



# RETROFIT INSTRUCTIONS

## CONTROL END RETROFIT KIT P/Ns 12-8064-50, -51, -52, -53

### PURPOSE

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

Maintenance to the Group 42 control drive should be performed in a clean working environment. If possible, the drive 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 drive 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 drive.
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 drive. 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 drive. Retain any fittings for installation of the new control end. Any wires which are routed through the conduit will need to be pulled free of the control end support plate so that the assembly can be removed.
6. Remove the capacitor cover by removing the (4) 1/4-20 hex head screws (located beneath the motor compartment).
7. Locate the three wire connections (red, black, and green) which lead from the control end. 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.
8. Remove the (4) 5/16-18 socket head screws which retain the control end assembly to the drive 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.
9. Carefully remove the control end assembly from the drive.

*Inspect the drive gaskets:*

10. Inspect the control end cover gasket, the conduit (& control end) gasket and the capacitor cover gasket on the drive body and replace, if necessary. If the gaskets are in good condition skip to step 15.
11. Clean the gasket face(s) on the drive body to remove all gasket material and adhesive. Inspect the cover mating face(s) to ensure no gasket material exists, clean as necessary.
12. 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 drive body.
13. Firmly press the new gasket(s) into place and allow time for the adhesive to set before continuing.
14. Repeat steps 10–13 for additional gaskets, if necessary.

*Install the new control end:*

15. Route the wire connectors through the drive body and connect the three wire connectors to their appropriate leads. Refer to the connections recorded in step 7.
16. 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.
17. Reconnect the conduit fittings to the control end support.
18. Route any external wiring into the drive through the conduit openings in the control end support.
19. Reconnect all wires to the appropriate terminals on the control end terminal board. Refer to the locations recorded in step 3. A wiring diagram is also included with these instructions for reference, see Figure 2.
20. Connect power to the drive.
21. Calibrate the drive per Beck Instruction Manual 80-0042-00.
22. Modulate the Demand signal to run the drive through its full range of motion. Verify the correct drive response.
23. Modulate the signal to several intermediate levels and note if the drive attains the proper position.
24. If the drive 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 drive to service.

**GROUP 42 CONTROL END RETROFIT KITS**

**12-8064-50 (Option 3)**

| Part Number | Description                    |
|-------------|--------------------------------|
| 23-2142-03  | Option 3 Control End Assembly  |
| 23-2142-01  | Control End Base Assembly      |
| 20-0661-39  | Conduit (& Control End) Gasket |
| 20-0661-36  | Capacitor Cover Gasket         |
| 10-8080-02  | Control End Gasket             |
| 71-0004-50  | Retrofit Instructions          |

**12-8064-51 (Option 5)**

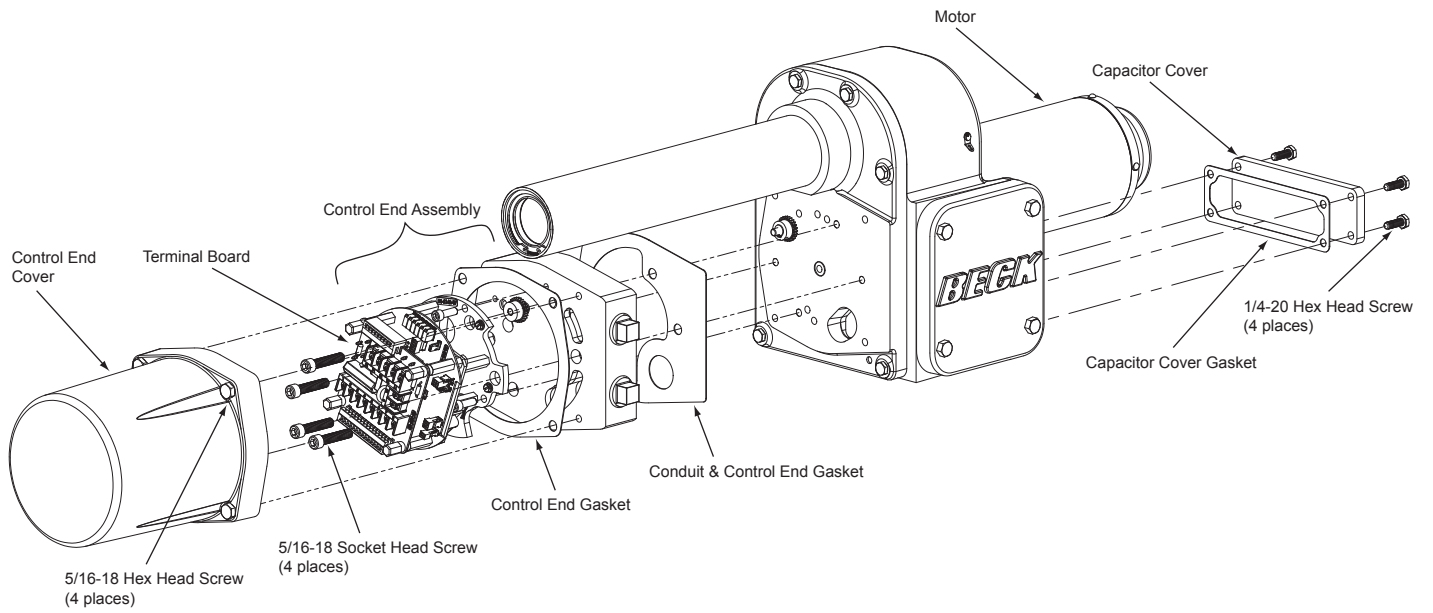
| Part Number | Description                    |
|-------------|--------------------------------|
| 23-2142-05  | Option 5 Control End Assembly  |
| 23-2142-01  | Control End Base Assembly      |
| 20-0661-39  | Conduit (& Control End) Gasket |
| 20-0661-36  | Capacitor Cover Gasket         |
| 10-8080-02  | Control End Gasket             |
| 71-0004-50  | Retrofit Instructions          |

