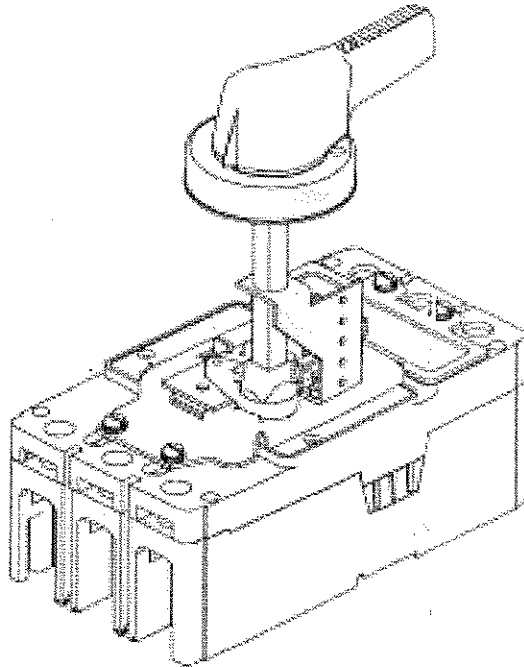


# Instructions for Drilling and Assembling Series C Rotary Handle Mechanism for K-Frame Series C Circuit Breakers, Molded Case Switches, and HMCPs



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## WARNING

**DO NOT ATTEMPT TO INSTALL OR PERFORM MAINTENANCE ON EQUIPMENT WHILE IT IS ENERGIZED. DEATH, SEVERE PERSONAL INJURY, OR SUBSTANTIAL PROPERTY DAMAGE CAN RESULT FROM CONTACT WITH ENERGIZED EQUIPMENT. ALWAYS VERIFY THAT NO VOLTAGE IS PRESENT BEFORE PROCEEDING WITH THE TASK, AND ALWAYS FOLLOW GENERALLY ACCEPTED SAFETY PROCEDURES.**

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The user is cautioned to observe all recommendations, warnings, and cautions relating to the safety of personnel and equipment as well as all general and local health and safety laws, codes, and procedures.

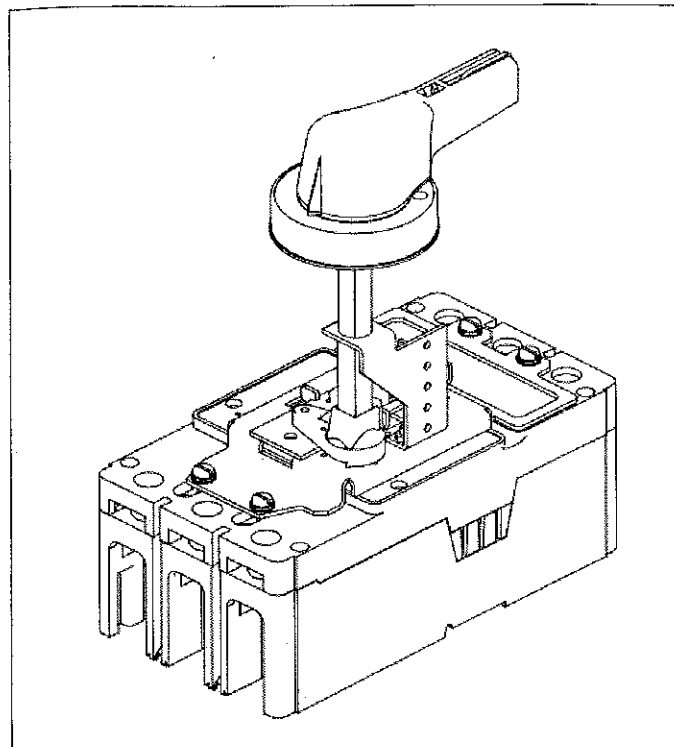
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## DESCRIPTION

The Eaton general purpose Rotary handle mechanism is suitable for use with NEMA 1, 3R, 12, 4, and 4X fabricated enclosures. It is designed for use with Series C - K-Frame Circuit Breakers, Molded Case Switches, and Motor Circuit Protectors (HMCP) up to 400 amps.

