



Record Plus™ Molded Case Circuit Breaker Accessories

Rotary Handle Operator, Type FNRH

Congratulations and thank you for choosing the **Record Plus™** family of current-limiting circuit breakers. The UL-listed Type FNRH rotary handle operator kit is suitable for use with the FC100 circuit breaker series in NEMA 1 and 12 enclosures.

Record Plus™ circuit breakers are designed with a full line of integrated accessories. All units use the latest in integrated modular circuit breaker technology for flexibility in application and maximizing the product's utilization and capabilities.

All **Record Plus™** circuit breakers are listed by Underwriters Laboratories to the UL489 standard and the CSA Standard C22.2, No. 5. These circuit breakers are certified to IEC60947-2.

These accessories are also for use with our MAG-BREAK® instantaneous trip-only circuit breakers, which meet the same standards and are UL-recognized components for use in motor applications. They can also be used with our molded case switches, which are listed per Underwriters Laboratories to the UL489 standard.

Record Plus™ circuit breakers and their accessories are designed and manufactured to exceed our global customers' high standards for reliability and quality.



WARNING: DANGER of electrical shock or injury. Ensure that ALL electrical power supplies are OFF before installing or removing any devices. The breaker, trip unit, or accessories MUST ONLY be installed and serviced by QUALIFIED personnel. See NEMA publication AB4.

AVERTISSEMENT: Danger contre les risques d'électrocutions. S'assurer avant TOUTES manipulations du disjoncteur que les différentes sources d'alimentation sont en position OFF. Les disjoncteurs, unités de protection, ou accessoires

doivent être installés par des personnes qualifiées et habilitées. Lire NEMA publication AB4.

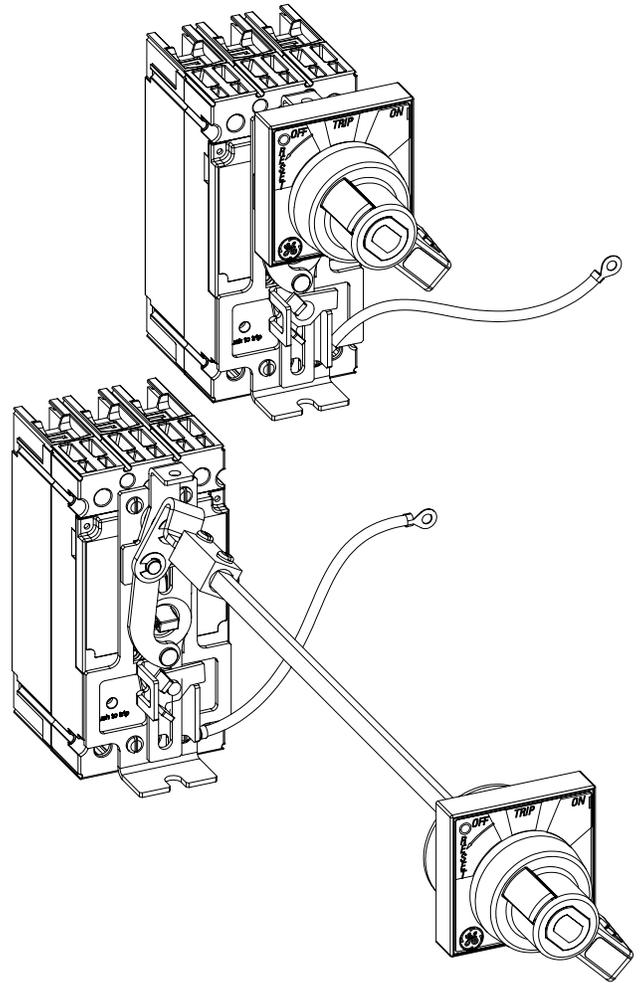


Figure 1. FNRH Rotary Handle Kits mounted on FC100 circuit breaker.



CAUTION: This product is NOT suitable for use in equipment not specifically design to accept it. Contact the equipment manufacturer for possible equipment modifications.

