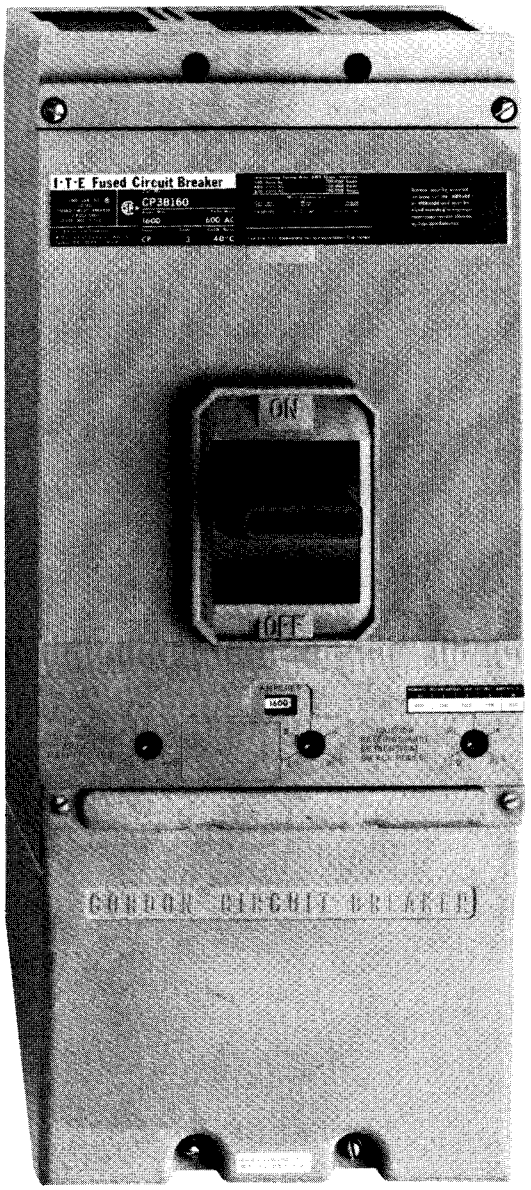
SIEMENS

Information and Instruction Guide

K Frame
Type CP Cordon®

I-T-E® Molded Case Circuit Breakers



Bulletin IB-2.4.7-5A

I-T-E K Frame
Type CP Cordon®
Model ETC
3 Pole 600-1600 Amperes

WARNING

Dangerous voltages are present inside the enclosures, or panels in which this circuit breaker is installed. Serious injury, electrocution, and/or equipment damage is possible unless extreme caution is used when examining this circuit breaker while it is still in service.

De-energize all incoming power if conditions exist which are contrary to those described in this instruction book or which are otherwise unusual.

Only qualified personnel should work on or around this equipment.

TABLE OF CONTENTS

IMPORTANT

The information contained herein is general in nature and is not intended for specific application purposes nor is it intended as a training manual for unqualified personnel. Refer to Note for definition of a **qualified person***. It does not relieve the user of responsibility to use sound practices in application, installation, operation and maintenance of the equipment purchased or in personnel safety precautions. Should a conflict arise between the general information contained in this publication and the contents of drawings or supplementary material or both, the latter shall take precedence. I-T-E Electrical Products Division of Siemens Energy & Automation, Inc. reserves the right to make changes in specifications shown herein or add improvements at any time without notice or obligation.

NOTE

*** Authorized and qualified personnel-**

For the purpose of this manual a qualified person is one who is familiar with the installation, construction or operation of the equipment and the hazards involved. In addition, he has the following qualifications:

(a) **is trained and authorized** to de-energize, clear, ground, and tag circuits and equipment in accordance with established safety practices.

(b) **is trained** in the proper care and use of protective equipment such as rubber gloves, hard hat, safety glasses or face shields, flash clothing, etc., in accordance with established safety practices.

(c) **is trained** in rendering first aid.

NOTE

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 local I-T-E Electrical Product Division of Siemens Energy & Automation, Inc. sales office.

The contents of this instruction manual shall not become part of or modify any prior or existing agreement, commitment or relationship. The sales contract contains the entire obligation of Siemens Energy & Automation, Inc. The warranty contained in the contract between the parties is the sole warranty of Siemens Energy & Automation, Inc. Any statements contained herein do not create new warranties or modify the existing warranty.

NEMA PROCEDURES NOTE

Dangerous voltages are present in the equipment which can cause severe personal injury and product failure. Always de-energize and ground the equipment before maintenance. Maintenance should be performed only by qualified personnel. The use of unauthorized parts in the repair of the equipment or tampering by unqualified personnel will result in dangerous conditions which can cause severe personal injury or equipment damage. Follow all safety instructions contained herein.