**12-8064-52 (Option 7)**

| Part Number | Description                    |
|-------------|--------------------------------|
| 23-2142-07  | Option 7 Control End Assembly  |
| 23-2142-01  | Control End Base Assembly      |
| 20-0661-39  | Conduit (& Control End) Gasket |
| 20-0661-36  | Capacitor Cover Gasket         |
| 10-8080-02  | Control End Gasket             |
| 71-0004-50  | Retrofit Instructions          |

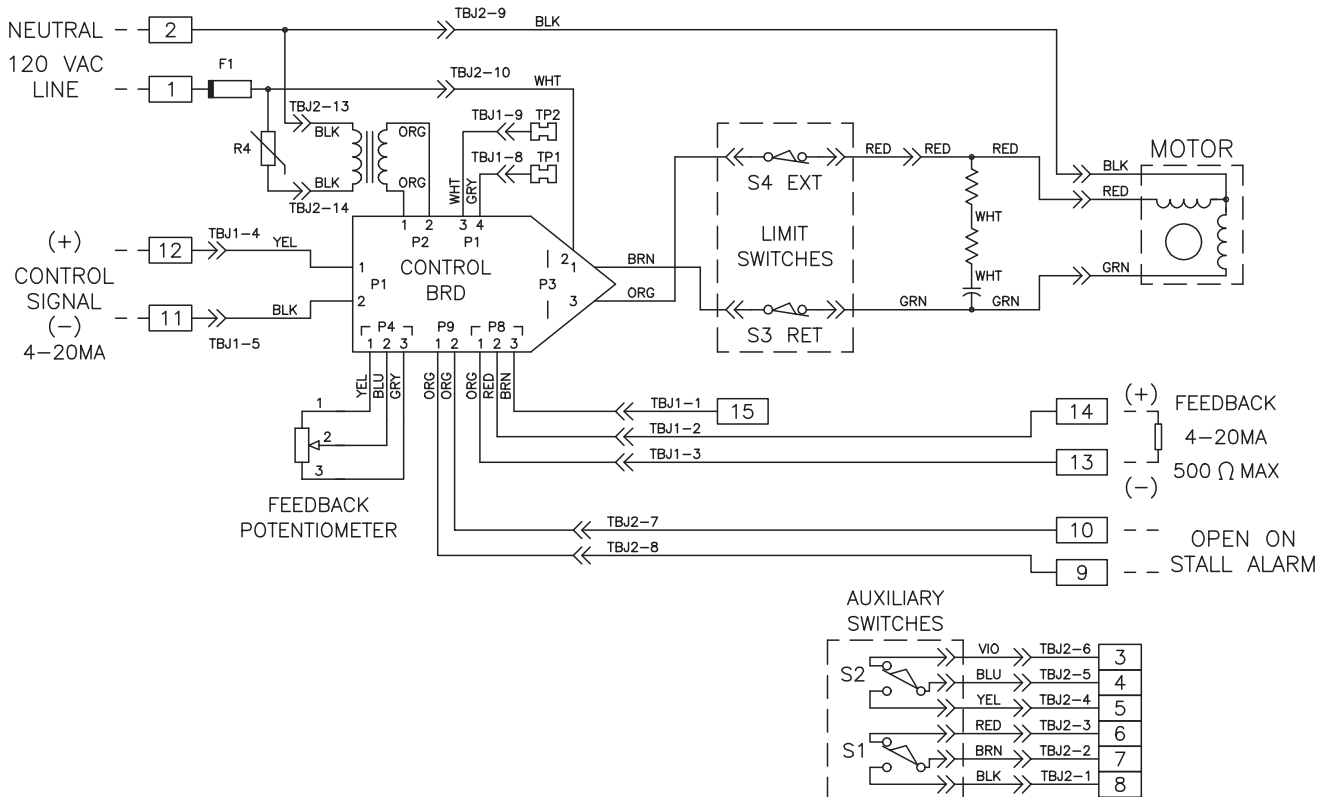
**12-8064-53 (5 Extra Switches)**

| Part Number | Description                          |
