



REPLACEMENT INSTRUCTIONS

MOTOR RESISTORS REPLACEMENT KIT P/N 12-8064-14 MOTOR P/N 20-2703-50

PURPOSE

The purpose of these instructions is to provide a step-by-step method for replacing the Beck Group 42 motor resistors.

REQUIRED TOOLS

- 1/2" and 7/16" socket or wrench
- 3/16" flat-tipped screwdriver
- #1 Phillips head screwdriver
- Torque wrenches appropriate for 10 lb-ft and 72 lb-in
- Torque screwdriver appropriate for 10 lb-in, 19 lb-in and 5 lb-in
- Grounding strap
- Wire cutters
- Scotch™ 847 gasket adhesive 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

Refer to Figure 1 or 2 for component identification.

1. Remove power from the actuator.
2. Remove the (4) 1/4-20 hex head screws on the capacitor cover and remove the cover.
3. On Option 9 actuators, remove the terminal enclosure cover by loosening the (6) 5/16-18 hex head captive screws. On Option 3, 5, or 7 actuators remove the (4) 5/16-18 hex head screws to remove the resistor cover. If the actuator is a Control Option 3, 5, or 7, skip to Step 13; Control Option 9 actuators continue with Step 4.

Steps 4 thru 12 are applicable to Option 9 actuators only. All other actuator options skip to Step 13.

Remove the DCM and DCM mounting bracket:

4. Locate the Digital Control Module (DCM) board within the terminal enclosure.
5. Remove the wire harness connector from the top of the DCM board and any other wire connections from the DCM board.
6. Using a Phillips head screwdriver, loosen the (4) #10-32 captive fastening screws and carefully slide the DCM board out of its socket.



CAUTION
Observe precautions for handling electrostatic sensitive devices.

7. Place the DCM board into an anti-static bag and set aside in a safe place.
8. The DCM mounting bracket is attached to a wire harness and care must be taken not to damage the wires or the wire connectors during the removal process.
9. Remove the (4) 1/4-20 hex head screws from the DCM mounting bracket.
10. The bracket can be moved out of the way and held in place by a small length of wire or string.

Remove the terminal wiring board:

11. Remove the (4) #8-32 slotted head screws from the terminal wiring board.
12. The terminal wiring board, similarly to the DCM bracket, can be moved out of its mounting point to allow access to the motor resistor assembly below.

All Control Options:

Remove the old resistors:

13. Trace the three wires leading from the resistor assembly; there is a white wire and two red wires. All three wires lead to wire joints within the capacitor cavity. Record the connection location of each of these wires.

14. Record the orientation of the resistor assembly in the actuator.
15. Disconnect the wires at their connectors. It will be necessary to reach around to the capacitor cavity to disconnect the wires from their connections.
16. **Control Option 3, 5, 7**—Clip the (3) cable ties holding down the resistor connector to the black wire leading into the actuator. Be careful not to sever or damage any of the wires.
17. Remove the (4) #4-40 (two screws per resistor) Phillips head screws from the mounting feet of the resistors.
18. Lift the resistor assembly out of the actuator.

Install the new resistors:

19. Obtain the new resistor assembly and insert it into its mounting location. Refer to the orientation of the old resistor assembly recorded in Step 14.
20. Install the (4) #4-40 Phillips head screws into the mounting feet of the resistors (two screws per resistor) and torque the screws to 5 lb-in.
21. **Control Option 3, 5, 7**—Install (3) new cable ties to hold the resistor lead wires to the black wire leading into the actuator.
22. Reconnect the resistor wire leads in the same locations as the old leads were attached. (One red wire to the motor, the other red wire to the control end and the white wire to the capacitor). If the actuator is Control Option 3, 5, or 7, skip to Step 31.

Control Option 9 Only:

Reinstall the terminal wiring board:

23. Manipulate the terminal wiring board back to its mounting location.
24. Install the (4) #8-32 slotted head screws into the terminal wiring board and torque the screws to 19 lb-in.

Reinstall the DCM bracket and DCM:

25. Manipulate the DCM bracket back to its mounting location.
26. Install the (4) 1/4-20 hex head screws onto the bracket and torque the screws to 72 lb-in.
27. Remove the DCM from its anti-static bag.

28. Carefully plug the DCM board into its socket on the chassis bracket, located within the terminal enclosure of the actuator.
29. Using a screwdriver, tighten the #10-32 captive fastening screws on the board. Torque to 19 lb-in.
30. Reattach the wire harness connector to the plug located at the top of the DCM board and any other wire connectors to the DCM board.

