

## Installation Instructions

	<b>⚠ DANGER</b>
	<p><b>Hazardous voltage. Will cause death or severe injury.</b></p> <p>Turn off and lock out all power before removing circuit breaker for modification.</p> <p>Breaker must be completely disconnected and removed before accessory is attached.</p>



### SAFETY INSTRUCTIONS

NOTE: This instruction outlines the recommended installation procedure.

ED Frame Types ED2, ED4, ED6, HED4, HED6, and ED6 ETI.

For this publication, the term circuit breaker also includes molded case switches and motor circuit interrupters (ETI).

NOTE: 1. The accessory module may be used on all the ED frame type circuit breakers listed above except with multi-pole ED circuit breakers which use 3 black actuators.  
(See Figure 4 for location of actuators.)

2. Never attempt to mount accessory device while circuit breaker is installed.

3. Never attempt to add more than one accessory device to the circuit breaker.

4. This device is not intended for personnel protection against electrical shocks.

### General Information

The ground fault sensor/relay accessory provides for sensing differential current in two or more load conductors passing through the sensor. The normal application is detection of a low level ground fault in the load circuit of a grounded power system. The relay operates to trip the circuit breaker within an established response time when the ground fault current exceeds a predetermined sensitivity level.

The ground fault relay operates from a 120 VAC, 50/60 Hz control power source (not provided). The relay module trip mechanism includes an auxiliary switch to de-energize the accessory when the attached circuit breaker trips.

### Control Power

The control power for the relay must be 120 VAC (132V max), 50/60 Hz continuous: 0.010A. at 120V. Inrush (trip): .08A peak max at 120V.

NOTE: Control source may be the protected circuit or any similarly rated AC source.

### Sensitivity

The differential ground fault sensitivity level is factory pre-set. See Figure 1 for catalog numbers and sensitivity level.

### Response Time

Threshold level - approximately 2 seconds  
115 % of pick-up - .70 seconds maximum  
150 % of pick-up - .30 seconds maximum  
250 % of pick-up - .20 seconds maximum

### Sensor

The ground fault relay is for use with Sensor No. 64232 (supplied with kit). The sensor will accommodate four (4) #2/0 AWG, or smaller, type TW or equivalent conductors.

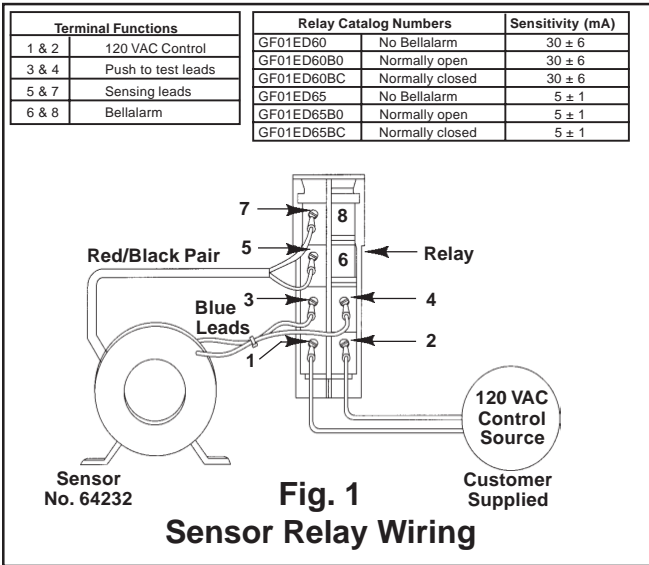
### Test Circuit

A momentary "Push to Trip" switch on the face of the relay initiates a simulated fault current of approximately two to three times the maximum sensitivity through the blue sensor leads.

NOTE: Circuit leakage from the load may add to, or subtract from, the test current, depending on circuit phase relationships. In the event of test difficulty, check control voltage and load circuit leakage. Some installations may require reversing the blue sensor leads for proper test circuit operation (See Figure 1).



