



# REPLACEMENT INSTRUCTIONS

## CONTROL END ASSEMBLY REPLACEMENT KIT P/N 12-8064-55

### PURPOSE

The purpose of these instructions is to provide a step-by-step method for replacing the Beck 42-109 control end assembly. The screws and washers included in Table 1 are provided as part of the replacement kit in the event that some are lost while servicing the actuator. The subassemblies listed in Table 2 are included with the control end assembly. The replacement control end assembly has been fully calibrated at the factory. This replacement procedure will return the actuator to a close approximation of its original calibration. Do not calibrate the actuator until this procedure is complete, and then only if necessary. Refer to Beck Instruction Manual 80-0042-01 for complete calibration instructions.

### REQUIRED TOOLS

- 1/2" socket or wrench
- 3/32" hex driver
- Scotch™ 847 gasket adhesive or equivalent
- Torque wrenches appropriate for 12 lb-in and 10 lb-ft
- Fine point marker
- 3/16" flat-tipped screwdriver
- Grounding strap
- Wire cutter



#### 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 assembly:*

Refer to Figure 1 for component identification.

1. Remove power from the actuator.
2. Remove the control end cover by loosening the (4) 5/16-18 hex head captive screws. Be careful not to bend the control shaft or damage the position-sensing assembly inside.



#### CAUTION

**To prevent Electro-Static Discharge damage to the electronics, wear a grounding strap during this procedure.**

3. Cut the small cable tie which connects the switch assembly lead wires to the Printed Circuit board lead wire.
4. Disconnect the control end assembly electrical circuits by unplugging the three multi-pin connectors from the actuator. Two connectors lead from the switch subassembly and the other connector leads from the P.C. board. To disconnect the switch subassembly connectors, use a 3/16" flat-tipped screwdriver to press the release tab straight back (see Fig. 1) and pull the plug out of its socket. The connector leading from the P.C. board slides off with modest force.
5. Loosen the outermost setscrew on the coupling. Do not loosen the inner setscrew.
6. Use a fine point marker to note the position of the control end relative to the actuator body. Mark the face of the actuator immediately adjacent to the top of the notch (see Fig. 2).
7. Loosen (do not remove) the mounting clamp screws, (4) #8-32 socket button head screws (2 per clamp), and slide the top clamp up over the edge of the shoulder in the actuator, immediately above the stator flange. Snug one of the screws to hold the clamp up while replacing the assembly. Allow the bottom clamp to hang by the screws.
8. Slide the control end assembly away from the actuator body until it clears the control end shaft.

*Install the new assembly:*

9. Inspect the control end cover gasket and replace as necessary. If the gasket is in good condition, skip to step 15.
10. Protect the CPS-4 with a static-free cover.

*Continued*

11. Clean the mating face on the actuator body to remove all gasket material and adhesive. Use caution not to damage or bend the control shaft. Ensure that the mating surface is free of defects such as dents or gouges.
12. Apply a thin film of gasket adhesive (Scotch™ 847 or equivalent) to the mating face of the actuator body.
13. Firmly press the new gasket into place and allow time for the adhesive to set before continuing.
14. Remove the protective cover from the CPS-4.
15. Slide the new assembly onto the shaft, turning the coupling (if necessary) to align the assembly with the shaft. Align the notch in the stator with the locating pin situated to the left of the control end shaft (see Fig. 2).
16. Loosen the clamp screw to allow the top clamp to drop into place over the upper rim of the stator. Rotate the assembly as necessary to align the top of the notch with the mark made earlier on the actuator face. Snug the screws down on the plate. Raise the bottom clamp into position and snug its screws down. Check the clamps for proper

shoulder clearance and tighten the (4) #8-32 socket button head screws to 12 lb-in torque.

17. Plug the pin connectors into their respective sockets.
18. Tighten the outer setscrew on the coupling. To properly align the assembly, make sure that the setscrew is properly lined up with the flat on the shaft. Torque screw to 12 lb-in.

*Test for proper operation:*

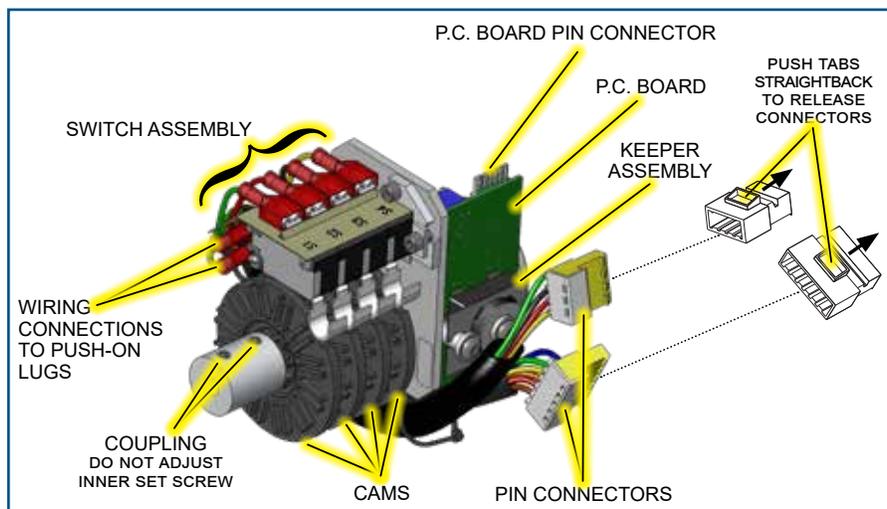
19. Connect power to the actuator.
20. Modulate the demand signal to run the actuator through its full range of motion. Verify the correct actuator response.
21. Modulate the signal to several intermediate levels and note if the actuator attains the proper position.
22. If the actuator responds correctly, 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.
23. If the actuator does not respond correctly, refer to the troubleshooting and calibration sections of Beck Instruction Manual 80-0042-01.

**Table 1: Control End Replacement Kit**

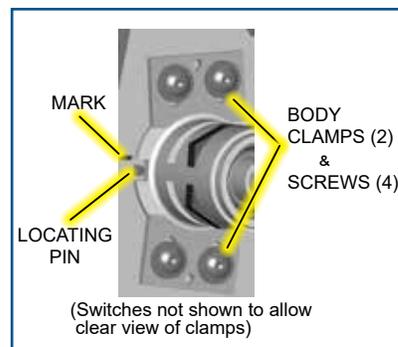
Part Number	Description
23-2500-54	Control End Assembly
30-0329-35	Screw 8-32 x 1/2" (4)
30-0313-31	Flat Washer #8 (4)
30-0327-20	Lock Washer #8 (4)
10-8080-02	Control End Gasket
13-2490-01	Cable Tie

**Table 2: Subassembly Kits**

Part Number	Description
12-8064-56	Switch Assembly
12-8064-07	CPS-4 P.C. Board
12-8064-08	CPS-4 Coupling with (2) #10-32 Screw Socket Set w/ Brass Flat Tip



**Figure 1**



**Figure 2**

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PHONE: 215-968-4600 • FAX: 215-860-6383 • E-MAIL: sales@haroldbeck.com

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