

**IB-2.4.7-3**

ISSUE A

**MOLDED-CASE CIRCUIT BREAKERS**

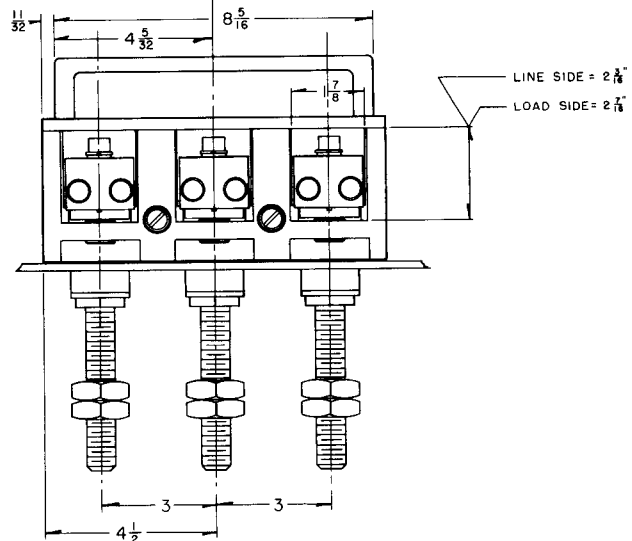
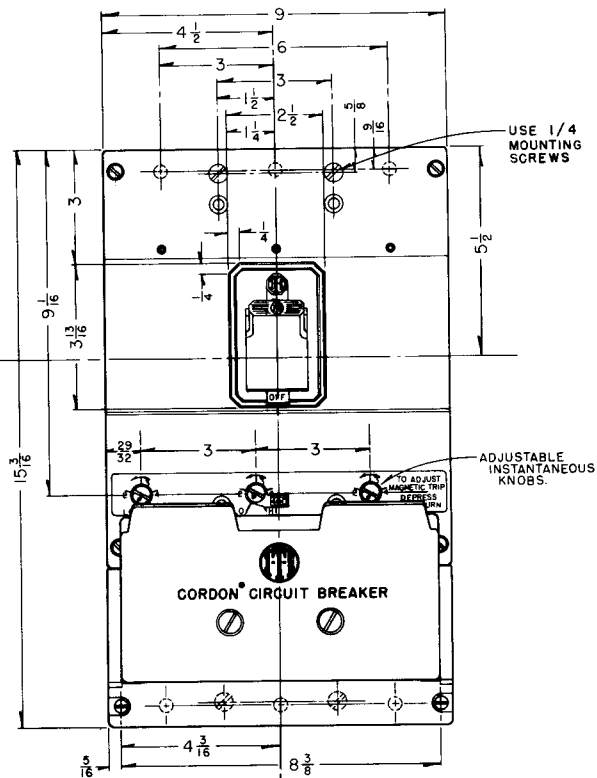
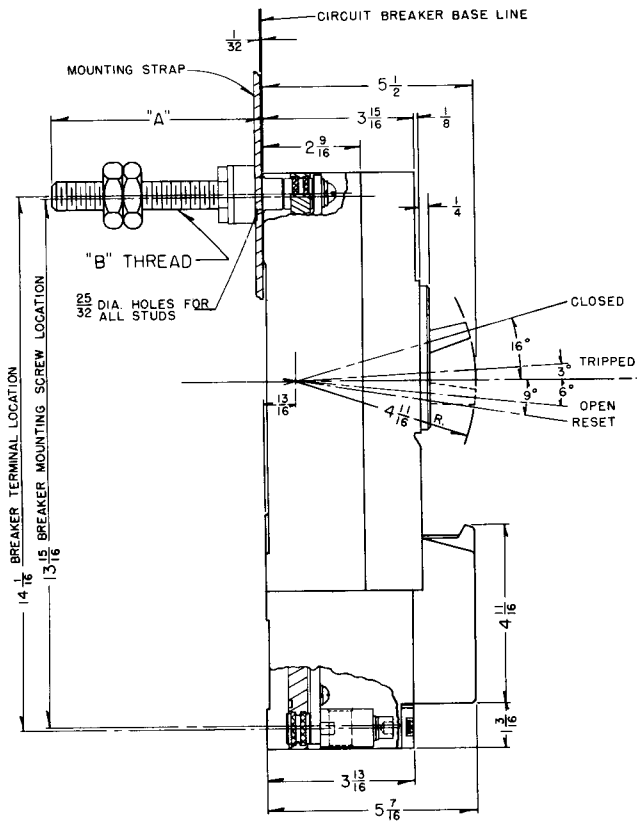
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**INSTRUCTIONS**