GENERAL INFORMATION FOR I-T-E K FRAME, TYPE CP CIRCUIT BREAKERS 3 POLE, 600-1600 AMPERES

General

CP-Type CORDON® circuit breakers, as shown in drawings on page 6, are for use in individual enclosures, switchboards and power and distribution panelboards.

CORDON circuit breakers combine the operating features of a model ET molded case circuit breaker and the high interrupting ability of Amp-trap® fuses. This means double protection is provided, both thermal-magnetic overload protection by the breaker trip unit and an interrupting capability in excess of the standard breaker ratings by the use of Amp-trap fuses. The coordination of the two allows normal circuit breaker operation for overload conditions without affecting the Amp-trap fuses. In high fault conditions, the Amp-trap fuses quickly and efficiently interrupt the fault current, which may exceed the interrupting rating of the breaker alone.

The common trip feature of the circuit breaker, which causes all poles to open simultaneously for any overcurrent or short circuit, is coordinated so that all poles of the circuit breaker open when any Amp-trap fuse operates. Removal of the fuse cover automatically opens the breaker contacts and provides mechanical assurance that the circuit is disconnected.

All units require either a Connect-All mounting assembly (cat. No. MB9309, see pages 8-9) or a Reverse Mounting Block assembly (cat. no. MBR9308, see pages 10-11) – specify when ordering.

Pressure wire connectors, suitable for use with aluminum or copper wire are available for all CP-Type circuit breakers. Special features such as a shunt trip, auxiliary and alarm switches and undervoltage trip devices are available for internal mounting. These devices, with the exception of the bell-alarm, are UL listed. The installation and/or removal of these devices are to be accomplished by specially trained personnel only. Accessory catalog numbers can be found on pages 24 & 25.

Thermal Magnetic

CP circuit breakers provide complete overload and short circuit protection by use of a time-delay thermal trip element and an instantaneous magnetic trip device. Nominal instantaneous trip values are externally adjustable with 5 trip points as shown below:

Breaker Ampere Rating	NOMINAL INSTANTANEOUS VALUES				
	Low	2	3	4	HI
600-800	3200	3600	4100	5100	5600
1000-1600	4000	5000	6000	7000	8000

Consult NEMA – procedures for verifying performance of molded case circuit breakers – AB2 for field tests.

Circuit breakers are calibrated at the factory, under controlled temperature conditions for a 40°C (104°F) ambient. The cover on the trip unit is sealed to prevent access to the trip elements. Alterations of the calibration of these elements should not be attempted. Removal of the special seals will void the Underwriters' Laboratories, Inc. listing for that specific trip unit.

Catalog numbers for ordering and informational purposes can be found on page 25.

Interrupting Ratings

The interrupting ratings of the CP Type circuit breakers are based on circuits adjusted to the rated short circuit (at specified voltage levels) before the insertion of the circuit breaker.

Based on UL 489 Standards Symmetrical Rms Amperes			
Breaker Type	240VAC	480VAC	600VAC
CP	200,000	200,000	200,000

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.

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.

Warning for Circuit Breaker Removal

The circuit breaker should always be in the "TRIPPED" or "OFF" position; and if practical, the switchboard de-energized before inspecting, changing, installing or removing the circuit breaker. Never attempt to add internal features with the circuit breaker mounted in any panel or switchboard. If the bus cannot be de-energized, use insulated hand tools, rubber gloves and a rubber floormat.

Maintenance

Failure to properly maintain this equipment can result in severe personal injury and product failure. The instructions contained herein should be carefully reviewed, understood and followed. The following maintenance procedure should be performed regularly:

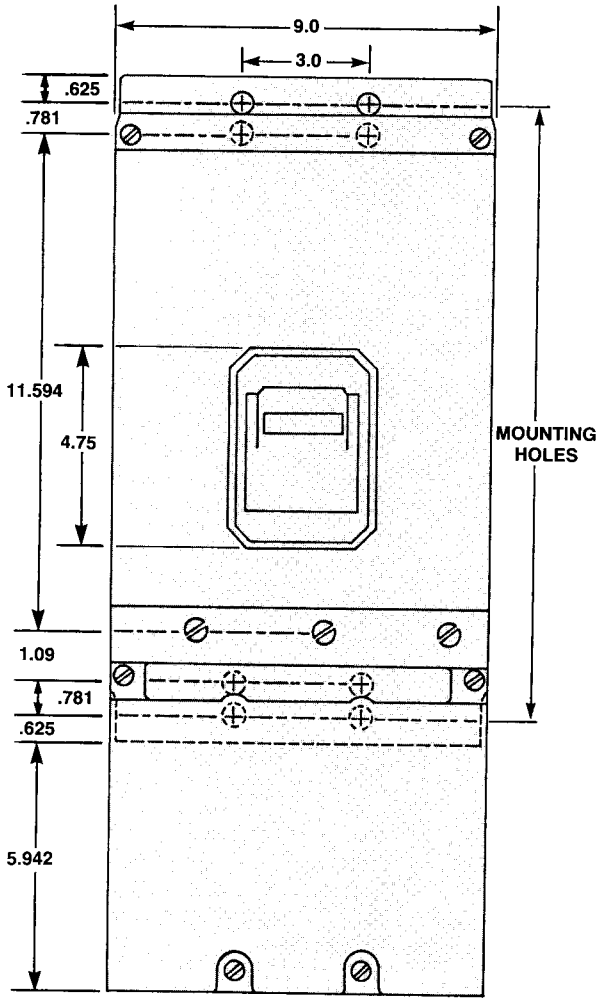
1) Breaker should be turned "ON" and "OFF" several times to assure proper mechanical function of the contact mechanisms.
2) Assure that terminal connectors are properly secured.
3) Visually inspect circuit breaker molding for broken or cracked surfaces.
4) Assure that trip unit attachment screws are at recommended torque value.
5) For additional testing information consult NEMA procedures for verifying performance of molded case circuit breakers.

