

# FLB Series Circuit Breakers and Enclosures

## Installation & Maintenance Information

**SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE**

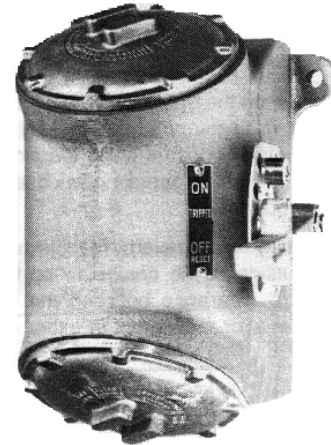
### APPLICATION

FLB Series circuit breakers and enclosures are used to provide service entrance, feeder or branch circuit protection for lighting, heating, appliance and motor circuits.

FLB Series circuit breakers and enclosures provide disconnect means, short circuit protection and thermal time delay overload protection.

FLB Series circuit breakers and enclosures are suitable for use in Class I, Groups C, D; Class II, Groups E, F, G; Class III; and Zone 1, Group IIB hazardous (classified) locations, as defined by the National Electrical Code® as well as in damp, wet, or corrosive locations. They are suitable for NEMA Type 3, 4 applications.

FLB Series circuit breakers and enclosures should be installed, inspected, maintained and operated by qualified and competent personnel only.

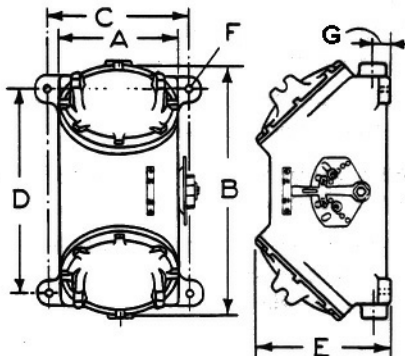


### INSTALLATION

#### **⚠ WARNING**

Electrical power must be OFF before and during installation and maintenance.

1. Select a mounting location that will provide suitable strength and rigidity for supporting the circuit breaker enclosure, all contained wiring, and devices. Figure 1 shows the mounting dimensions of the FLB Series enclosures. Drill mounting holes for 3/8" diameter screws (not furnished).



	A	B	C	D	E	F	G
FLB140, 220, 221.....	5-1/4	10-1/4	6-1/4	7-1/4	7	7/16	1-1/8
FLB43,115,141,147,148,171, 172,173,175,222,361,116, 142,149,174,177,223,362.....	7-1/2	13-3/8	8-1/2	9-3/4	9-1/8	7/16	1-3/4
FLB224,225,264,267,346.....	13-3/4	22-1/2	16-1/4	9-7/8	15-1/2	21/32	2-7/16

**Figure 1**

2. Securely fasten enclosure to the mounting surface, then attach into conduit system.
3. Unscrew both enclosure covers and carefully set them aside to prevent damage to the threads, and dirt from getting on O-ring gasket and threads.

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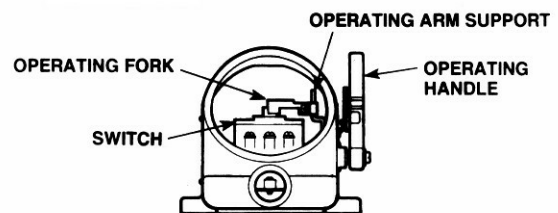
NOTE: All screw threads have been treated with a corrosion resistant lubricant. Relubricate the threads with Crouse-Hinds Type STL thread lubricant when necessary.

#### **⚠ CAUTION**

Hazardous location information specifying class and group listing of each device is marked on the nameplate of each enclosure. Conduit sealing fittings must be installed in each attached conduit run (within 18 inches of the enclosure) to comply with the latest edition of the National Electrical Code® plus any other applicable standards, as required. All unused conduit openings must be closed with an approved plug such as Cooper Crouse-Hinds PLG Series. Plug must engage a minimum of five full threads and be a minimum of 1/8 inch thick. NO CONDUIT OPENINGS ARE TO BE ADDED IN THE FIELD.

4. FLB Enclosure furnished with Circuit Breaker:

A. To remove circuit breaker and mounting plate from enclosure; loosen the #10-32 x 7/8" screw on the operating fork. Slide the fork upward on the operating arm support and remove. Retain operating fork assembly for later use. (See figure 2).



**Figure 2**

B. Loosen four (4) #10-32 x 3/8" screws that secure the circuit breaker mounting plate to the enclosure. Slide the plate sideways (away from the operating arm) and lift out the mounting plate and circuit breaker.

C. Carefully pull wires in the enclosure making sure they are long enough to make the required connections. Strip away enough insulation from the end of each wire to make the required connections.

D. Reinstall mounting plate and circuit breaker into the enclosure so that the circuit breaker load terminals are on the bottom. Tighten the four (4) mounting plate screws to provide a good ground connection between the mounting plate and the enclosure.

E. Loosen the screw on the operating fork, slide the operating fork down the operating support arm and tighten the screw. Proper fork adjustment occurs when the circuit breaker is thrown "ON-OFF" and the operating fork does not touch the circuit breaker body.

F. Check the operating handle travel by readjusting the over-travel stops on the outside of the enclosure so that there is a maximum of 1/8" clearance between the stops and the operating handle, after movement in either direction (See Figure 3).

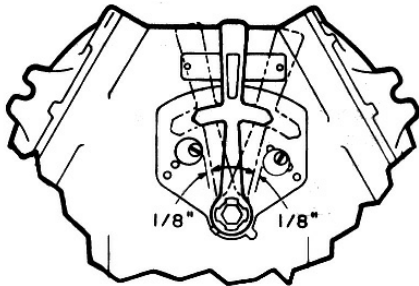


Figure 3

5. Make electrical connections utilizing the wiring scheme established for the circuit breaker. Connect green equipment ground wire to the ground lug on the mounting plate.
6. Test wiring for correctness with a continuity check and check for unwanted grounds with an insulation resistance tester.

