  
 (Option 7 Shown -- other options similar)

**Figure 1**



**CONTROL OPTION 7 TYPICAL WIRING DIAGRAM**

**Figure 2**

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