All Control Options:

Inspect the cover gasket(s):

31. Inspect the terminal enclosure cover gasket (or the resistor cover gasket) and the capacitor cover gasket and replace them, if necessary. If the gaskets are in good condition, skip to Step 36.
32. Clean the gasket face on the actuator body to remove all gasket material and adhesive. Inspect the cover mating face to ensure no gasket material exists, clean as necessary.
33. Apply a thin film of gasket adhesive (Scotch™ 847 or equivalent) to the mating face of the actuator body.
34. Firmly press the new gasket into place and allow time for the adhesive to set before continuing.
35. Repeat steps 31–34 to replace any additional gaskets, if necessary. Reinstall the cover(s) and torque the screws per Table 2. If the actuator has been removed from its mounting position, reinstall it.
36. Make certain the Handswitch is in the STOP position.
37. Restore power to the actuator.
38. Apply power and operate the Handswitch to observe the motor and actuator for proper operation.
39. Restore the actuator to service.



CAUTION

Observe precautions for handling electrostatic sensitive devices.

Table 1: Resistor Assembly Replacement Kit

Part Number	Description
20-1973-01	Resistor Assembly
20-0660-76	Terminal Cover Gasket
20-0661-36	Motor Capacitor Cover Gasket
20-0661-37	Resistor Cover Gasket
13-2490-01	Cable Tie

Table 2: Cover Bolt Torques

Cover Description	Screw Description	Recommended Torque
Capacitor Cover (all actuators)	1/4-28	72 lb-in (8 N•m)
Terminal Cover (Option 9 only)	5/16-18	10 lb-ft (14 N•m)
Resistor Cover (Option 3, 5, 7 only)	5/16-18	10 lb-ft (14 N•m)

