



Record Plus™ Molded Case Circuit Breaker Accessories

Variable-Depth Operating Mechanisms

Congratulations and thank you for choosing the Record Plus™ family of current-limiting circuit breakers. The UL-listed variable-depth operating mechanism kit is suitable for use with the FE250 circuit breaker series.

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.

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.

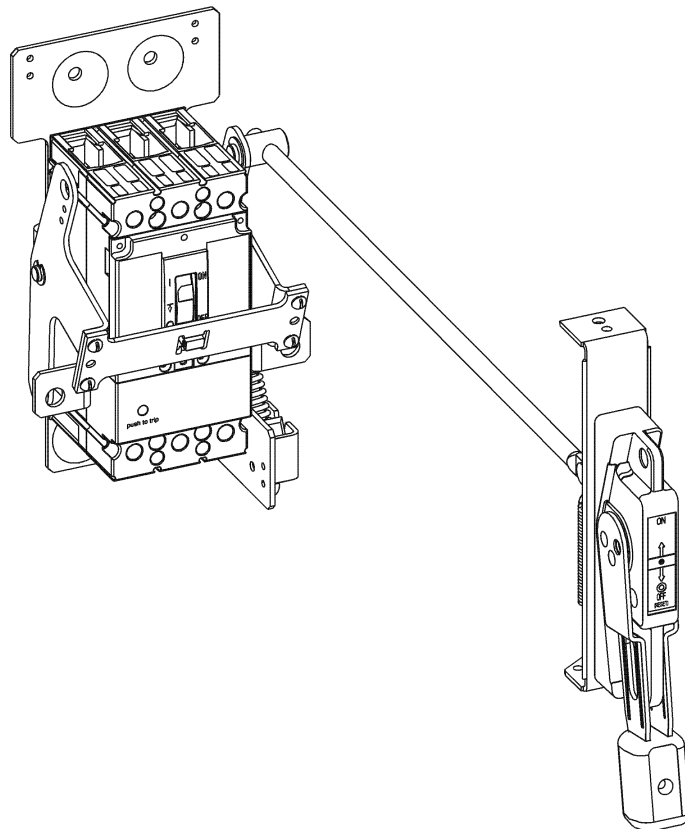


Figure 1. Variable-depth operating mechanism installed on a Record Plus™ FE250 circuit breaker.

Product Description

The variable-depth operating mechanism, catalog number FCNFM, is intended for use with flanged enclosures with a maximum standard depth of 18³/₄ inches. An optional 22-inch rod accommodates 24-inch-deep enclosures.

The operating mechanism is driven by a type-STDA flange-mounted operating handle (ordered separately), as illustrated in Figure 1. The individual mechanism is shown in Figure 2. The variable-depth mechanism is built at the factory for right-hand operation, but can be field converted to left-hand operation.

Auxiliary switch kits are available for use with the variable-depth operating mechanism (ordered separately). See DEP122, the Record Plus™ Catalog/Selection Guide.

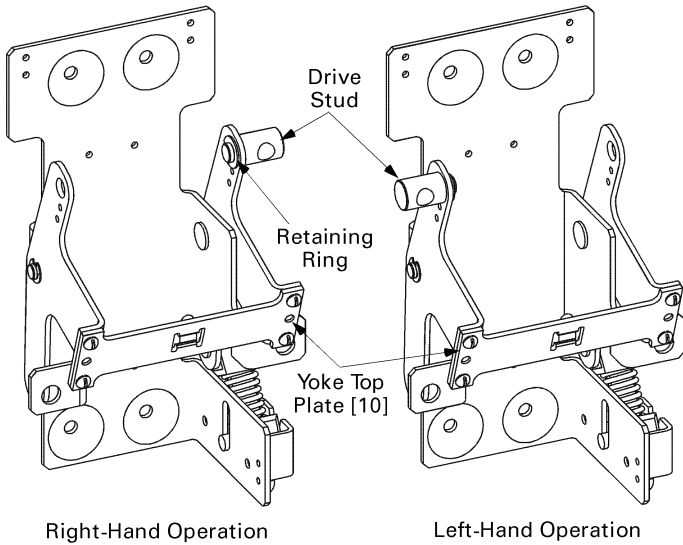


Figure 2. Variable-depth operating mechanism, as set up for right-hand or left-hand operation.