ATTENTION: Cet appareil nedeoit pas etre employe dans un equipement non specialement adapte a cet effet. Contactez le constructeur

concernant les possibles modifications a apporter a l'equipement.

Product Description

These instructions describe the installation procedures for the rotary handle FNRH operating mechanism accessory on **Record Plus™** circuit breakers, as illustrated in Figure 1.

The complete kits are available in the following catalog number variants:

- FCNRR provides the necessary parts for shallow door mount of the handle on the breaker mechanism through the enclosure door, with a box depth of 5.0 inches (127 mm), as shown in Figure 1a. Maintain the dimension “H” [4.69 inches (119.0 MM)] as shown in Figure 13.
- FCNRT is for mounting the handle and operator in enclosures with variable depth, as shown in Figure 1b. Maintain the dimension “H” [Min 6.84 inches (173.7 mm) and Max 15 inches (381.0 mm)] as shown in Figure 14.

In addition, the individual kit parts are available as follows:

- FCNRM1 consists of the operating mechanism for shallow door mount of the handle to the breaker.
- FCNRM3 consists of the operating mechanism for extended shaft door mount of the handle.
- FNRH is the handle assembly only.

Step 1 – Unpack and Inspect

Unpack the rotary handle operating mechanism kit and inspect the parts for any shipping damage. Verify that all parts are supplied, as listed in Table 1. The parts are illustrated in Figure 2.

Note that the numbers in brackets in the following figures and installation instructions refer to the item numbers in Table 1.

Item	Description	Qty.
1	Screw, #8-32 x 2.81"	4
2	Base-crank assembly	1
3	Grounding wire	1
4	Screw, #8-32 x 0.312"	4
5	Nut, plastic	1
6	Rotary handle assembly	1
7	Screw, #8-32 x 0.312"	4
8	Coupler	1
9	Extension shaft assembly	1
10	Funnel, plastic	1
11	Gasket	1

Table 1. List of parts included in the handle operator kits.

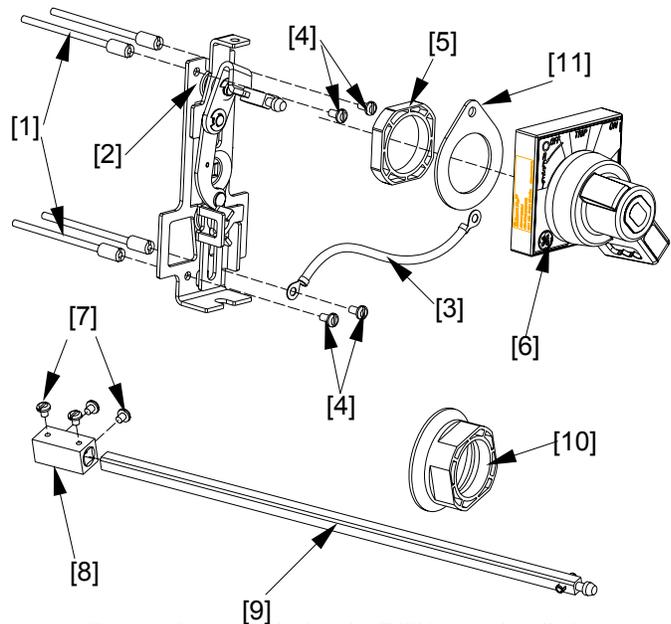


Figure 2. Parts supplied in the FNRH rotary handle kits.

