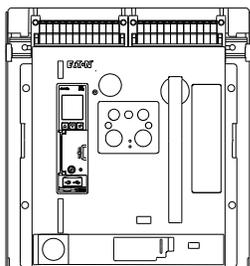


# Operation counter - RF

## Instructions apply to:



UL489 : PD-RF  
IEC : PD-RF, IZMX40

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### **⚠ WARNING**

- (1) ONLY QUALIFIED ELECTRICAL PERSONNEL SHOULD BE PERMITTED TO WORK ON THE EQUIPMENT.
- (2) ALWAYS DE-ENERGIZE PRIMARY AND SECONDARY CIRCUITS IF A CIRCUIT BREAKER CANNOT BE REMOVED TO A SAFE WORK LOCATION.
- (3) DRAWOUT CIRCUIT BREAKERS SHOULD BE LEVERED (RACKED) OUT TO THE DISCONNECT POSITION.
- (4) ALL CIRCUIT BREAKERS SHOULD BE SWITCHED TO THE OFF POSITION AND MECHANISM SPRINGS DISCHARGED.
- FAILURE TO FOLLOW THESE STEPS FOR ALL PROCEDURES DESCRIBED IN THIS INSTRUCTION LEAFLET COULD RESULT IN DEATH, BODILY INJURY, OR PROPERTY DAMAGE.
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### **⚠ WARNING**

THE INSTRUCTIONS CONTAINED IN THIS IL AND ON PRODUCT LABELS HAVE TO BE FOLLOWED. OBSERVE THE FIVE SAFETY RULES:

- DISCONNECTING
- ENSURE THAT DEVICES CANNOT BE ACCIDENTALLY RESTARTED
- VERIFY ISOLATION FROM THE SUPPLY
- EARTHING AND SHORT-CIRCUITING
- COVERING OR PROVIDING BARRIERS TO ADJACENT LIVE PARTS

DISCONNECT THE EQUIPMENT FROM THE SUPPLY. USE ONLY AUTHORIZED SPARE PARTS IN THE REPAIR OF THE EQUIPMENT. THE SPECIFIED MAINTENANCE INTERVALS AS WELL AS THE INSTRUCTIONS FOR REPAIR AND EXCHANGE MUST BE STRICTLY ADHERED TO PREVENT INJURY TO PERSONNEL AND DAMAGE TO THE SWITCHBOARD.

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### Section 1: General Information

The optional operation counter is a mechanical device used to provide a record of the number of circuit operations. It can be viewed through the breaker's front cover (**Figure 1**).

An operation counter kit is comprised of the counter assembly and a mounting screw. The counter assembly consists of the following:

- Counter with mounting screw (M3 x 5) (**Figure 2**)
- Counter lever, screw (M2 x 8) and hex nut (M2) (**Figure 3**)