3. Drill and tap four 1/4-20 holes in the enclosure subplate for mounting the operating mechanism, as shown in Figure 4. Dimensions for mounting for both left- and right-hand operation are also shown in Figure 4.
4. Install the type STDA flange-mounted handle mechanism, as described in the instructions accompanying the kit (GEH5314).
5. Secure the operating mechanism [1] to the tapped holes in the enclosure subplate with the four supplied 1/4-20 x 7/16" screws [2] and lock washers [3].
6. As shown in Figure 5 and Figure 6, measure the dimension D, which is the distance from the handle-mounting surface to the operating mechanism mounting surface. Cut the drive rod [4] overall length 2 1/2" shorter than the D dimension. The minimum D distance is 6.5" (165 mm).
7. Screw the drive rod [4] into the drive stud on the operating mechanism until it is flush with the opposite side of the stud (approximately 10 full turns), as illustrated in Figure 6.

Step 1 – Unpack and Inspect

Unpack the variable-depth operating mechanism kit and drive rod kit(s) and inspect the parts for any shipping damage. Verify that all parts are supplied, as listed in Table 1.

Note that the numbers in brackets in the following figures and installation instructions refer to the item numbers in this table.

Item	Description	Qty.
1	Operating mechanism	1
2	Screw, 1/4-20 x 7/16"	4
3	Lock washer, 1/4"	4
4	Drive rod	1
5	Drive pin	1
6	Flat washer	1
7	Cotter pin	1
8	Screw, #8-32 x 27/8"	4
9	Lock washer, #8	8
10	Yoke top plate	1
11	Screw, #8-32 x 1/4"	4

Table 1. Parts included in the variable-depth operating mechanism kit, catalog number FCNFM.

Step 2 – Install the Operating Mechanism

1. If the operating mechanism is to be installed with right-hand operation, proceed to step 2. If it is to be installed for left-hand operation, remove the retaining ring and drive stud from the right-hand yoke, as shown in Figure 2, and reinstall them on the left-hand yoke.
2. The required wire-bending space between the breaker line lugs and the enclosure end wall is shown in Figure 3. Use this to determine the operating mechanism mounting location.

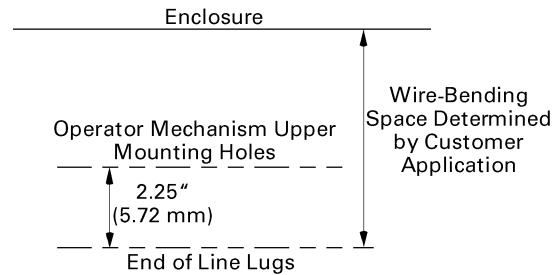


Figure 3. Wire-bending space between the breaker line lugs and the enclosure end wall.

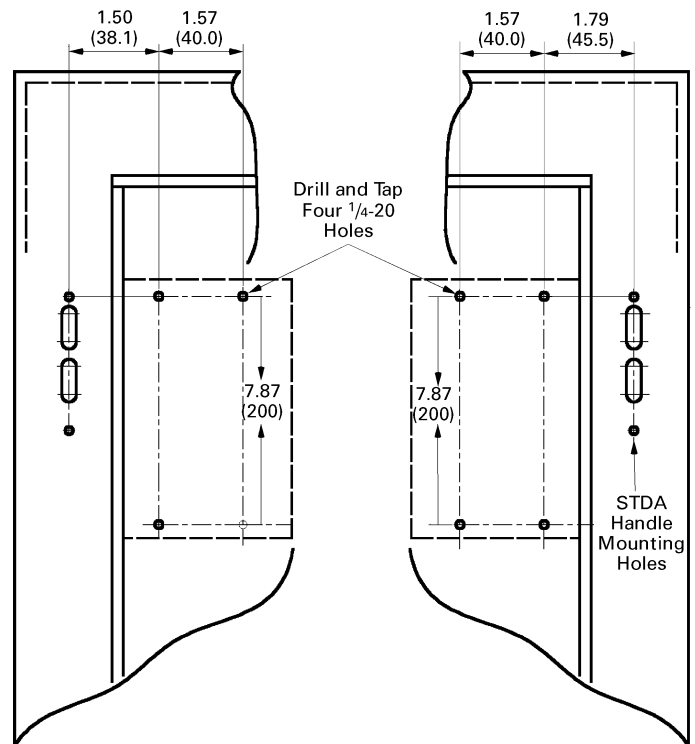


Figure 4. Mounting pattern for the operating mechanism.