Required for a standard application are the operating handle shaft, and mechanism.

The operating handle has been designed to meet NFPA 79 requirements. It may be mounted in either the horizontal or vertical direction. The handle was ergonomically designed with extra clearance for a "gloved hand" to operate. It may be padlocked in the Off position utilizing 3 padlocks (.312 Max).



*Fig. 1-1 K Rotary Handle Mechanism Assembly*

The standard label in the operating handle indicates ON/Tripped/OFF/Reset. To fulfill international requirements, an alternate handle may be ordered which indicates (I)/Tripped/(O)/Reset.

To meet the various enclosure depths, four variable depth shafts are offered (6", 12", 16", and 24"). Each shaft includes a support brace to ensure proper alignment. In addition, the 16" and 24" extra long shafts include an adjustable support bracket.

The standard mechanism located on the breaker does include means for internally locking the breaker in the "Off" position with up to 3 padlocks each with a maximum diameter of .312".

As an option, an auxiliary switch is offered so that the control panel builder may electrically indicate the status of the breaker. This accessory would be mounted on the mechanism and comes with 24" pigtail leads.

**INSTALLATION INSTRUCTIONS:**

The installation procedure consists of: drilling and modifying customer enclosure; installing the circuit breaker and operating assembly; assembling the shaft to the operating assembly, and handle assembly to the enclosure cover; testing function of installed handle mechanism. To install the handle mechanism, perform the following steps.



**WARNING**

**WHEN INSTALLING A NEW HANDLE MECHANISM, OR A NEW CIRCUIT BREAKER AND HANDLE MECHANISM IN AN EXISTING ELECTRICAL SYSTEM, MAKE SURE THERE IS NO VOLTAGE PRESENT WHERE WORK IS TO BE PERFORMED. SPECIAL ATTENTION SHOULD BE PAID TO REVERSE FEED APPLICATIONS TO ENSURE NO VOLTAGE IS PRESENT. THE VOLTAGES IN ENERGIZED EQUIPMENT CAN CAUSE DEATH OR SEVERE PERSONAL INJURY.**