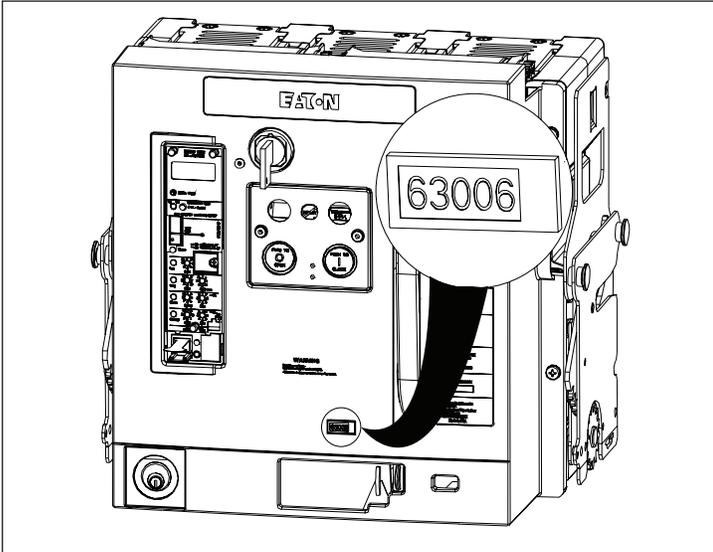


Figure 1. Installed Operation Counter Shown

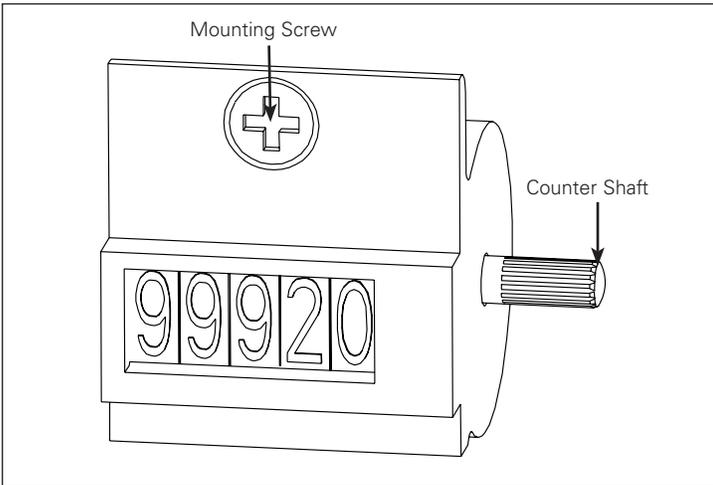


Figure 2. Counter with Mounting Screw

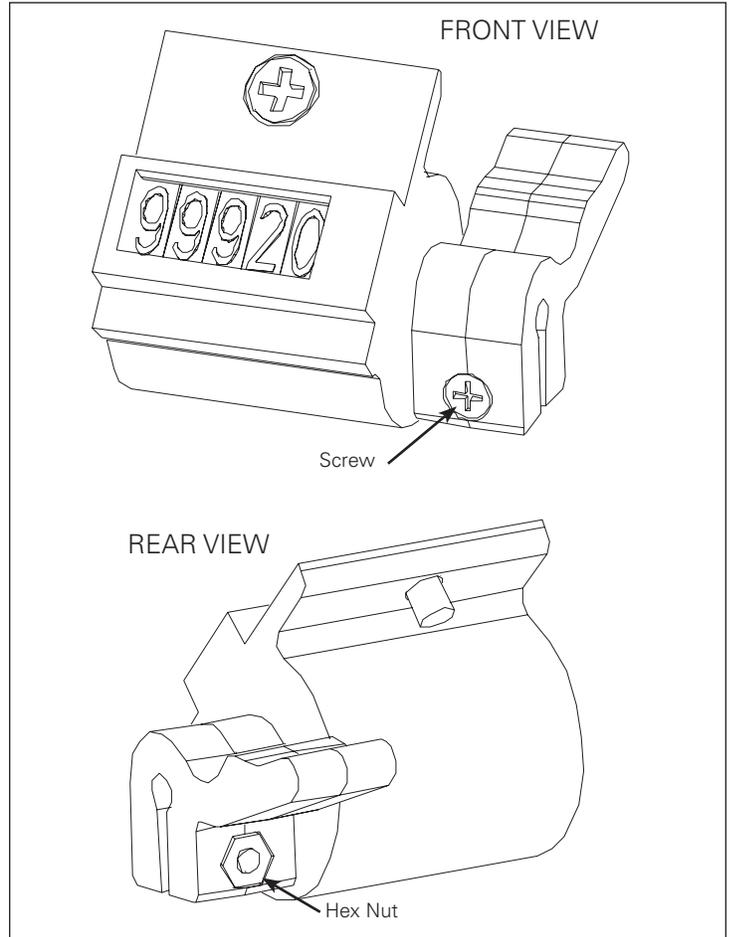


Figure 3. Counter Lever Mounted with Screw and Hex Nut

### Section 2: Installation of Operation Counter

Proceed with the following 11 steps:

**Step 1:** Remove the four screws (six for 4-pole breaker) holding the front cover in place (two on each side of the cover).