8. With the handle and mechanism in the OFF position, place the small hole in the other end of the drive rod [4] over the stud in the handle drive link.
9. Slide the drive pin [5] through the holes in the handle drive link and the end of the drive rod [4]. Place a flat washer [6] over the end of the pin, then slide the cotter pin [7] through the hole in the drive pin [5], as illustrated in Figure 6. Do not bend the cotter pin at this time, since slight movement of the handle may be necessary to align the pin and hole.

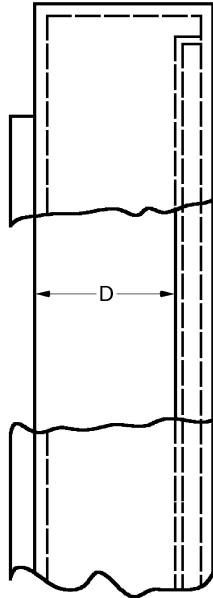


Figure 5. Side view of enclosure, showing dimension D.

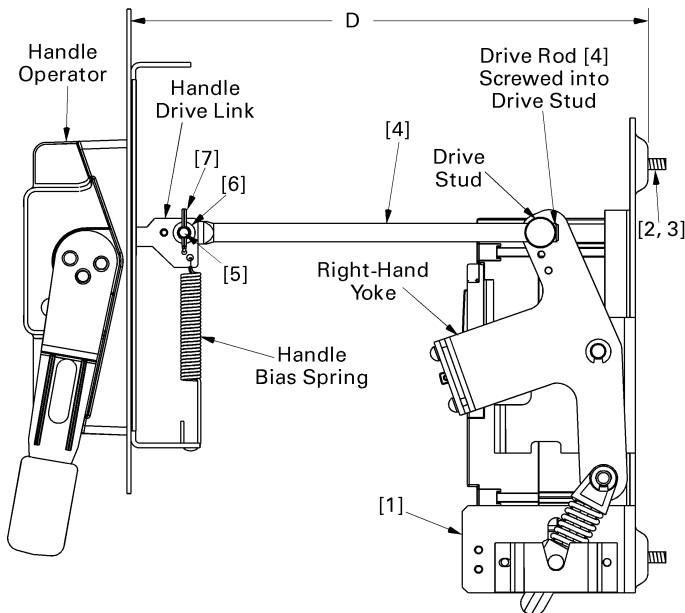


Figure 6. Installing the drive rod.

Step 3 – Install the Circuit Breaker

This procedure is illustrated in Figure 7.

1. Move the STDA handle to the ON position. Be careful to keep your hands away from the operating mechanism while performing this installation.
2. Turn the circuit breaker to the ON position.
3. Install the circuit breaker on the operating mechanism by inserting the four #8-32 x 27/8" screws [8] and lock washers [9] into the mounting holes in the breaker and into the corresponding tapped holes in the mechanism, as illustrated in Figure 7.
4. Place the yoke top plate [10] on the left and right yoke plates with the breaker handle fitting through the cutout in the top plate. Secure with four #8-32 x 1/4" screws [11] and lock washers [9] into the tapped holes in the yoke side plates.
5. Attempt to turn the breaker OFF with the STDA handle. If the breaker does not move to the OFF position, disconnect the drive rod [4] from the handle and thread the rod one turn further (clockwise) into the drive stud. Reattach the drive rod to the handle mechanism. Repeat until the breaker turns OFF with the handle mechanism.
6. Attempt to turn the breaker ON with the handle mechanism. If the breaker does not turn ON, repeat the adjustment of step 5 until moving the handle ON also turns the breaker ON.
7. With the breaker in the ON position, use the TRIP button to open the breaker. Attempt to reset the breaker by moving the handle to the OFF (reset) position. If the breaker is RESET, it can be turned ON and OFF. If the breaker will not reset, repeat the adjustment of step 5 until the breaker resets.
8. When the ON, OFF, and RESET positions are working properly with the handle mechanism, bend the legs of the cotter pin [7] to secure the drive rod [4] in place.
9. Attach the handle bias spring, illustrated in Figure 6, included with the STDA handle mechanism kit.
10. Tighten all #8-32 screws to 20–25 in-lb and 1/4-20 screws to 45–50 in-lb.
11. Complete the circuit breaker installation according to DEH40463, the installation instructions supplied with the breaker.