This checklist does not purport to cover all details.

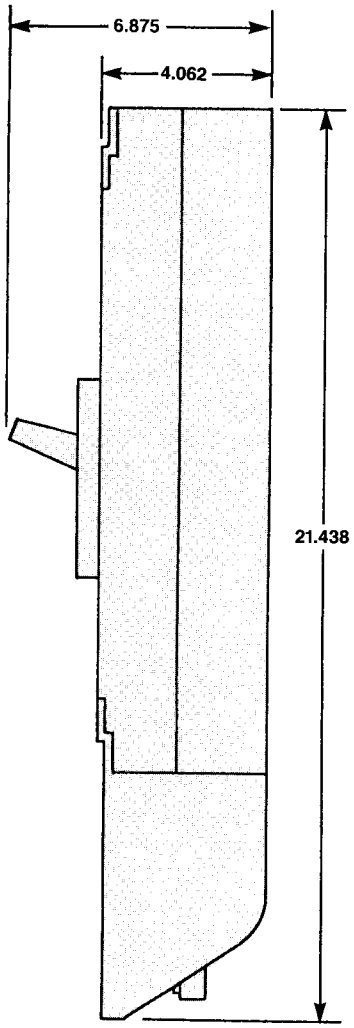
Special Note: CP Type circuit breakers must be mounted on a Connect All mounting block assembly (MB9309 or MBR9308) to be properly placed into service.

Amp-trap® is a registered trademark of the Gould Shawmut Company.