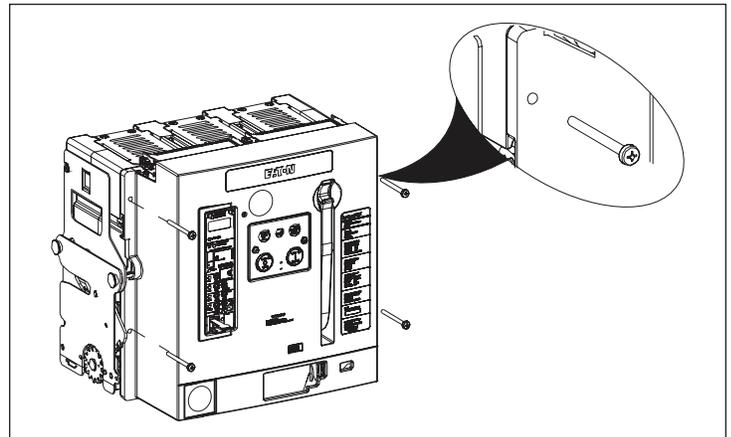


Figure 4. Step 1

**Step 2:** Remove the front cover. Pull down on the charging handle to simplify removal.

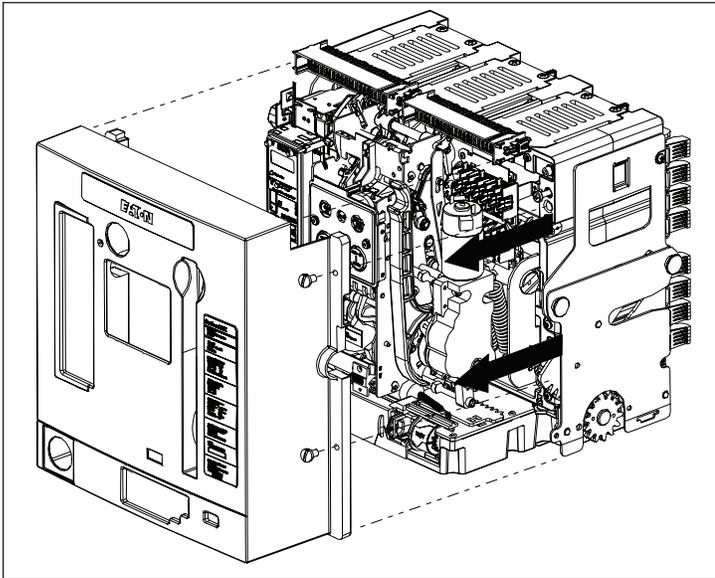


Figure 5. Step 2

**Step 3:** If the counter lever is already loosely installed on the counter shaft as shown in **Figure 3**, skip Step 3 and go to Step 4. If the counter lever is not loosely installed on the counter shaft, proceed with Step 3. Loosely install the counter lever on the counter's shaft (**Figure 6**) using the provided M2 x 0.4 screw and nut. The screw should not be torqued tight at this point to permit movement of the counter lever on the shaft.

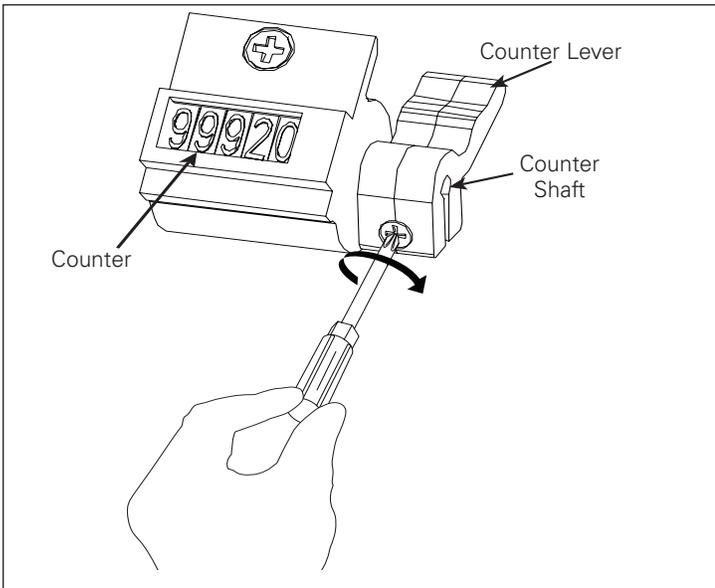


Figure 6. Step 3

**Step 4:** Make certain that mechanism springs are discharged and the breaker is open before proceeding. Install the counter assembly, which includes the counter and loosely mounted counter lever, onto the top of the counter bracket using the single M3 x 0.5 mounting screw. The counter bracket is located on the breaker front and has a threaded hole for the mounting screw. Torque the mounting screw to 44 in-oz (0.31 Nm).