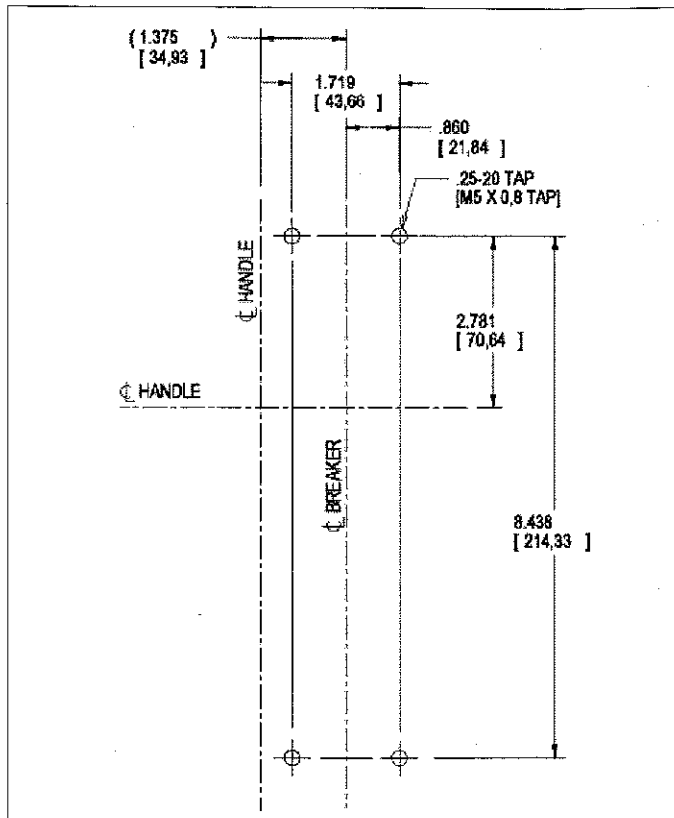


Fig. 2-1 Drill & Tapping Plan for K-Frame Breaker

**INSTALLATION OF CIRCUIT BREAKER AND OPERATING ASSEMBLY**

1. Determine position for circuit breaker in enclosure. Drill and tap circuit breaker mounting holes in enclosure mounting surface as shown in Figure 2-1.
2. Mount circuit breaker to enclosure using the two shorter screws in the hardware kit. Insert screws and lockwashers into the two line end circuit breaker mounting holes and tighten securely into tapped holes from step 1. (Fig. 2-2)
3. Turn circuit breaker to "OFF" position. Remove and discard the two cover screws that share the counterbore with the mounting screws from step 2.
4. Measure panel depth "D" per Figure 3-1. If "D" is less than 8" (203 mm), remove shaft support bracket from operating assembly and discard.
5. Mount mechanism onto circuit breaker, ensuring slide plate is engaged with the circuit breaker handle. Insert the new cover screws along with washers and lockwashers from the hardware kit, through the line end mounting holes of the mechanism, and into the empty cover screw holes of the circuit breaker. Insert the remaining screws, washers, and lockwashers from the hardware kit, through the slots in the mechanism base plate, and into the remaining circuit breaker mounting holes. (Fig 2-2)

**INSTALLATION OF SHAFT TO OPERATING ASSEMBLY**

1. Using panel depth "D" from step 4, determine shaft length by subtracting 3 7/8" from this dimension.
2. Mark shaft, measuring length beginning at the pointed end and cut to correct length. (Fig. 3-1)
3. If adjustable support extension is being used (designed for 16" and 24" shaft lengths), install loosely at this time. Remove screws from extension and use to attach to shaft support bracket.
4. Place square end of shaft into square opening of die cast pivot link on the operating mechanism attached to the circuit breaker. Ensure pin is in shaft correctly oriented with respect to anticipated handle position (vertical or horizontal handle placement, see Fig. 3-2). Insert set screw from hardware kit into pivot link and torque to 50 lb.-in (5-6 Nm).
5. If adjustable support extension is being used, tighten securely at this time.