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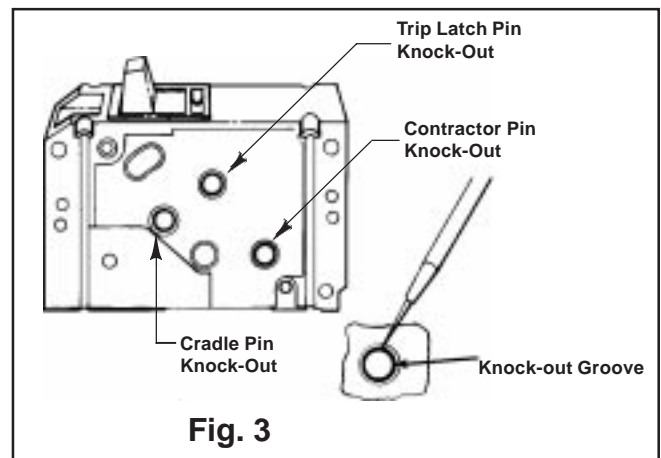
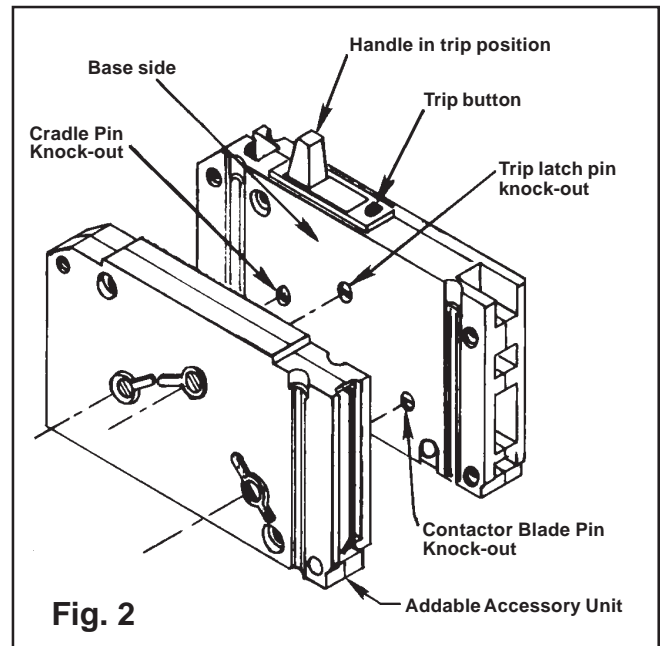
E. Before assembling accessory to the breaker be certain that all exposed accessory actuator slots are in line with the locating tabs (See Fig. 4) and the circuit breaker is in the tripped position.

Carefully position accessory unit against the side of the breaker to determine that all accessory actuator blades are engaged into the pin slots of the circuit breaker.

### Circuit Breaker Preparation and Test

For 1 pole breaker types ED2, ED4, ED6, HED4, and HED6, refer to instructions A through E. For all other types refer to steps A and E.

- A. Turn off and lock out all power before removing circuit breaker for modification. Breaker must be completely disconnected and removed from any electrical equipment before accessory is attached.
- B. Align accessory to circuit breaker as shown in Fig. 2. Mark only the breaker knock-outs which correspond to the actuator blades protruding from the accessory package.
- C. Place the circuit breaker on a flat surface with the marked knock-outs facing you as shown in Fig. 3.
- D. Using a sharp object such as a knife blade point, place point in groove of knock-out and tap on handle unit groove is pierced. DO NOT use excessive force or the internal mechanism of the circuit breaker may be damaged.
  1. Repeat step "D" moving around the groove until the knock-out can be removed.
  2. It is important that the slotted pin is completely exposed and that all plastic has been trimmed and removed until the edge of the knock-out has been cleaned and the metal pin has been exposed. Once the three knock-outs are removed, the accessory is ready for mounting to the circuit breaker.





# Installation Instructions

NOTE: Fibre washer must be placed between the circuit breaker and the accessory as shown in Fig. 4.

Secure accessory to circuit breaker using (2) #6 - 20 X 1 3/8 long thread cutting screws and split lockwashers.