Step 2 – Install the Breaker and Handle Operating Mechanism

1. Move the breaker handle to the OFF position.
2. Mount the breaker to the enclosure with the # 8-32 x 2.81" screws [1], as illustrated in Figure 3. Tighten the screws to 16 - 20 in-lb. Complete the installation of the circuit breaker according to installation instructions DEH40463.
3. Place the base-crank assembly [2] on the breaker, as illustrated in Figure 4. Insert four #8-32 x 0.312" screws [4] through the mounting holes in the base and into the heads of the breaker mounting screws [1], with the grounding wire [3] attached to one of the screws. Tighten the screws to 16 - 20 in-lb. Secure the other end of the grounding wire to a suitable ground location.
4. For kit FCNRT variable-depth mounting only:
 - a. Measure the distance from the breaker-mounting surface to the rotary handle-mounting surface, H, as shown in Figures 8 & 14.
 - b. Cut the extension shaft [9] to the length “L” given by $L = H - 120.5 \text{ mm (4.74 inch)}$, as illustrated in Figure 5.
 - c. Insert the shaft [9] upto 14 mm (0.55 inch) into the coupler [8] and secure it with two #8-32 X 0.312" screws [7], as illustrated in Figure 6. Tighten the screws to 16 - 20 in-lb.
 - d. Place the shaft [9] assembled with coupler [8] on to the crank of the base-crank assembly [2] and secure with two #8-32 x 0.312" screws [7], as illustrated in Figure 7. Tighten the screws to 16 - 20 in-lb.

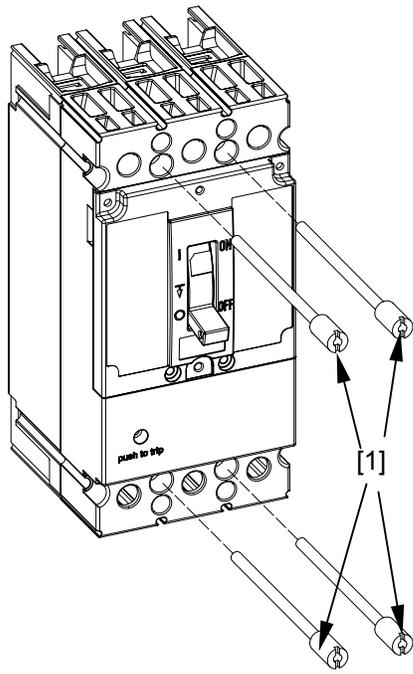


Figure 3. Mounting the breaker in the enclosure.

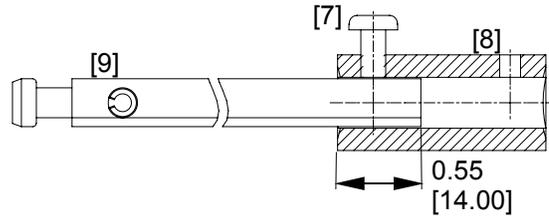


Figure 6. Assemble the shaft and coupler.

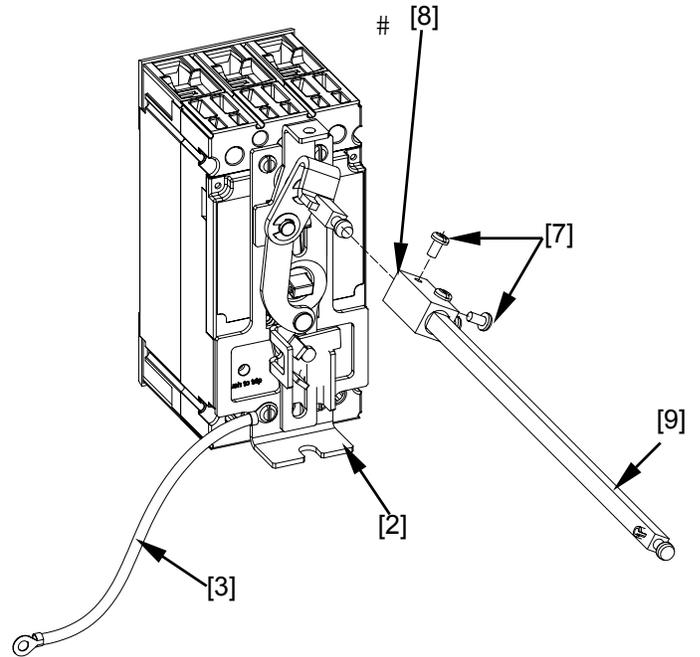


Figure 7. Installing the extension shaft and coupler assembly.