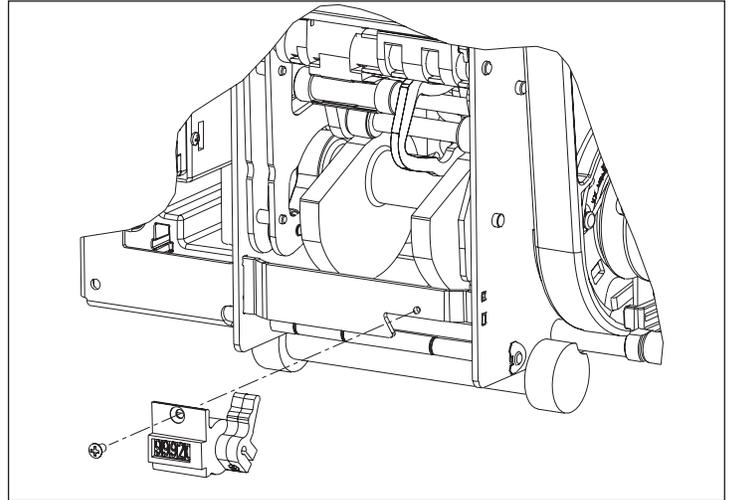


Figure 7. Step 4

**Step 5:** With the counter assembly installed and properly torqued, apply some magna-lube type grease to the counter lever and rocker arm contact surfaces. The rocker arm is located on the right side below the counter bracket.

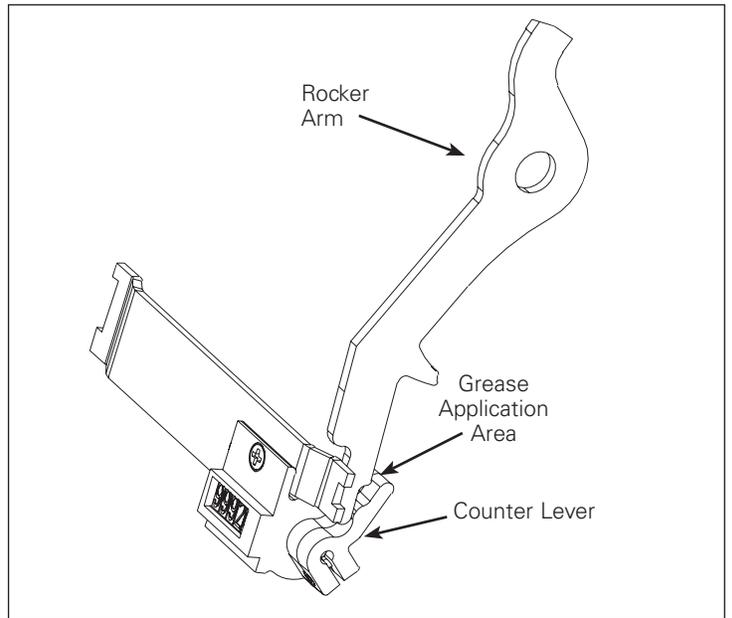


Figure 8. Step 5

**CAUTION**

THE COUNTER LEVER THAT IS POSITIONED AND TORQUED TIGHT IN THE NEXT TWO STEPS SHOULD NEVER BE INSTALLED UP AGAINST THE COUNTER CASE OR THE MECHANISM SIDE SHEET TO AVOID ANY UNNECESSARY FRICTION WITH THE COUNTER CASE OR THE THE SIDE SHEET. THE COUNTER LEVER SHOULD BE LOCATED TOWARD THE END OF THE COUNTER SHAFT. FAILURE TO FOLLOW THIS CAUTION AND MAINTAIN SPACE BETWEEN THE COUNTER LEVER AND THE COUNTER CASE, OR THE COUNTER LEVER AND THE MECHANISM SIDE SHEET COULD RESULT IN IMPROPER OPERATION OF THE COUNTER AND/OR COUNTER DAMAGE.

**Step 6:** Rotate the loosely mounted counter lever in a counterclockwise direction until it is in solid contact with the rocker arm. Maintain this contact and proceed to Step 7.