**400-AMPERE  
ET<sup>®</sup>-C CJ-FRAME CORDON<sup>®</sup> CIRCUIT BREAKERS  
2 & 3 POLE, 150-400 AMPERES**



**I-T-E CIRCUIT BREAKER COMPANY**



REAR CONNECTED TERMINAL

AMPERE RATING	LENGTH B.O.B. "A"	CATALOG NO.	THREAD "B"	SIDE OF BREAKER
400	3 1/4	RS-5770	3/4-16	LINE
400	5 1/2	RS-6771	3/4-16	LINE
400	3 1/4	RS-5538	3/4-16	LOAD
400	5 1/2	RS-5539	3/4-16	LOAD

FRONT CONNECTED TERMINAL

AMPERE RATING	CABLE RANGE	CATALOG NUMBER
150-225	CU - #4 TO 300 MCM AL - #2 TO 300 MCM	TA1-J300
250-350 250-300	CU - 250 TO 500 MCM AL - 350 TO 500 MCM	TA1-J500
400 350-400	CU - (2) 3/0 TO 250 MCM AL - (2) 4/0 TO 250 MCM	TA2-J250

TWO POLE BREAKER SAME AS THREE POLE EXCEPT CENTER POLE OMITTED.



## INSTRUCTIONS FOR 400-AMPERE CJ-FRAME CORDON CIRCUIT BREAKERS 2 & 3 POLE, 150-400 AMPERES

### GENERAL

CJ-frame CORDON circuit breakers are calibrated for operation in an ambient of 40C and are for use in load centers, switchboards, panelboards, or individual enclosures. Plug-in mounting, rear connected studs or front connected terminal arrangements are optional.

CORDON circuit breakers combine the operating features of the ET molded-case circuit breaker and the current-limiting high interrupting characteristics of the Amp-trap\*. There are, therefore, two protective units in the CORDON breaker design; the standard circuit breaker trip unit which provides thermal-magnetic overload protection, and the Amp-traps, which provide additional interrupting capacity above the standard breaker interrupting rating. The coordination is such that unless the magnitude of the fault reaches the fusing point of the Amp-traps, they are unaffected, and the standard circuit breaker overload devices perform their normal function.

The common trip feature of the circuit breaker is completely retained so that all poles of the circuit breaker open when any Amp-trap blows. An interlocking arrangement prevents the circuit breaker from being closed until any Amp-trap which has operated under short circuit has been removed and replaced. Removal of the Amp-trap housing automatically opens the breaker contacts and provides visual assurance that the circuit is disconnected.

The overcenter toggle mechanism is trip free of the operating handle. The circuit breaker, therefore, cannot be held closed by means of the handle should a tripping condition exist. The handle will assume an intermediate position between "ON" and "OFF" after automatic operation, thus giving a clear indication of tripping.

The circuit breakers operate on a common trip principle so that an overcurrent or short circuit on any pole will simultaneously open all poles.

Nominal instantaneous trip values are externally adjustable with five (5) trip points as shown below:

Breaker Ampere Rating	Nominal Instantaneous Values				
	L0	2	3	4	HI
150-175	750	960	1175	1400	1600
200-225	960	1200	1450	1800	2000
250-300	1050	1350	1650	1950	2250
350-400	1900	2300	2700	3100	3500
225-ETI	960	1200	1450	1800	2000
400-ETI	1900	2300	2700	3100	3500
400-ETI	3200	3600	4100	5100	5600

\* Amp-trap—Registered Trademark, The Chase-Shawmut Company.

ETI circuit breakers (adjustable instantaneous magnetic trip only) can be furnished and are designed for use in welding circuits, motor circuits and combination starters where short circuit protection only is required. When used in combination starters, they serve in conjunction with motor protective relays to offer complete protection. The starter relays guard against motor overloads; the circuit breaker provides short circuit protection.

Special features such as shunt trip, auxiliary and alarm switches and undervoltage trip devices are available and are mounted internally. Information concerning these special features is available upon request.

### INTERRUPTING RATINGS

The interrupting ratings of the CJ-frame circuit breakers are based on circuits adjusted to the rated short circuit current (at specified voltage) before the insertion of the circuit breaker.