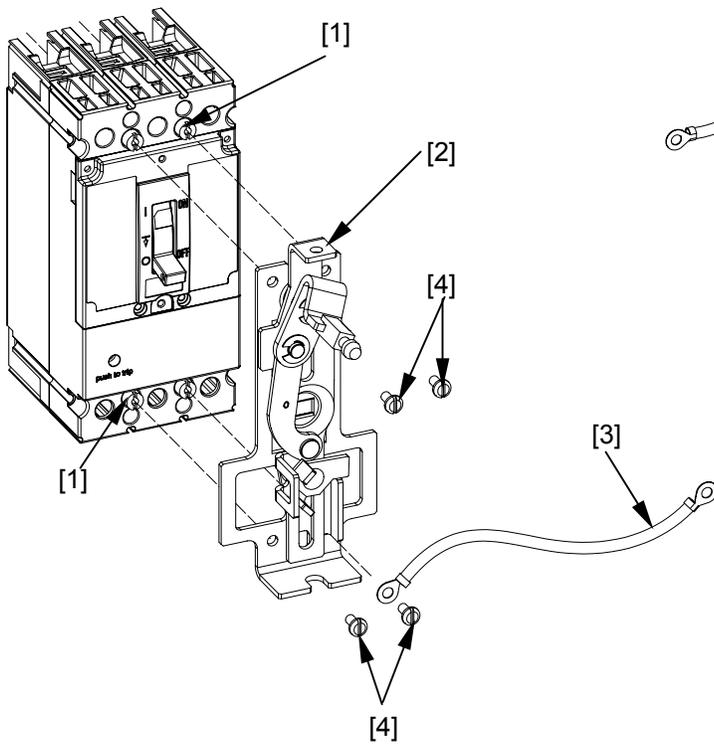


Figure 4. Mounting the mechanism base assembly onto the breaker.

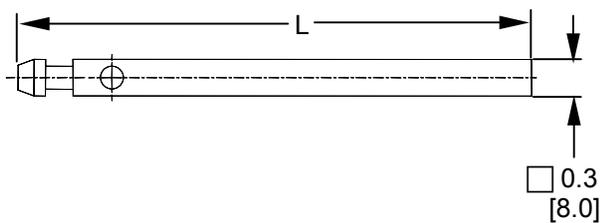


Figure 5. Cutting the extension shaft to the proper length.

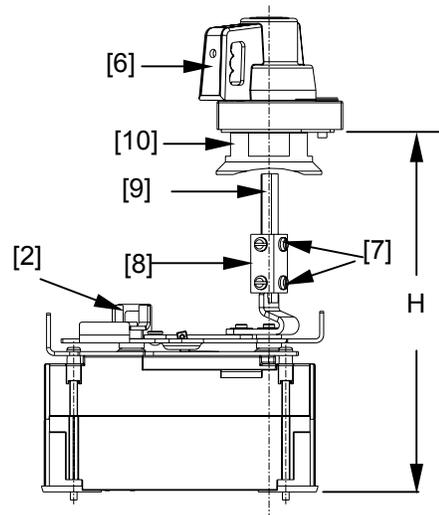
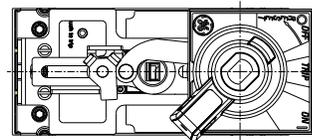


Figure 8. Measuring the box depth for kit FCNRT.

Step 3 – Install the Rotary Handle

1. Drill holes on the enclosure door to accommodate mounting the handle assembly, as shown in Figure 9. The handle location on the door is illustrated in Figure 10. Be sure that the larger hole in Figure 9 is centered over the end of the crank assembly or the extension shaft, as appropriate.
2. Place the rotary handle assembly [6] on the door with the locating feature, shown in Figure 11, placed in the small hole drilled in step 1.
3. Secure the handle assembly to the door as follows, depending on which kit variant you are using:
 - a. For kit FCNRRN, use the plastic nut [5] to secure the handle to the door.
 - b. For kit FCNRT, if the length L of the shaft [9] is less than 9.8 inches (250 mm), use the plastic nut [5] to secure the handle to the door. If the shaft is longer than 9.8 inches (250 mm), use the funnel [10] to secure the handle to the door.
4. Close the enclosure door and verify that the end of the crank assembly or the extension shaft, as appropriate, locks into the center of the handle assembly, as illustrated in Figure 1.

