CCP2-FLC2-___ flange-cable operating mechanism

General information
These instructions cover the installation and operation of the following Bussmann series flange cable operating mechanisms installed on 2- or 3-pole versions of the fused 200 and 400 amp Compact Circuit Protector (CCP2) switches, and 3-pole versions of the non-fused 200 and 400 amp Compact Circuit Disconnect (CCD2) switches.

<table>
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<th>Catalog no.</th>
<th>Description</th>
<th>NEMA rating</th>
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<tr>
<td>CCP2-FLC2-36</td>
<td>36&quot; Cable with painted handle</td>
<td>1, 3R, 12</td>
</tr>
<tr>
<td>CCP2-FLC2-36X</td>
<td>36&quot; Cable with chrome handle</td>
<td>4X</td>
</tr>
<tr>
<td>CCP2-FLC2-60</td>
<td>60&quot; Cable with painted handle</td>
<td>1, 3R, 12</td>
</tr>
<tr>
<td>CCP2-FLC2-60X</td>
<td>60&quot; Cable with chrome handle</td>
<td>4X</td>
</tr>
<tr>
<td>CCP2-FLC2-120</td>
<td>120&quot; Cable with painted handle</td>
<td>1, 3R, 12</td>
</tr>
<tr>
<td>CCP2-FLC2-120X</td>
<td>120&quot; Cable with chrome handle</td>
<td>4X</td>
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When installing the optional auxiliary contacts (cat. no. CCP2-AUX-225) with the flange cable operating mechanism, the auxiliary contacts must be installed on the switch's left side.

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Required tools
- #1 Phillips head screwdriver
- 1/4˝ blade screwdriver
- Needle nose pliers
- 5/32˝ Allen wrench
- 3/8˝ open end wrench
- 7/16˝ open end wrench
- (2) 11/16˝ open end wrenches
- #8-32 tap and suitable drill bit
- Electric drill
- Hacksaw
- Metal file

Before proceeding, please review flange cable kit contents to be sure all parts are included. If any are missing, please contact your local Bussmann series product representative.

Installation

Part 1 — Assemble operator mechanism onto switch

Step 1. Test fit the shaft into right side of switch by inserting until fully seated (see Fig. 1-1). If shaft protrudes beyond the left side, mark and trim shaft accordingly with hacksaw. Remove burrs with metal file. Note: if mounting auxiliary contacts (cat. no. CCP2-AUX225) trim shaft sufficiently to permit inserting the auxiliary contact’s mechanical drive - be careful not to trim shaft in excess of what’s needed for the auxiliary contact to fully seat against the switches left side.

Step 2. Place switch in ON position and insert shaft into the switch’s right side until fully seated. Take care to align the shaft’s lever so that it’s aligned with the switch handle position (see Fig. 1-2).

Step 3. Secure mechanism frame to the switch’s right side using four 3.5 x 9 mm Phillips head screws and torque to 12 lb-in (see Fig. 1-3).

Step 4. Mount support bracket to mechanism frame using the two 6-32 Phillips head screws with 6-32 washers and 6-32 lock washers and until hand tight (see Fig. 1-4).

Step 5. Assemble cable end to shaft lever with 1/4˝ shoulder bolt, spring, two 1/4˝ washers and 1/4˝ locknut in order shown (see Fig. 1-5). Tighten nut until secure.

Step 6. Loosen cable adjustment nuts and washers sufficiently to fully seat cable into the mechanism frame as shown in Fig. 1-6. Hand tighten nuts until final adjustment (Part 2, Steps 8 through 10).

Step 7. Stretch the spring and insert its small end into the hole on mechanism frame as shown in Fig 1-7.

Step 8. Install the switch following the instructions provided with the product. Be sure the switch’s mounting position does not create a minimum cable bending radius that is less than 4 inches.

Step 9. Once switch is installed, secure support bracket to the panel wall by locating, drilling and tapping a 8-32 hole for the mounting screw (see Fig. 1-8). Loosen screws holding the bracket to the mechanism frame, position bracket, install the 8-32 screw and 8-32 lock washer, and tighten to the back panel wall. Finish by tightening the two screws holding the support bracket to the mechanism frame.

The switch/mechanism installation is now complete. Proceed to handle installation.

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### Fig. 1-1. Test fit shaft.