Volts	Under-writers'	Based on NEMA Test Procedures	
		Amperes	
	Amperes	Asymmetrical	Symmetrical
240 ac	100,000	235,000	200,000
480 ac	100,000	120,000	100,000
600 ac	100,000	120,000	100,000
250 dc	- - -	100,000	

### CIRCUIT BREAKER OPERATION

With the mechanism latched and the contacts open, the operating handle will be in the "OFF" position. Moving the handle to the "ON" position closes the contacts and establishes a circuit through the breaker. Under overload or short circuit conditions sufficient to trip or open the breaker automatically, the operating handle moves to a position between "ON" and "OFF" as previously described. To relatch the circuit breaker after automatic operation, move the operating handle to the extreme "OFF" position. The circuit breaker is now ready for reclosing.

### INSTALLATION AND REPLACEMENT

CJ-frame CORDON circuit breakers as shipped, are complete with the exception of terminal connection arrangements including solderless connectors, rear connection studs or plug-in mounting. For complete circuit breaker installation and replacement of Amp-trap current-limiting fuses, refer to the following sections.

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation, or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes the matter should be referred to the I-T-E Circuit Breaker Company.



### WARNING FOR CIRCUIT BREAKER REMOVAL

THE CIRCUIT BREAKER SHOULD BE IN THE "OFF" POSITION AND, IF PRACTICABLE, THE SWITCHBOARD DE-ENERGIZED BEFORE INSPECTING, CHANGING, INSTALLING OR REMOVING THE CIRCUIT BREAKER OR AMP-TRAPS. IF THE BUS CANNOT BE DE-ENERGIZED, USE INSULATED HANDLE TOOLS, RUBBER GLOVES AND A RUBBER FLOORMAT.

### CIRCUIT BREAKER INSTALLATION (Reference Fig.1)

#### 1. See WARNING FOR CIRCUIT BREAKER REMOVAL.

2. Loosen anchor screws (1) and pull Amp-trap assembly (2) away from circuit breaker.

Notes: a. Removal of Amp-trap cover automatically trips circuit breaker. Be careful of hands as operating handle (7) moves to "trip" position.

- b. Anchor screws are loosely retained in Amp-trap cover to facilitate replacement of assembly.

3. Remove auxiliary cover plate screws (3) and auxiliary plate cover (4).
4. Mount and secure line and load connection devices according to instructions furnished with particular type.
5. Mount CORDON circuit breaker in position, inserting  $\frac{1}{4}$  inch washers, lockwashers and mounting screws of required length into mounting holes (5). Tighten mounting screws securely.
6. Connect line and load leads as required.
7. Replace auxiliary cover plate (4) and fasten in place with screws (3).
8. Replace Amp-trap cover (2) and press inward to engage separable connectors (6). Tighten anchor screws (1) securely.
9. CORDON circuit breaker is now ready for service. To close, move handle (7) to extreme "OFF" position, then to "ON" position.

### REPLACEMENT OF AMP-TRAP CURRENT-LIMITING FUSES

When the circuit breaker cannot be closed after waiting a normal period of time for the thermal element to reset, the Amp-trap current-limiting fuses should be

checked for an "open" condition. Buttons (10, Fig. 2) in "open" Amp-traps project approximately  $\frac{1}{4}$  inch beyond their surrounding bushings (11, Fig. 2). Buttons in good Amp-traps are flush or slightly below the ends of the bushings.

**WARNING:** REMOVAL OF AMP-TRAP COVER AUTOMATICALLY TRIPS CIRCUIT BREAKER. AS AN EXTRA PRECAUTION, CIRCUIT BREAKER SHOULD BE IN THE "OFF" POSITION AND TRIP UNIT TERMINALS MUST BE DISENGAGED FROM ANY SOURCE OF POWER BEFORE REMOVING COVER.

#### 1. See Above Warning—Removal of Amp-trap Cover.

2. Loosen anchor screws (1, Fig.1) and pull Amp-trap assembly (2, Fig. 1) away from circuit breaker.

Note: Anchor screws are loosely retained in Amp-trap cover to facilitate replacement of assembly.