|-------------|--------------------------------------|
| 23-2142-30  | Control End Assy. - 5 Extra Switches |
| 23-2142-01  | Control End Base Assembly            |
| 20-0661-39  | Conduit (& Control End) Gasket       |
| 20-0661-36  | Capacitor Cover Gasket               |
| 10-8080-02  | Control End Gasket                   |
| 71-0004-50  | Retrofit Instructions                |



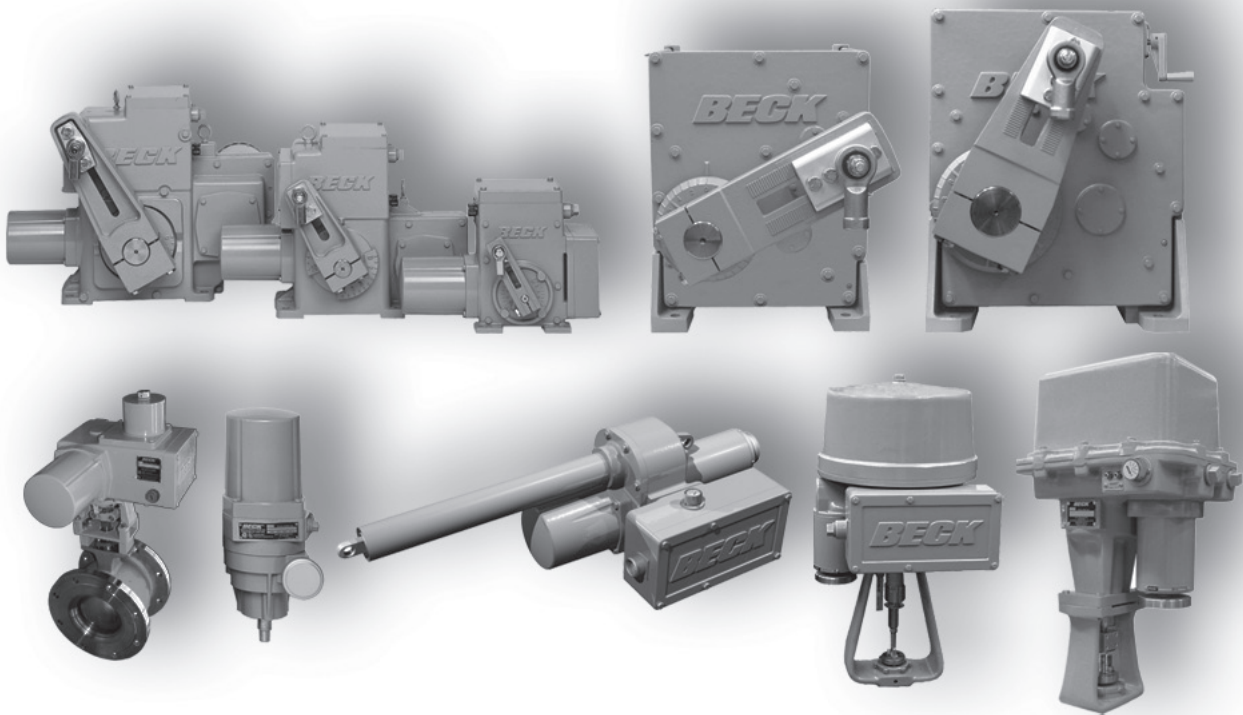
**CONTROL OPTION 7 SHOWN (other options similar)**

**Figure 1**



**CONTROL OPTION 7 WIRING DIAGRAM**

**Figure 2**



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