**⚠ CAUTION**

During installation, use care to prevent grit, dirt or other foreign material from lodging on threads. If any such material settles on these threads, clean them with kerosene or Stoddard solvent\*, then relubricate with STL thread lubricant. Apply Dow Corning Corp. DC4 Sealing Compound or equivalent to O-ring gasket.

\* To avoid the possibilities of an explosion, oxidation and corrosion, do not use gasoline or similar solvents.

7. Install both covers onto enclosure housing. Tighten covers until flanges on cover and body meet so O-ring is properly seated. Check operation of circuit breaker.
8. Pour sealing compound into sealing fittings in accordance with the instructions supplied with each of the approved fittings and sealing compound package labels.
9. For FLB Enclosures furnished without circuit breaker: Select circuit breaker from Table 1 (ordered separately).

A. Loosen the #10-32 x 7/8" screw on the operating fork and slide the fork upward on the operating arm support and tighten screw. DO NOT remove the fork arm (See Figure 2).

B. Remove mounting plate from enclosure by loosening four (4) #10-32 x 3/8" screws that secure the mounting plate to the enclosure. Slide mounting plate sideways and lift out.

C. Carefully pull wires in the enclosure making sure they are long enough to make the required connections. Strip away enough insulation from the end of each wire to make the required connections.

D. Assemble circuit breaker to mounting plate using the proper holes indicated on the mounting plate. Mounting hardware is provided in sealed plastic bag.

## MAINTENANCE

**⚠ WARNING**

Always disconnect primary source of electrical power before opening enclosure.

1. Frequent inspection should be made. A schedule for maintenance checks should be determined by the environment and frequency of use. It is recommended that it should be at least once a year
2. If necessary to open enclosure for inspection or service, always disconnect primary power source and refer to cautionary statement or nameplate before removing covers. Observe thread lubrication procedure specified in "caution" note following step 6.
3. Perform visual, electrical, and mechanical checks on all components on a regular basis.
  - Visually check for undue heating evidenced by discoloration of wires or other components, damaged or worn parts, or leakage evidenced by water or corrosion in the interior.
  - Electrically check to make sure that all connections are clean and tight, and that contacts in the components make or break as required.
  - Mechanically check that all parts are properly assembled, and operating mechanisms move freely.
  - Clean threads on covers and body and apply new lubricants as specified in "Caution" note after step 4.
  - We recommend an Electrical Preventative Maintenance Program as described in the National Fire Protection Association Bulletin NFPA No. 70B.

**FLB Circuit Breaker Selection Table \***

<b>Enclosure</b>	<b>Square D Frame</b>	<b>Maximum AC Volts</b>	<b># Poles</b>	<b>Amp. Rating</b>
FLB171	100 AMP FAL	120	1	15A - 50A
FLB172	100 AMP FAL	240	2	15A - 50A
FLB173	100 AMP FAL	240	3	15A - 50A
FLB174	100 AMP FAL	240	2 OR 3	70A - 100A
FLB147	100 AMP FAL	480	2	15A - 50A
FLB148	100 AMP FAL	480	3	15A - 50A
FLB149	100 AMP FAL	480	2 OR 3	70A - 100A
FLB175	100 AMP FAL	600	2 OR 3	15A - 50A
FLB177	100 AMP FAL	600	2 OR 3	70A - 100A
FLB346	250 AMP KAL	600	2 OR 3	125A - 250A
<b>Enclosure</b>	<b>G.E. Frame</b>	<b>Maximum AC Volts</b>	<b># Poles</b>	<b>Amp. Rating</b>
FLB220	100 AMP TEB	120	1	15A - 50A
FLB221	100 AMP TEB	240	2	15A - 50A
FLB222	100 AMP TEB	240	3	15A - 50A
FLB223	100 AMP TEB	240	2 OR 3	70A - 100A
FLB140	100 AMP TEB	480	2	15A - 50A
FLB141	100 AMP TEB	480	3	15A - 50A
FLB142	100 AMP TEB	480	2 OR 3	70A - 100A
FLB361	100 AMP TEB	600	3	15A - 50A
FLB362	100 AMP TEB	600	3	70A - 100A
FLB224	225 AMP TFJ	600	3	125A - 250A
FLB225	225 AMP TFK	600	3	125A - 250A
<b>Enclosure</b>	<b>Cuttler-Hammer Frame</b>	<b>Maximum AC Volts</b>	<b># Poles</b>	<b>Amp. Rating</b>
FLB140	100 AMP EHD	480	2	15A - 50A
FLB141	100 AMP EHD	480	3	15A - 50A
FLB142	100 AMP EHD	480	2 OR 3	70A - 100A
FLB115	150 AMP FDB	600	2 OR 3	15A - 50A
FLB116	150 AMP FDB	600	2 OR 3	70A - 100A
FLB264	250 AMP JDB	600	2 OR 3	125A - 250A
FLB267	250 AMP JD	600	2 OR 3	125A - 250A

\* Circuit Breakers should be selected in accordance with the manufacturers recommendation.

**Table 1**

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All statements, technical information and recommendations contained herein are based on information and tests we believe to be reliable. The accuracy or completeness thereof are not guaranteed. In accordance with Cooper Crouse-Hinds "Terms and Conditions of Sale", and since conditions of use are outside our control, the purchaser should determine the suitability of the product for the intended use and assumes all risk and liability whatsoever in connection therewith.

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