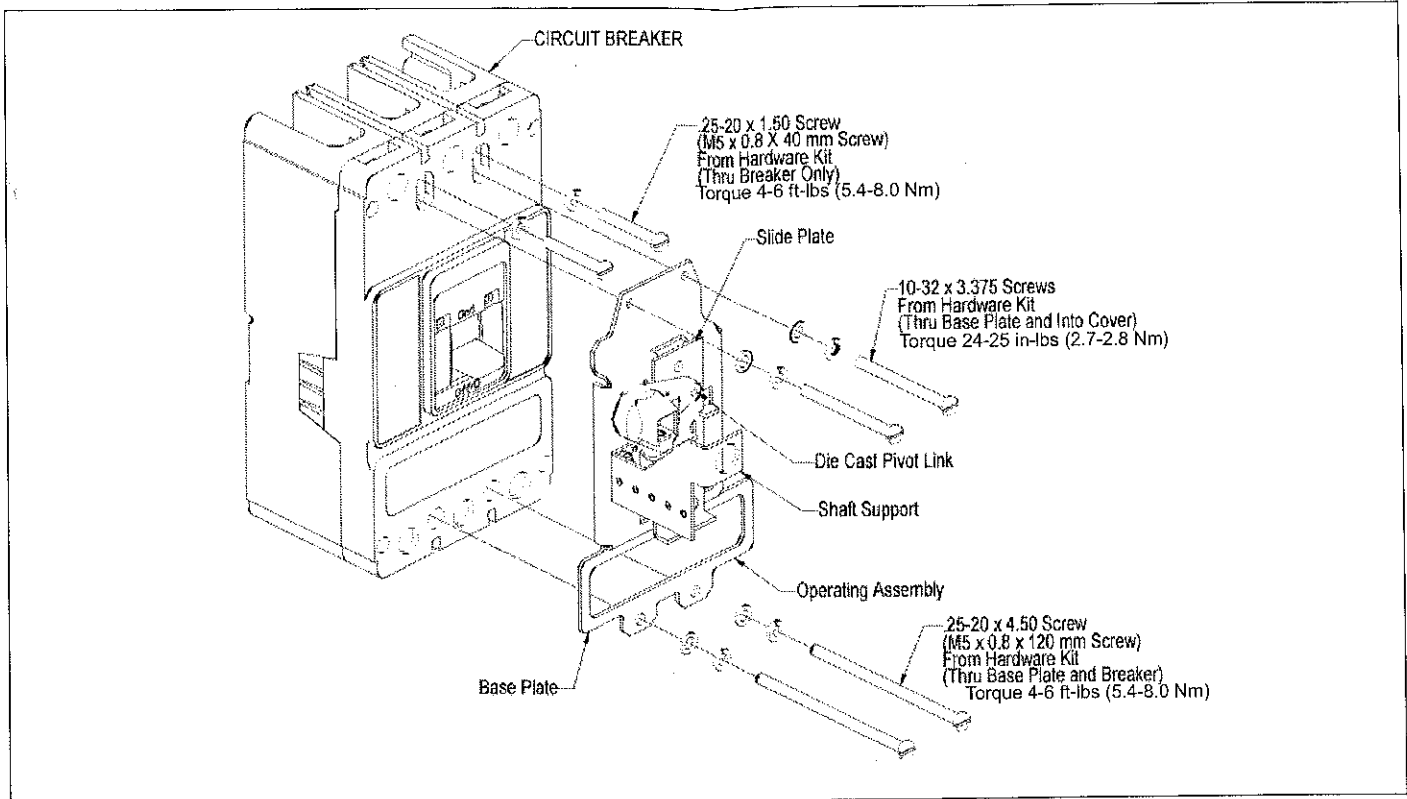


Fig. 2-2 K-Frame Breaker/Mechanism Assembly

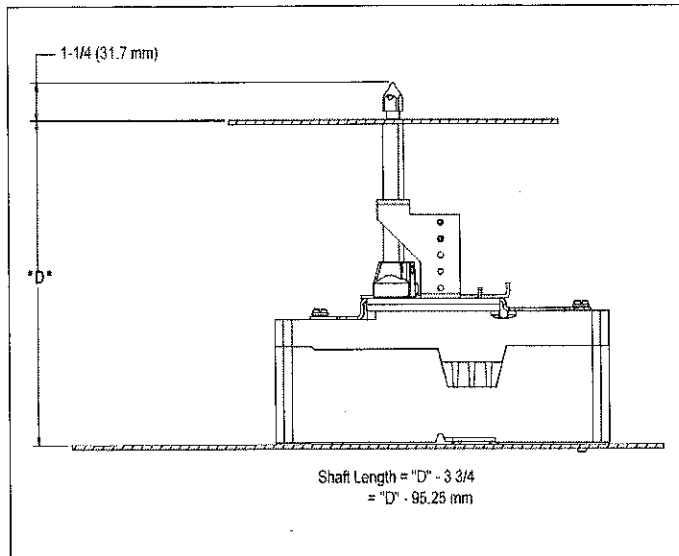


Fig. 3-1 Cutting Shaft to Length

### INSTALLATION OF HANDLE ASSEMBLY ONTO ENCLOSURE COVER

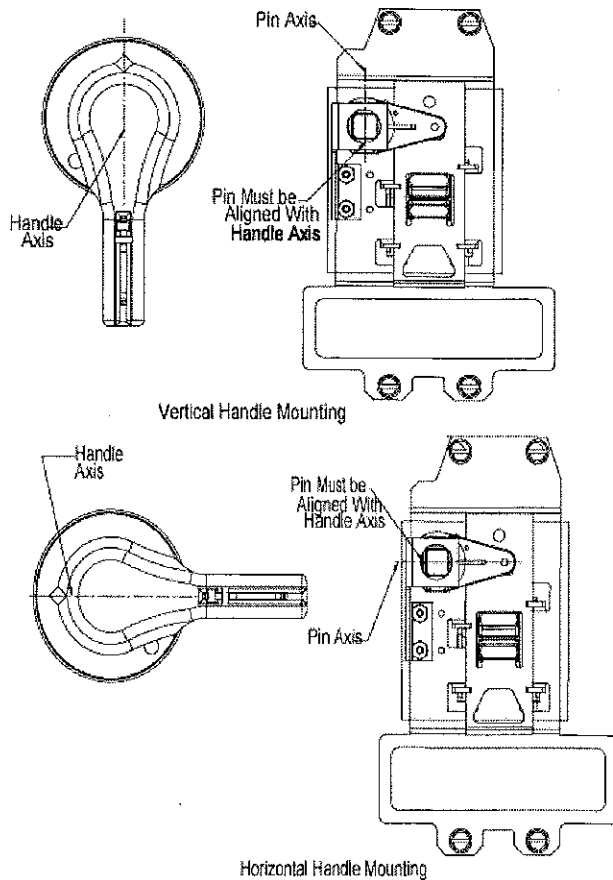
1. To determine where to drill the enclosure door cover, close the cover with moderate force in order

to cause the point of the shaft to scratch/mark the paint on the inside of the door.

2. Prior to drilling the 1.50" (38 mm) Dia. Hole in the cover door, use correction factor per Table 4.1. Correction should be made from mark on door (step 1) towards the hinge. Drill 1.50" (38 mm) Dia. hole.
3. After hole is drilled, close enclosure cover allowing the shaft to stick through the opening. Check this dimension per Figure 3-1. If dimension is not correct, loosen the set screw holding the shaft in the die cast pivot link and adjust such that the dimension is within the required limits, and retighten set screw.
4. Close the enclosure door. Place gasket/template supplied in hardware kit. Place the template over the shaft ensuring the text/wording is facing outward. With the use of your fingers remove any play by rotating the shaft in a clockwise motion. Align the template cutout with the shaft profile and mark the handle mounting holes. Drill (4) .281" (7.0 mm) diameter holes.

