

Is this still correct? No



POWER-BREAK® GENERAL

Circuit Protective Devices Department — Plainville, Connecticut 06062

CIRCUIT BREAKER DISASSEMBLY AND REASSEMBLY FOR 2000-4000A FRAMES

NOTE: UL Listing is voided when the circuit breaker is modified to add an accessory.

WARNING: When installing accessories, the breaker must be completely de-energized and disconnected from the electrical circuit. This is mandatory because breaker must be "ON" during certain stages of installation and testing.

CIRCUIT BREAKER DISASSEMBLY Manual Circuit Breakers

1. Cover Removal

- a. Press the OFF button on the circuit breaker.
- b. **NOTE:** Delete Step b. when installing an auxiliary switch or bell alarm switch.
Actuate breaker handle twice to depress accessory resetting roll pin.
- c. Remove the escutcheon plate from the breaker cover (4 screws).
- d. Remove the sealant from the right-hand line-end screw in the breaker cover.
- e. Remove the breaker cover (4 screws).

NOTE: Lower screws are located beneath the escutcheon plate.

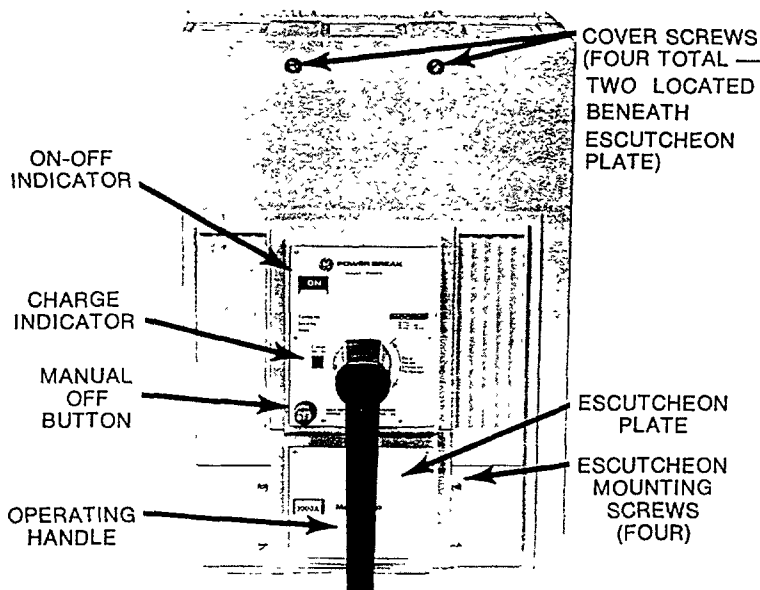


Fig. 1. Magnetrip manual circuit breaker

2. Dual Magnetic Trip Unit Removal (3000A max.)
 - a. Unscrew the hex-head bolts from the line end of the trip unit coils, but leave them in position.
 - b. Unscrew the socket-head bolts and washers from the load end of the trip unit coils.
 - c. Unscrew the round-head screws (4) supporting the trip unit.
 - d. Remove the trip unit.
3. Non-Automatic Trip Unit Removal (Fig. 2 & 3)
 - a. Remove all hex-head bolts (6) from the line end of the connection straps (3).
 - b. Remove all socket-head bolts (6) and washers from the load end of the straps.
 - c. Remove the connection straps.

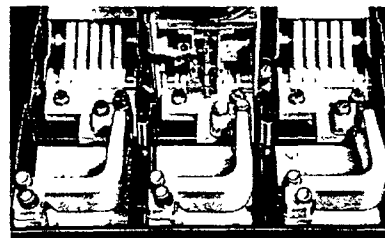


Fig. 2. Straps in position

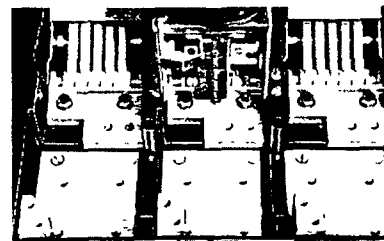


Fig. 3. Straps/trip Unit removed.

4. Solid-State Trip Devices

- a. Remove the screws (2) supporting the programmer, located on the supports beneath the unit.
- b. Tip the programmer up; disconnect its electrical plug, and remove the programmer. See Fig. 5.
- c. Remove the flux shifter. See Page 3.

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Electrical Circuit Breakers

1. Outer Cover Removal

- a. Disconnect all external leads from the terminal board. See Fig. 4.
- b. Remove the breaker outer cover. See Manual Circuit Breakers-Cover Removal.

NOTE: When removing the breaker outer cover, be sure that the terminal board support slips out of the notch in the outer cover and remains with the motor-power unit assembly.