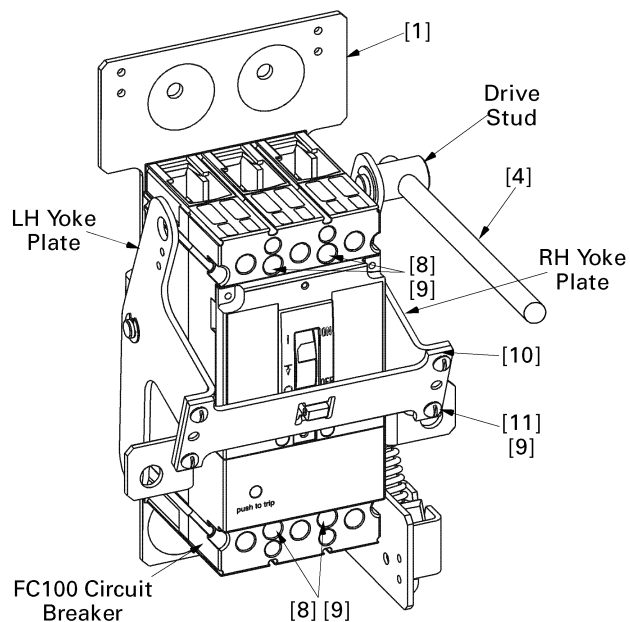


Figure 7. Circuit breaker installed on the operating mechanism.

1. Cut the flange stiffener rod [12] 3¹/₄" shorter than dimension D shown in Figure 5 and Figure 6.
2. Disconnect the lower end of the handle bias spring.
3. Screw a nut [16] onto the threaded end of the flange stiffener rod [12] and place a lock washer [17] against the nut. Slide the end of the rod through the mounting hole on the lower part of the operating mechanism.
4. Insert the drive pin [13] through the hole in the lower attachment plate on the handle mechanism, place the flat washer [14] over the end of the drive pin, then place the hole in the flat end of the rod [12] over the pin. Slide the cotter pin [15] and the end of the handle bias spring through the hole in the top of the drive pin. Bend the legs of the cotter pin to secure the rod to the drive pin.
5. Place a lock washer [17] and nut [16] over the other end of the drive rod. Screw the nuts against the mounting plate on the operating mechanism so that the flange stiffener rod will prevent the flange on which the handle is mounted from flexing during handle operation. Tighten the nuts to 100–150 in-lb.

Step 4 – Install a Flange Stiffener

Use this procedure, illustrated in Figure 8, if you are installing an additional rod to prevent flexing of the flange on which the handle is mounted. Order the flange stiffener kit, catalog number TDSR, which includes the parts listed in Table 2.

Item	Description	Qty.
12	Flange stiffener rod	1
13	Drive pin	1
14	Flat washer	1
15	Cotter pin	1
16	Nut, 3/8"	2
17	Lock washer	2

Table 2. List of parts included in the flange stiffener kit, catalog number TDSR.

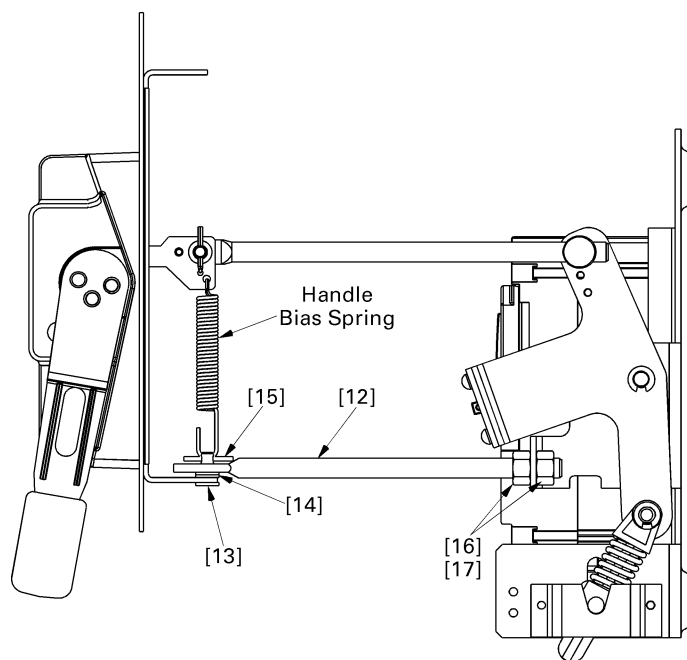


Figure 8. Installing a flange stiffener.

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.



GE Industrial Systems

General Electric Company
41 Woodford Ave., Plainville, CT 06062
www.geindustrial.com