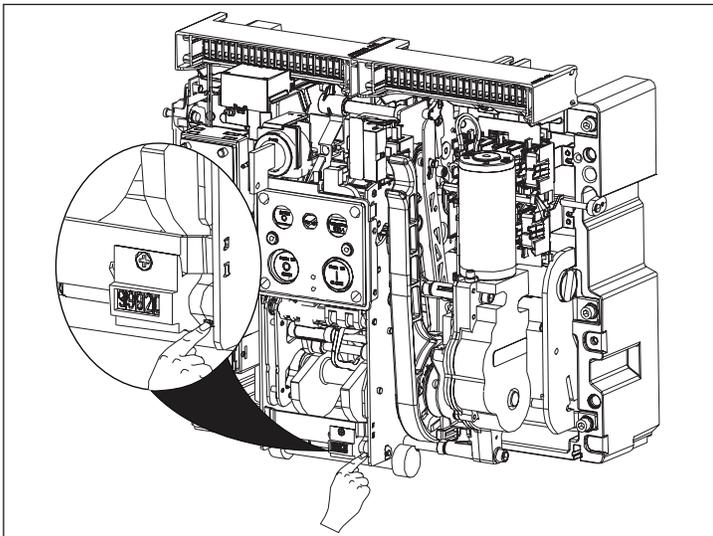


Figure 9. Step 6

**Step 7:** With the counter lever in solid contact with the rocker arm, torque the counter lever screw to 26 in-oz (0.18 Nm). The force naturally applied to the counter lever by the screwdriver during the torquing process will keep the counter lever in contact with the rocker arm. Ensure that the gap between the counter lever and mechanism side sheet is 0.05"-0.10" (1.27 mm - 2.54 mm).

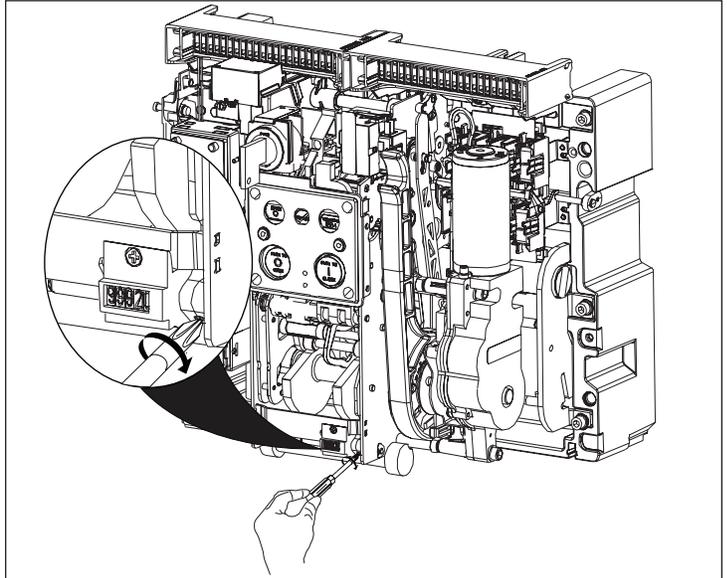


Figure 10. Step 7

**Step 8:** Manually advance the counter numeric display until it reads zero.

**Step 9:** With the counter assembly now installed, place the front cover previously removed in Step 2 on an appropriate work surface front side up. Put a rigid support under the knockout window. Using a punch and small hammer, carefully punch out a rectangular viewing window in the lower center portion of the front cover. If necessary, use a small file to remove any burrs from the window. Make certain that all pieces and/or particles are cleaned up and removed before proceeding to Step 10.