3. Loosen screws (12, Fig. 2) and remove retaining bar (13, Fig. 2). These screws are loosely retained to facilitate replacement of the bar.
4. Check condition of Amp-traps, as described in the first paragraph of this section, and replace faulty devices.
5. Replace retaining bar (13, Fig. 2) and secure in place with screws (12, Fig. 2).
6. Replace Amp-trap assembly (2, Fig. 1) in circuit breaker and press inward to engage separable connectors (6, Fig. 1). Tighten anchor screws (1, Fig. 1) securely.
7. CORDON circuit breaker is now ready for service. To close, move handle (7, Fig. 1) to extreme "OFF" position, then to "ON" position.

### INSPECTION AND MAINTENANCE

#### See WARNING FOR CIRCUIT BREAKER REMOVAL.

Should the circuit breaker appear to be overheating, inspect for any loose or otherwise defective terminal connections.

When a circuit breaker is not operated for long periods of time, a high resistance film may form on the contact surfaces which will also result in overheating. This high resistance film may be minimized, and in most cases removed, by opening and closing the circuit breaker several times under load.

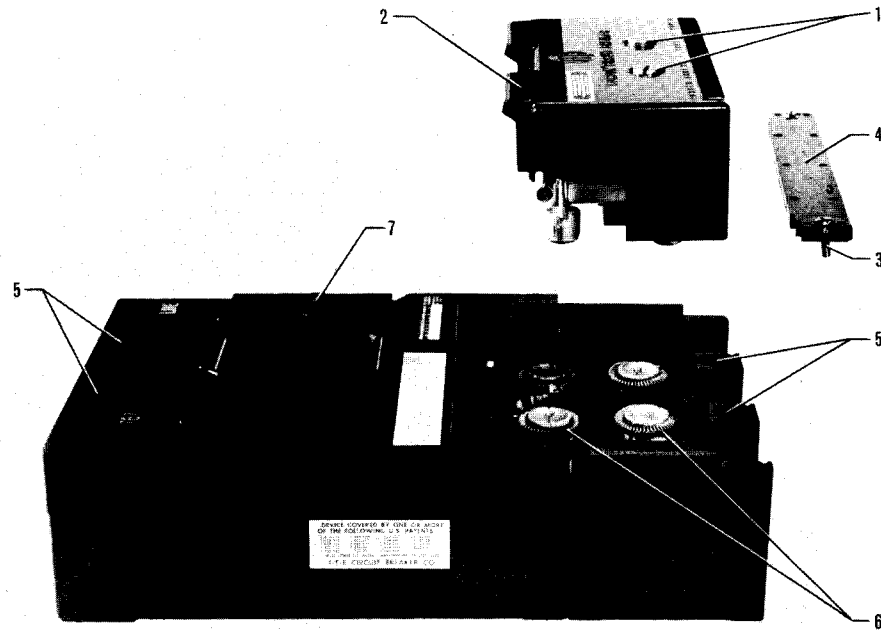


Fig. 1

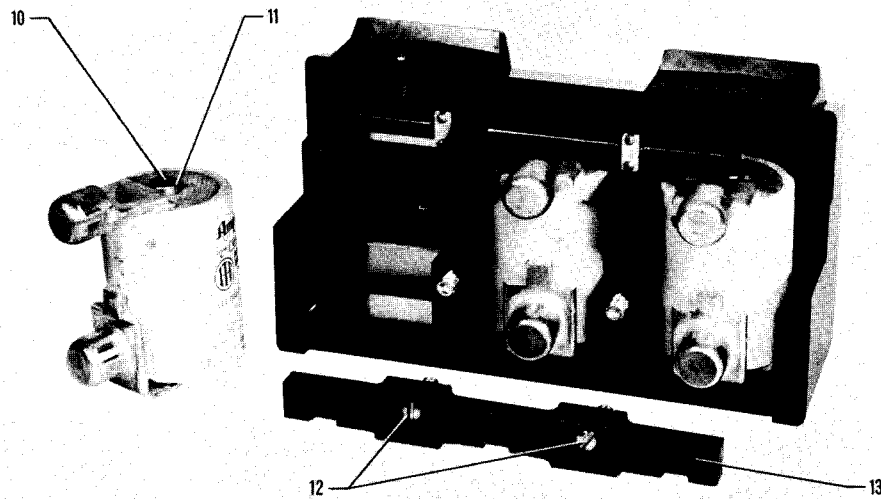


Fig. 2





**NOTES**



**I-T-E CIRCUIT BREAKER COMPANY**