**Table 4.1 Correction Factor Table**

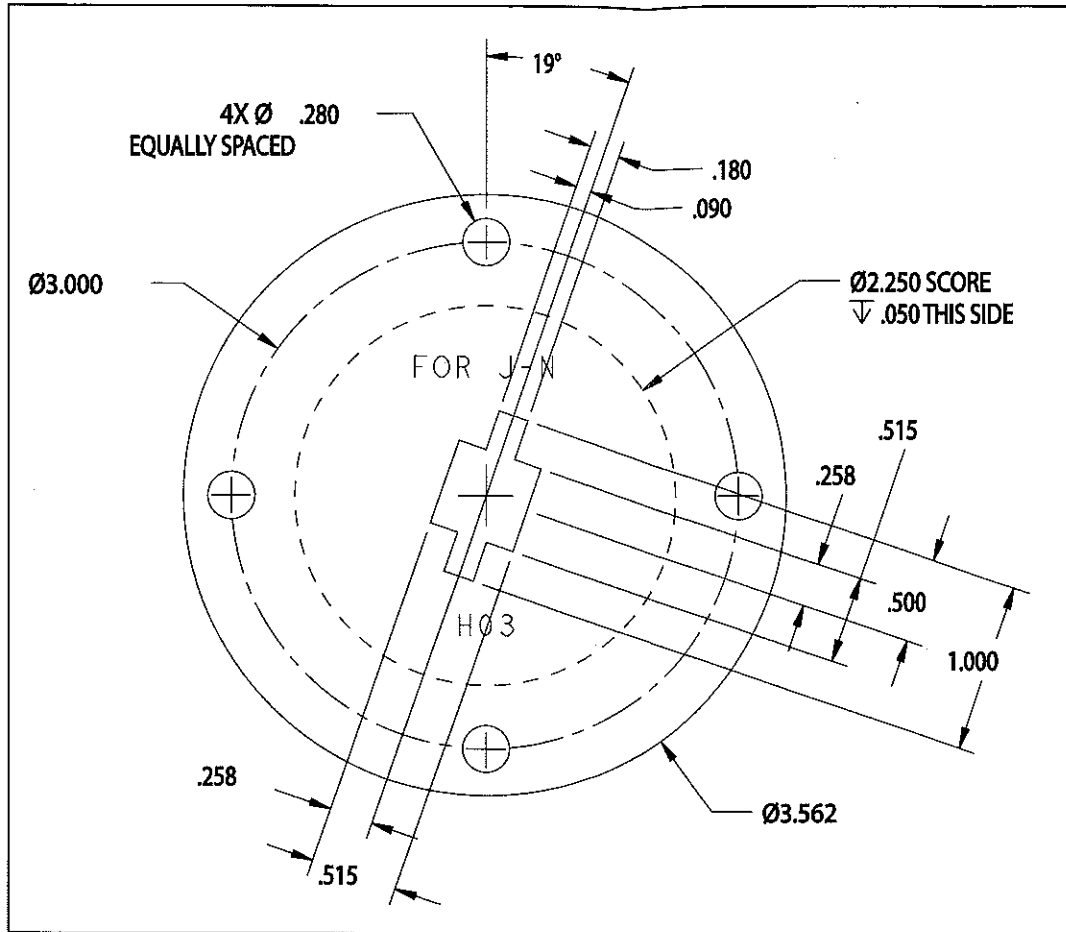
Distance From Hinge	Correction	
	Flat Hinge	Offset Hinge
4	3/16" (4.8 mm)	9/16" (9.5 mm)
5	5/32" (4.0 mm)	7/16" 11.1 mm)
6	1/8" (3.2 mm)	11/32" (8.7 mm)
7	3/32" (2.4 mm)	9/32" (7.1 mm)
8	3/32" (2.4 mm)	1/4" (6.4 mm)
9	3/32" (2.4 mm)	7/32" (5.6 mm)
10	1/16" 11.6 mm)	3/16" (4.8 mm)
11	1/16" 11.6 mm)	3/16" (4.8 mm)
12	1/16" 11.6 mm)	5/32" (4.0 mm)



*Fig. 3-2 Handle Orientation*

5. Carefully remove the inner portion of the gasket/template keeping the outer gasket ring and place it between the handle assembly and door. If this installation is a NEMA 4 or 4X use the neoprene gasket supplied with hardware kit. Loosely drive the four 1/4-20 x 0.5" screws through both the door and gasket from the inside of the enclosure door cover and into the handle assembly. Tighten evenly. For International handle styles, the handle mounting hardware is similar to the M6x1x12 mm screw if misplaced.
6. With power isolated from the circuit breaker, test function of installed handle mechanism in the following manner:
  - a. Close enclosure door. Switch handle mechanism to ON.
  - b. Check that handle mechanism switches circuit breaker to ON position and that enclosure door cannot be opened.
  - c. Switch handle mechanism to OFF position.
  - d. Check that handle mechanism switches circuit breaker to OFF position and that enclosure door cannot be opened.
  - e. Turn handle to OPEN COVER position and ensure door opens.
  - f. Close enclosure door. Switch handle mechanism/circuit breaker to ON.
  - g. Turn interlock defeater counter clockwise with a flat-blade screwdriver.
  - h. Open enclosure door.
  - i. Press Push-To-Trip button in the circuit breaker trip unit with a small flat-blade screwdriver to trip circuit breaker.
  - j. Align handle assembly with shaft and close enclosure door.
  - k. Switch handle mechanism to OPEN COVER (RESET) position. Check to ensure breaker resets.
7. Downloadable CAD files are available on the Eaton website. Visit [www.eaton.com](http://www.eaton.com) in the electrical market section.

Search CAD download area for your specific product or simply search for 1498D72.



NOTE: NOT TO SCALE

Instructions for Drilling and Assembling Series C  
Rotary Handle Mechanism for K-Frame Series C  
Circuit Breakers, Molded Case Switches, and HMCPs

Instruction Leaflet IL15600J

Effective January 2012

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