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### Flange handle hardware

- 1x - 1/4˝ E-Ring
- 2x - 1/4˝ Lock washer
- 4x - 8-32 x .375˝ Screw
- 1x - Door hasp
- 1x - Interlock hook - Short
- 1x - Interlock hook - Long
- 1x - Adapter Link
- 1x - Handle spring
- 1x - Interlock hook - Mounting bracket

### Operator mechanism hardware

- 4x - 3.5 x 9 mm Screw
- 2x - 6-32 x 0.25˝ Screw
- 1x - 8-32 x 0.5˝ Screw
- 1x - 1/4˝ Shoulder bolt
- 2x - 1/4˝ Washer
- 2x - 1/4˝ Lock washer
- 1x - 8-32 Washer
- 1x - 8-32 Lock washer
- 2x - 6-32 Washer
- 2x - 6-32 Lock washer
- 1x - 6-32 Washer
- 1x - 6-32 Lock washer
- 4x - 3.5 x 9 mm Screw
**Fig. 1-2.** Align shaft lever with switch handle.

**Fig. 1-3.** Secure mechanism frame to switch using four phillips head screws.

**Fig. 1-4.** Mount support bracket to mechanism frame.

**Fig. 1-5.** Assemble cable to shaft lever.

**Fig. 1-6.** Cable installation on mechanism frame.

**Fig. 1-7.** Hook small end of spring into hole on mounting frame, then long end onto the shoulder bolt, between the cable end and the two washers.

**Second,** pull long end of spring forward and hook to shoulder bolt between the cable end and the two washers.

**First,** hook short end of spring into the hole on the rear of the mechanism frame.

**Loosen cable adjustment nuts and place cable in mechanism frame**

**Adjust support bracket so it's flush with the panel and tighten the two screws.**

**Insert 8-32 screw with washer and lock washer into support bracket and tighten.**

**Fig. 1-8.** Installing support bracket to panel wall.
Part 2 — Assemble flange handle onto enclosure
Refer to Fig 2-1, unless otherwise noted.

Step 1. Place the outer handle mechanism with attached gasket over the enclosure cutout. (For cut-out dimensions, refer to Fig 3-1). Insert the top 1/4-20 outer handle mechanism mounting screw and lock washer through the enclosure and thread into the outer handle mechanism for a few turns, but not all the way.

Step 2. Slide the toggle mechanism assembly over the top of the handle mounting screw installed in Step 1. Insert the bottom outer handle mechanism mounting screw and lock washer through the toggle mechanism bracket, through the enclosure, into the handle.

Step 3. Securely tighten both mounting screws.

Step 4. Insert the adapter link into the bell crank's pin via the largest hole on the link (see Fig. 2-3). Secure the adapter link by inserting the E-ring into the slot on the bell crank pin.

Step 5. Rotate the bell crank towards the handle and rotate the handle to the ON position. Align the adapter link and attach it to the actuator link using the 1/4-20 pan head screw and nut. See Fig 2-4.

Step 6. Connect the spring’s long end through the adapter link’s hole. Hook the spring’s shorter end into the tab on the lower portion of the toggle mechanism. See Fig 2-5.

Step 7. Mount door interlock hasp to handle using two #8-32 SEMS screws. See Fig. 2-2. Hasp orientation may be modified per customer requirements and enclosures.

Step 8. Close enclosure door and check operation of door interlock hardware, adjust if necessary.

Step 9. Cycle handle ON and OFF to check switch operation. To cycle the mechanism, either close door or defeat door interlock lever.

Step 9a. If switch cycles correctly, proceed to tighten cable adjustment nuts on switch mechanism. If switch does not cycle ON and OFF, proceed to Step 10.

Step 10. Adjust cable position by loosening cable adjustment nuts on switch and repositioning the cable up or down until satisfactory operation is obtained (see Fig. 2-6). Tighten cable adjustment nuts to 70 lb-in when finished with adjustment.

**NOTE:** Assemble these items after handle is mounted to the enclosure.
Place long end of spring through hole in tab of toggle mechanism.

Attach short end of spring through hole in adapter link.

**Figure 2-5.** Spring assembly to toggle mechanism.

Loosen cable adjustment nuts and adjust up or down until satisfactory ON/OFF operation is achieved.

Tighten nuts when complete.

**Figure 2-6.** Adjust switch operation by loosening cable adjustment nuts and repositioning cable up or down.
The instructions for installation, testing, maintenance, or repair herein are provided for the use of the product in general commercial applications and may not be appropriate for use in nuclear applications.

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