NOTE: To prevent disturbing factory adjustment do not separate the motor-power unit from the inner cover.

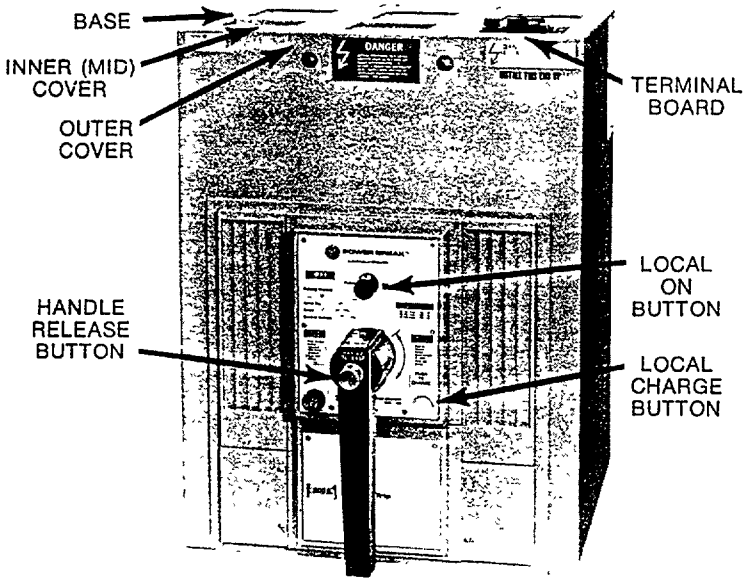


Fig. 4. Magnetrip electrical circuit breaker

2. Solid-State Devices

- a. Disconnect the electrical plug from the programmer. See Fig. 5.
- b. Remove the inner cover. See Step 3.
- c. Remove the flux shifter. See Page 3.

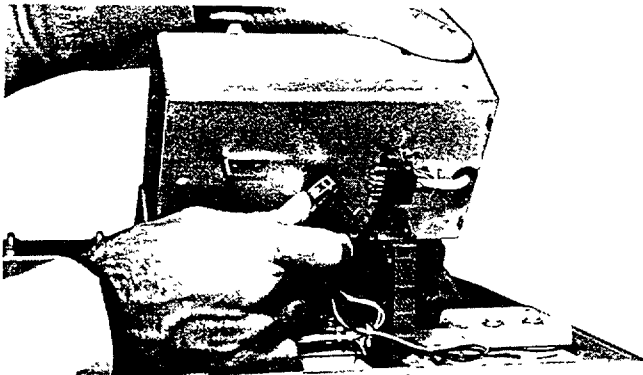


Fig. 5. Programmer removal/installation

3. Inner Cover Removal

Unscrew the inner cover retaining screw, Fig. 6, and remove the inner cover assembly from the breaker base.

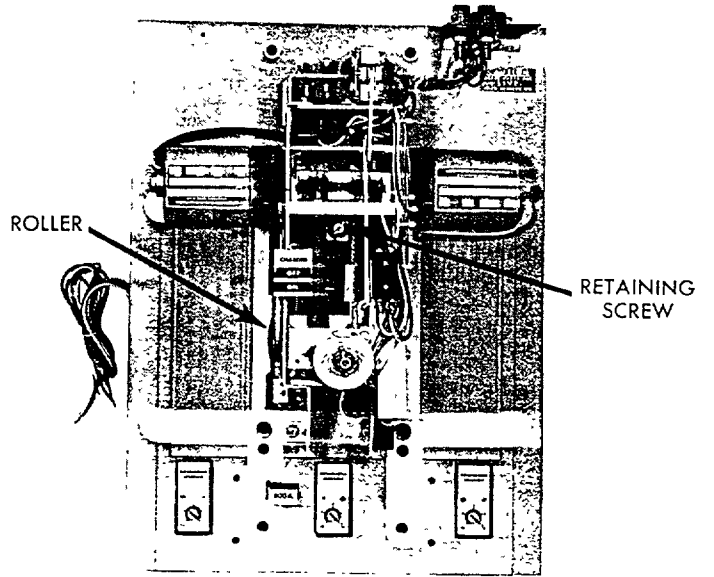


Fig. 6. Inner cover assembly

4. Dual-Magnetic Trip Unit Removal

Remove Trip unit as outlined in Manual Circuit Breakers.

5. Non-Automatic Trip Unit Removal

Remove Trip Unit as outlined in Manual Circuit Breaker.