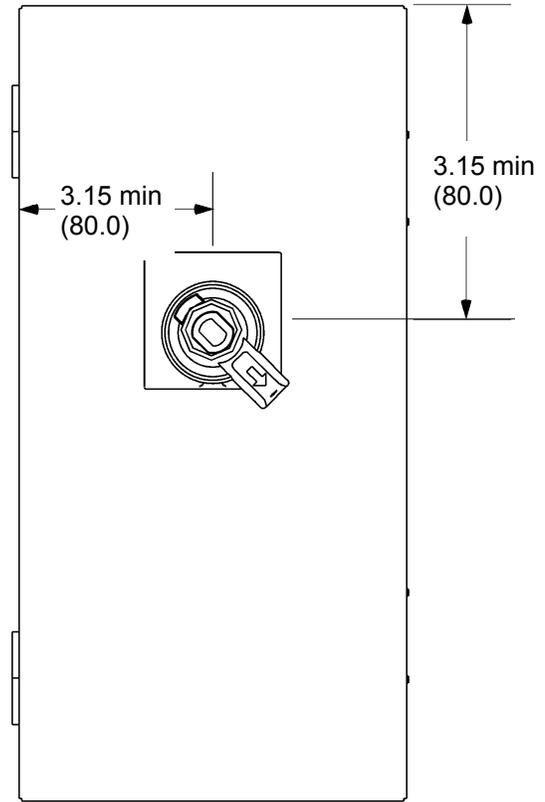


Figure 10. FNRH handle location on the enclosure door.

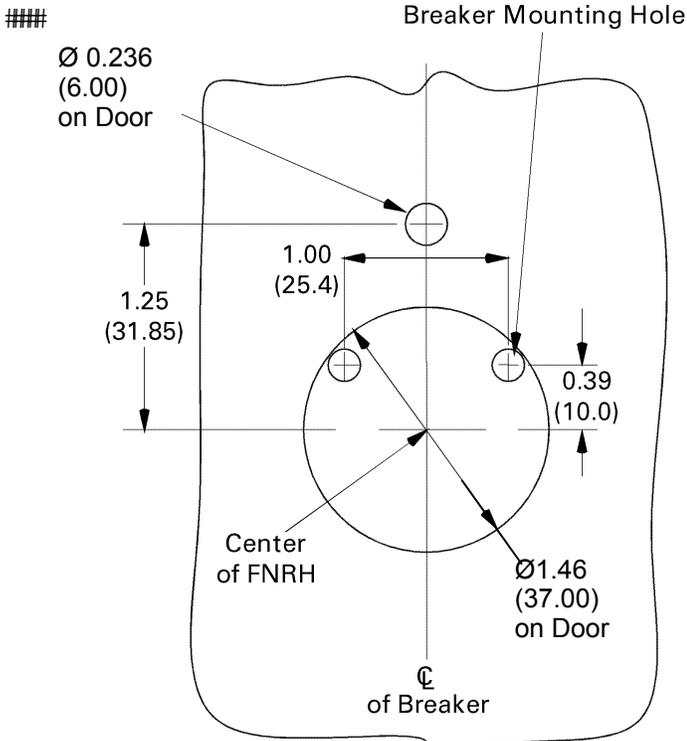


Figure 9. Hole pattern for mounting the handle assembly on the enclosure door.