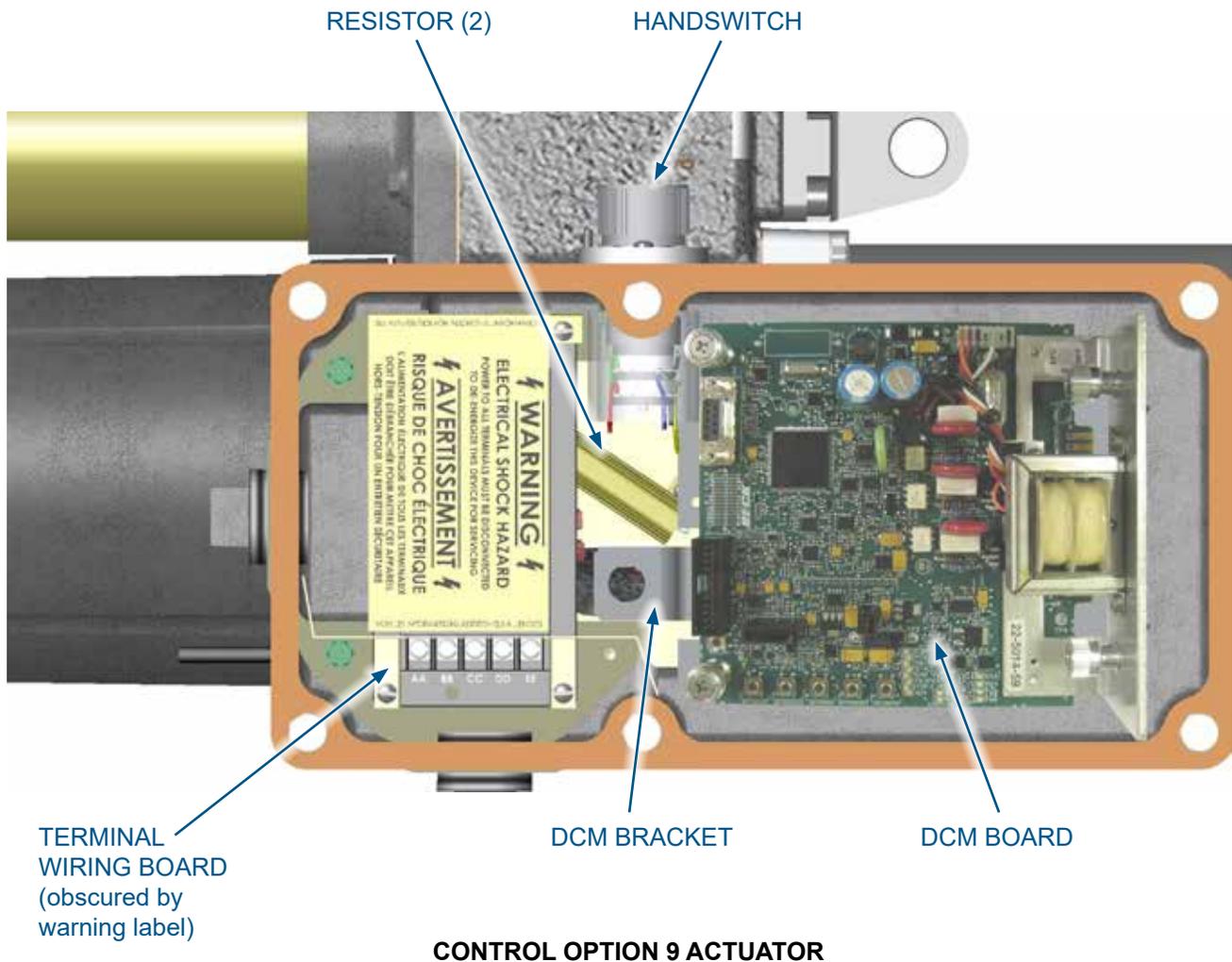
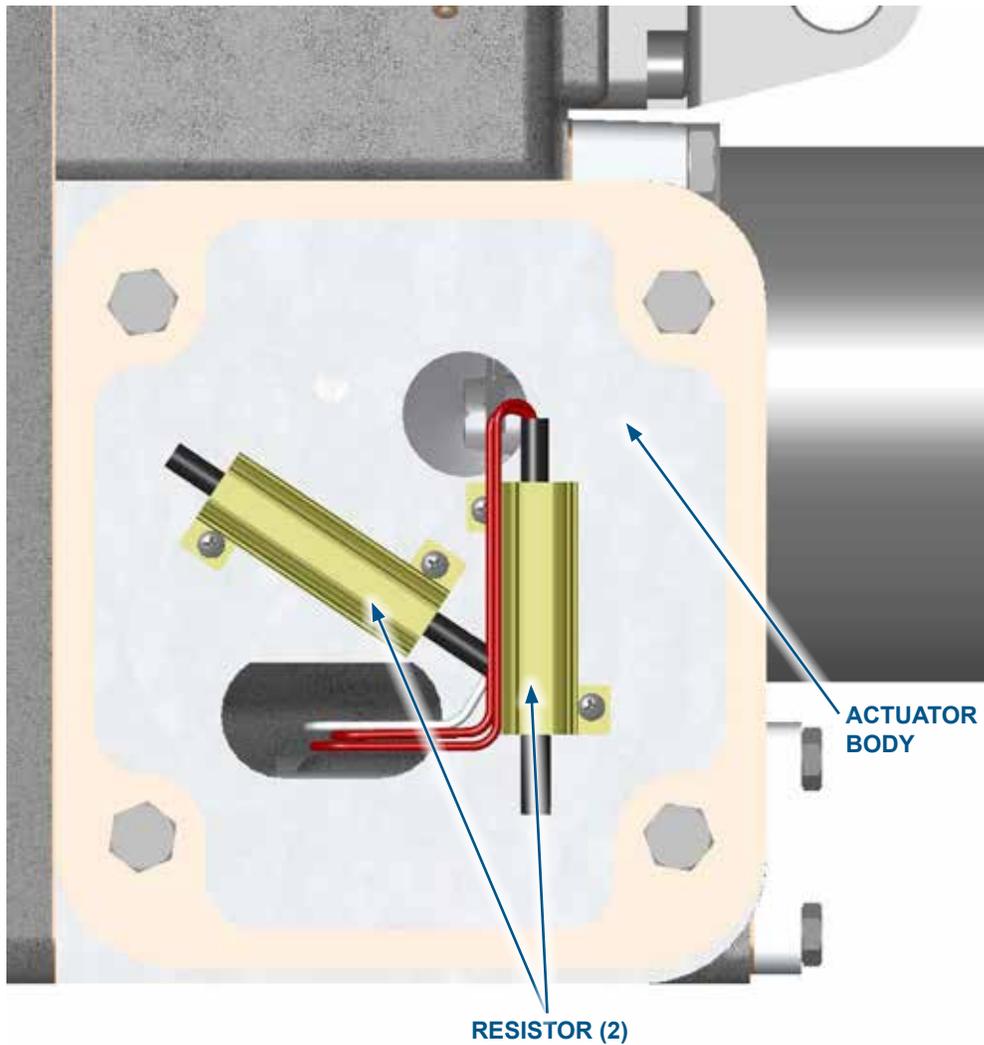


Figure 1



CONTROL OPTION 7 ACTUATOR (5 & 3 SIMILAR)

Figure 2

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11 TERRY DRIVE • NEWTOWN, PENNSYLVANIA 18940 • USA
PHONE: 215-968-4600 • FAX: 215-860-6383 • E-MAIL: sales@haroldbeck.com
www.haroldbeck.com

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