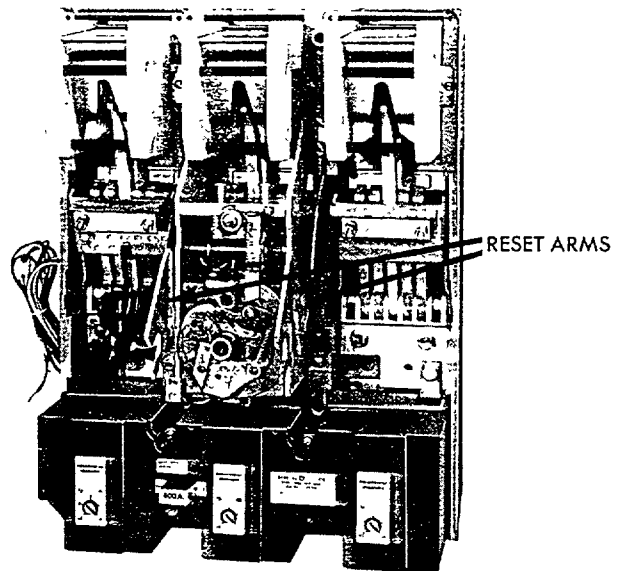


Fig. 7. Breaker base and mechanism

CIRCUIT BREAKER REASSEMBLY

Manual Circuit Breakers

NOTE: When converting to or from a non-automatic trip unit construction, the breaker nameplate must be replaced to ensure proper identification.

1. Dual-Magnetic Trip Unit Installation

NOTE: Be sure the contact surfaces are clean, smooth, and free from nicks or burrs.

- a. Insert the hex-head bolts with lock and plain washers in the line conductor holes of the trip unit coils.
- b. Position the trip unit on the breaker base and install the unit round head mounting screws (4), but do not tighten them.
- c. Insert the socket head bolts along with the lock and plain washers into the load conductor holes of the trip-unit coils; screw down the bolts but do not tighten them.

NOTE: The reinforcing clip supplied with trip units rated below 1600 amperes must be assembled to the socket head bolts. Place the reinforcing clip under the lock and plain washers.

- d. Insert the round-head screws with lock and plain washers and torque them to 20 inch-pounds.
- e. Torque the trip unit mounting bolts to 100 inch-pounds.

2. Non-Automatic Trip Unit Installation

- a. Position the current carrying straps, as shown in Fig. 2, and secure them using one flat washer and one lock washer with each bolt. Install the hex bolts at the top of the straps.
- b. Torque the connection strap bolts to 100 inch-pounds.

3. Solid-State Trip Device

- a. Install the flux shifter.
- b. Install the programmer (2 screws), and connect its electrical plug. See Fig. 5.

4. Cover Installation

NOTE: When replacing the circuit breaker outer cover, the phase barriers and the flat area on the handle shaft must be properly aligned.

- a. Install the breaker cover (4 screws).
- b. Install the escutcheon plate (4 screws).

Electrical Circuit Breakers

1. Dual-Magnetic Trip Unit Installation

- a. Install the trip unit as outlined in Manual Circuit Breaker-Reassembly.

2. Non-Automatic Trip Unit Installation

Install Non-Automatic Trip Unit as outlined in Manual Circuit Breakers-Reassembly.

3. Solid-State Trip Device

- a. Install the flux shifter.

NOTE: Ensure that the programmer plug wires are not caught between inner cover and breaker base.

- b. Install the inner cover. See Step 4 below.

- c. Insert the programmer's electrical plug and wires through the access hole and connect the plug to the programmer. See Fig. 5.

- d. Install the outer breaker cover and complete reassembly procedure. See Step 5 below.

4. Inner Cover Installation

- a. Slide the inner cover and motor-power unit assembly onto the breaker base and mechanism. Ensure correct alignment of the handle shafts (cam shaft and extension shaft) and that the reset arms as shown in Fig. 7 engage the grooves in the rollers shown in Fig. 6.

- b. Tighten the inner cover retaining screw shown in Fig. 6.

5. Outer Cover Installation

- a. Install the breaker outer cover (4 screws). See Fig. 4. Be sure that the terminal board slides into the slots in the circuit breaker cover. See Fig. 6.

- b. Install the escutcheon plate (4 screws). See Fig. 4.

- c. Reconnect the power leads at the terminal board. See Fig. 4.

FLUX SHIFTER DEVICE

For Use With Solid State Trip Units Only.

Two Flux Shifter designs have been manufactured: the "Side-Mount" and the "Center-Mount" styles. The former is bracket mounted to the R-H side of the mechanism and the latter is bracket mounted in the center of the mechanism. In either case the Flux Shifter Coil Assembly may be replaced as follows:

1. Disassemble breaker per instructions on pages 1-3.
2. Remove the wrap securing Flux Shifter leads to mounting bracket.
3. Remove two pan head screws that mount Flux Shifter Assembly to bracket.
4. Cut Flux Shifter Control leads in the center of their run to the plug. Splice in leads of the new Flux Shifter. Polarity of wires must be respected. Insulate splice.
5. Mount Flux Shifter Assembly to mounting bracket using the two pan head screws. Tighten lightly.
6. Turn breaker "ON".
7. Set "A" dimension as shown in Fig. 8 below at $\frac{1}{16}$ inch.
8. Tighten both pan head screws securely.