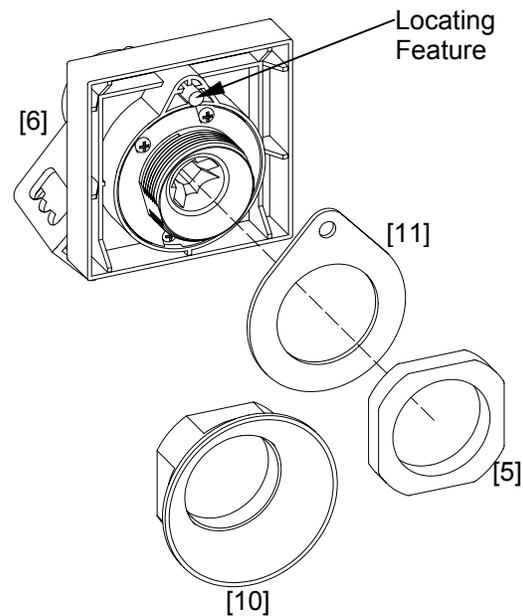


Figure 11. Installing the rotary handle assembly.

Step 4 – Operation

Breaker operation with the rotary handle is as follows:

- Close the enclosure door in “OFF” position of breaker.
- To close the breaker, rotate the rotary handle clockwise from the OFF position to ON.
- To open the breaker, rotate the handle counterclockwise from ON to OFF.
- The enclosure door cannot be opened when the breaker is ON.
- Open the enclosure door in “OFF” position of breaker only.

Figure 13 and Figure 14 are outline views of completed installations with dimensions.

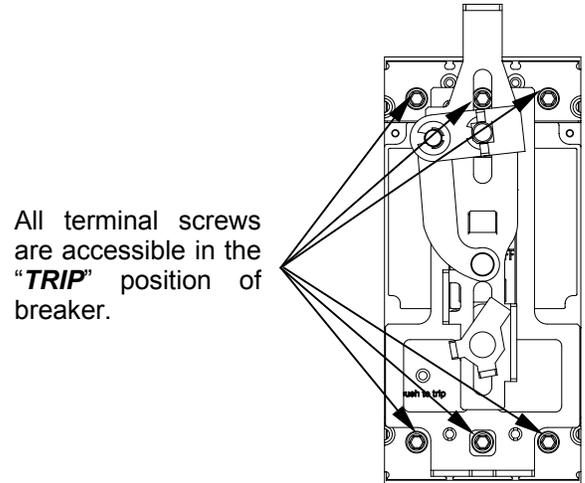


Figure 12. Terminal screws accessibility.

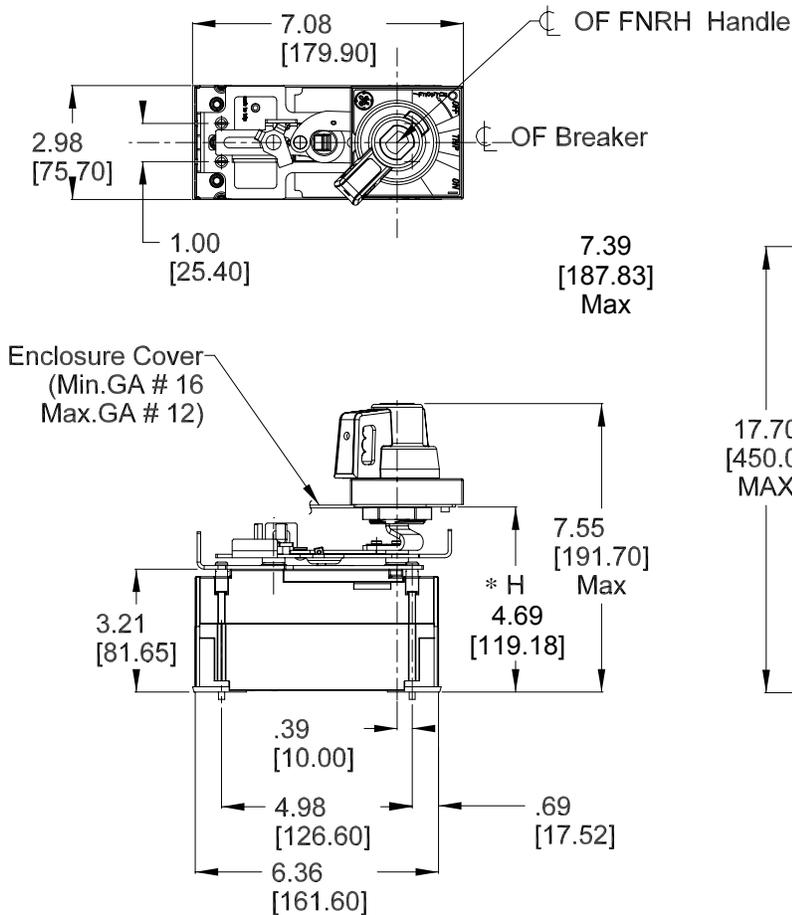


Figure 13. Outline view of completed FCNRN installation.