### Testing the Accessory

#### A. Mechanical Testing

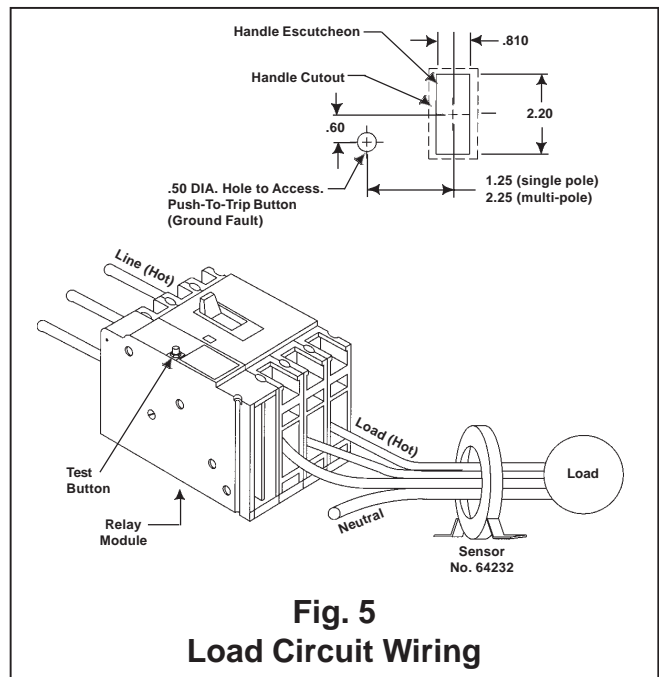
1. "Reset" and turn circuit breaker "On".
2. While observing the slotted actuators in the accessory unit, turn breaker "Off" and "On" several times. The Blade Actuator slot should be close to aligning with the locating tabs when the breaker is "Off", and then move approximately 40° clockwise when the breaker is "On" (Ref. to Fig. 4).
3. Place breaker in "On" position and observe the trip latch actuator. The actuator slot should rotate a few degrees counterclockwise as the trip button is depressed. Also, after the breaker has "tripped" the Blade Actuator slot and the Cradle Actuator slot should be close to aligning with their locating tabs (Ref. Fig. 4).

### Electrical Installation and Test

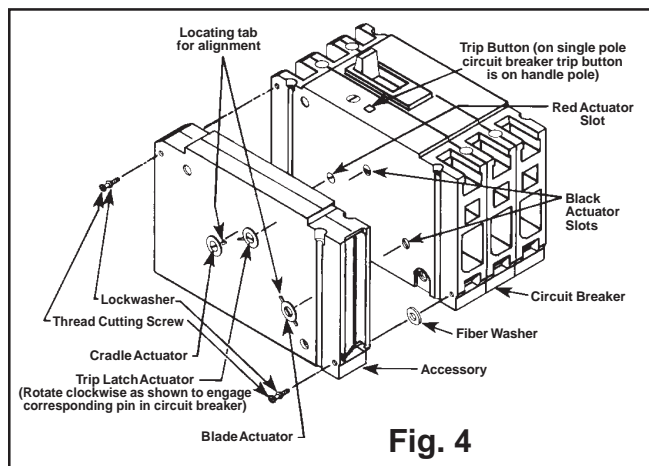
- A. Mount sensor as required for the application. Mounting hardware (10-32 X 3/8" screws) is supplied.
- B. Connect relay, terminals as shown in Figure 1.
- C. Connect load circuit wiring as shown in Figure 5.

D. With the 120 VAC control source energized, depress the test button (Fig. 5) on the face of the relay. The breaker should trip immediately. Reset by moving the breaker handle to the full "OFF" position, then to the "ON" position. The assembly is now fully operational. Periodic retesting is recommended to verify continued protection. A convenient test record card is provided that may be attached to the enclosure trim mounting screw.

NOTE: Access to ground fault relay "Push to Trip" button may be necessary. See Figure 5.



**Fig. 5**  
**Load Circuit Wiring**



**Fig. 4**