In some cases it may be necessary to remove the "Side Mounted" Flux Shifter Bracket to replace internally mounted accessories. This may be done with Flux Shifter in place by removing the two mounting screws as shown in Fig. 9.

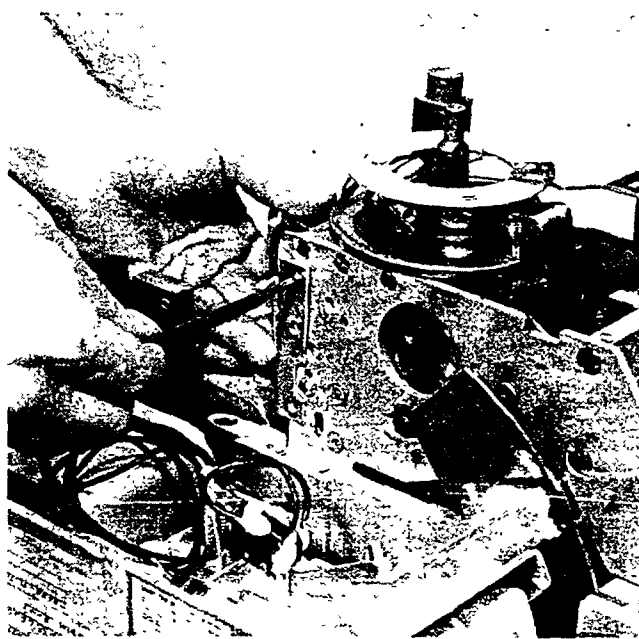


Fig. 9. Flux shifter removal/installation — side mount type

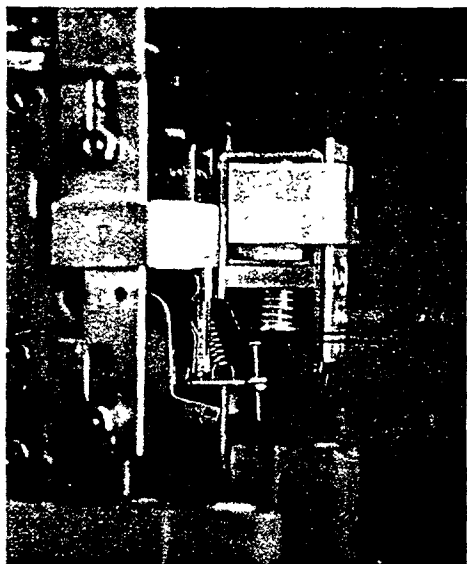


Fig. 8.

T-STUD CONNECTORS INSTALLATION

NOTE: All front connected T-Studs are factory tested for customer installation. The back connected T-Studs for the 2000-2500A frames are factory drilled for mounting to the tapped breaker strap. The back connected 3000A T-Studs are factory brazed to the back of the breaker.

1. T-Studs (Fig. 10) are to be mounted to the breaker line and load straps. They may be rotated 90 degrees for vertical or horizontal positioning. If the installation requires connectors that are different from the T-Studs furnished, consult the factory for pertinent details before proceeding.
2. Using an industry accepted solvent, remove any dirt or other foreign material from the line and load strap surfaces and the corresponding surfaces of terminal studs. Be sure mating surfaces are smooth and free from burrs or nicks.
3. Place terminal studs in desired position and align the mounting holes. Insert and torque the four hex-head screws and washers for each terminal stud to 100 inch-pounds.

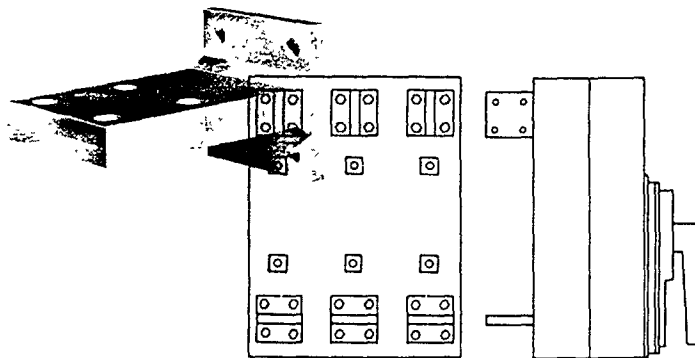


Fig. 10. Typical T-Stud connector