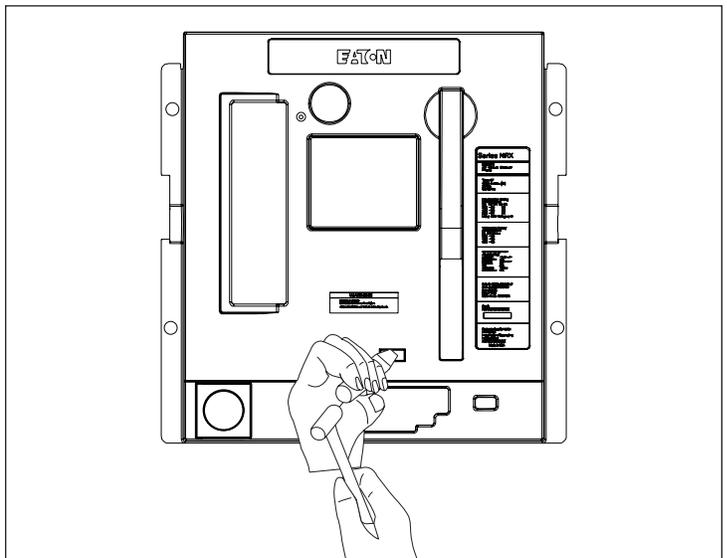


Figure 11. Step 9

**Step 10.** Replace the front cover and secure it in place with the mounting screws previously removed in Step 1. When replacing the front cover, ensure that the knockout hole in the cover is aligned with the operation counter front.

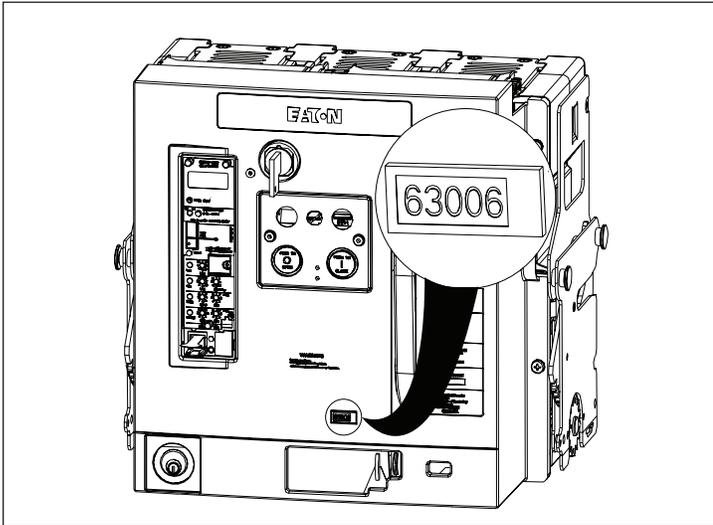


Figure 12. Step 10

**Step 11:** Test the counter with the front cover in place. If it is a drawout breaker, lever (rack) it to the TEST position.

### Section 3: Removal of operation counter

To remove the operation counter, perform Steps 1 and 2 of Section 2 to remove the front cover of the breaker. Complete the removal process by reversing the process as described in Steps 3 through 7 of Section 2.

### Section 4: Operation counter maintenance and adjustment

During the life of the product, the operation counter should not need to be adjusted. It is, however, a good and recommended practice to perform counter maintenance and adjustment during general maintenance intervals.

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**⚠ WARNING**

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**BEFORE PERFORMING ANY MAINTENANCE AND/OR ADJUSTMENT ACTIVITIES, DRAWOUT BREAKERS SHOULD BE LEVERED (RACKED) OUT TO THE DISCONNECT POSITION. DE-ENERGIZE PRIMARY AND SECONDARY CIRCUITS IF A CIRCUIT BREAKER CANNOT BE REMOVED TO A SAFE WORK LOCATION. ALL CIRCUIT BREAKERS SHOULD BE SWITCHED TO THE OFF POSITION AND MECHANISM SPRINGS DISCHARGED. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN DEATH, BODILY INJURY, OR PROPERTY DAMAGE.**

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Perform maintenance/adjustment activities by following these seven steps:

**Step 1:** Remove the front cover of the circuit breaker as previously described in Steps 1 and 2 of Section 2.

**Step 2:** Loosen the counter lever screw by one turn. Refer to **Figure 6**.

**Step 3:** Loosen the counter mounting screw by one turn. Refer to **Figure 7**.

Apply some fresh magna-lube type grease to the counter lever and rocker arm surfaces. Refer to **Figure 8**.

**Step 4:** Slightly lift the counter from the front and re-torque the counter lever screw first to 26 in-oz (0.18 Nm). Refer to Step 7 of Section 2.

**Step 5:** Re-torque the counter mounting screw second to 44 in-oz (0.31 Nm).

Refer to Step 4 of Section 2.

**Step 6:** Replace the front cover, and secure it in place with the mounting screws previously removed in Step 1. When replacing the front cover, ensure that the knockout hole in the cover is aligned with the operation counter front.

**Step 7:** Test the counter with the front cover in place. If it is a drawout breaker, lever (rack) it to the TEST position.

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