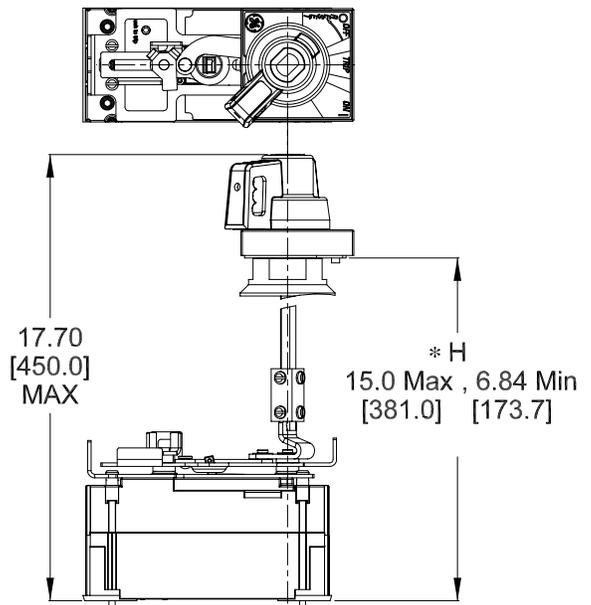


Figure 14. Outline view of completed FCNRT installation.

Locking the Rotary Handle Assembly

The rotary handle assembly is designed to accommodate from one to three 0.2 in. (5 mm) to 0.315 in. (8 mm) padlocks to lock the breaker in the **"OFF"** position, as shown in Figure 15a.

Push the slider down to **"Reset"** position of breaker and insert the padlock shaft into the slot in the padlock lever, to prevent closing the breaker during maintenance, illustrated in Figure 15b.

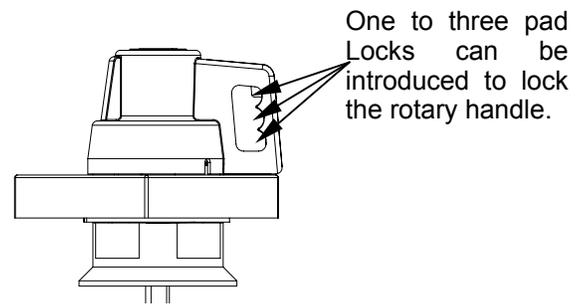


Figure 15a. Locking rotary handle assembly.

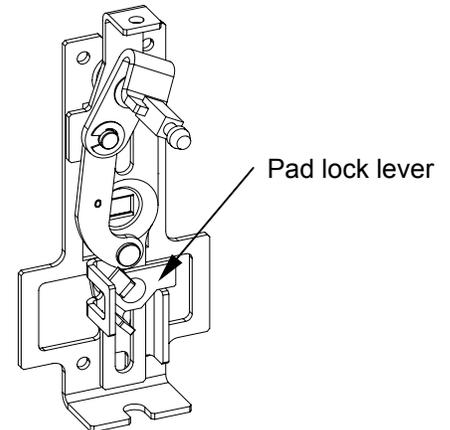


Figure 15b. Locking the circuit breaker operating mechanism.

These instructions do not cover all details or variations in equipment nor do they provide for every possible contingency that may be met in connection with installation, operation, or maintenance. Should further information be desired or should particular problems arise that are not covered sufficiently for the purchaser's purposes, the matter should be referred to the GE Company. The circuit breaker is a sealed unit that contains no user-serviceable parts. Tampering with the seal will void the warranty.



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