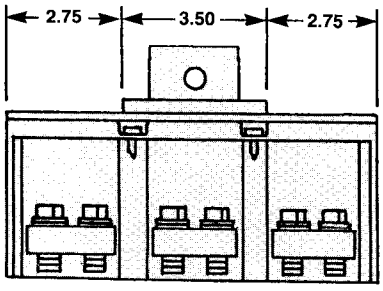
I-T-E K FRAME OUTLINE DRAWINGS



FRONT VIEW



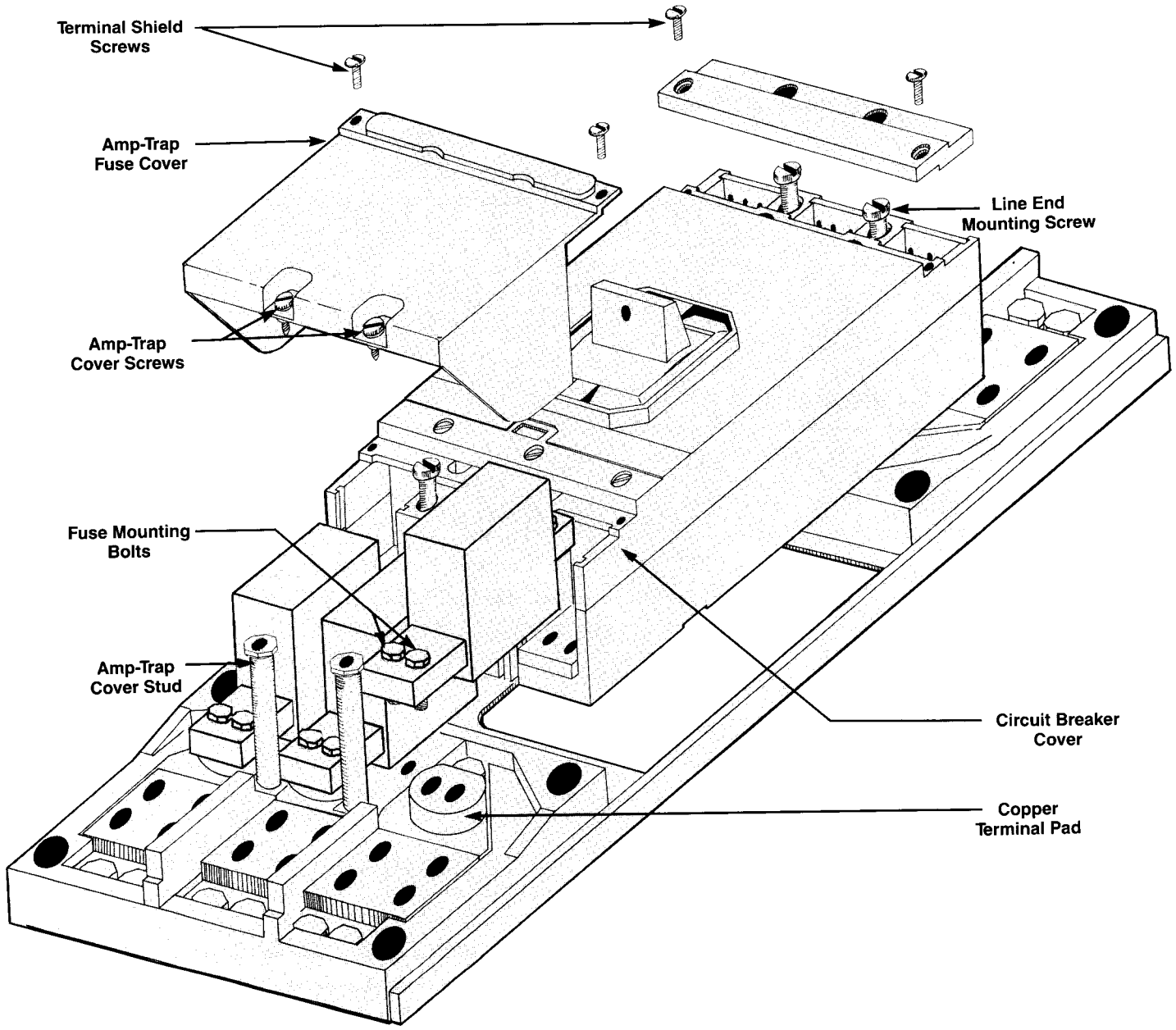
SIDE VIEW



END VIEW

For further mounting and dimensional detail, see pages 9 or 11.

INSTRUCTIONS FOR INSTALLING AMP-TRAP® FUSES



⚠ DANGER

Hazardous Voltage. Will cause severe injury or death.

Turn power off supplying device before installing.

WARNING

REMOVAL OF THE AMP-TRAP COVER AUTOMATICALLY TRIPS CIRCUIT BREAKER. THE BREAKER SHOULD BE IN THE "OFF" POSITION BEFORE ATTEMPTING TO REMOVE THIS COVER.

Replacement Of Amp-trap Fuses

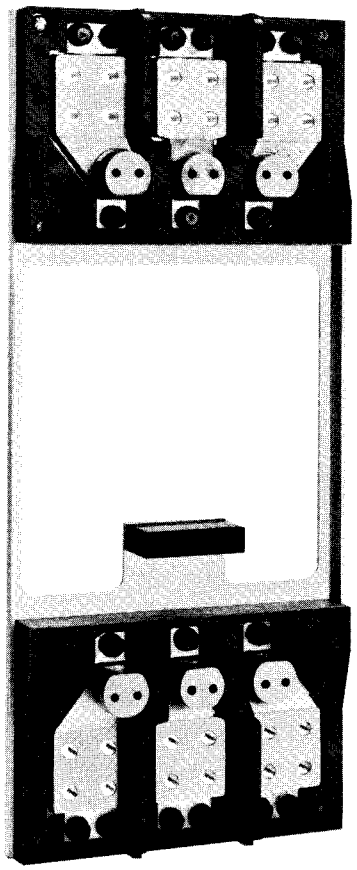
If the breaker cannot be reset after allowing it time to cool after a tripping operation, the Amp-trap fuses should be examined.

1. Remove the four cover screws and the Amp-trap fuses cover. It is not necessary to remove the circuit breaker cover to access the fuses.
2. Remove four fuse mounting hex head bolts and lockwashers from each fuse as required.
3. Remove the Amp-trap fuse or fuses from the breaker frame.
4. Fuses may be continuity checked to confirm the status of the special internal fuse links.
5. Install replacement fuses using the hex head bolts and lockwashers removed in step 3. (Recommended torque 10-12 foot-pounds.)
6. Replace the circuit breaker cover, if removed, using four cover screws.

Replacing The Amp-trap Fuses Cover

The breaker cannot be switched to the "ON" position until the fuse cover has been replaced. Secure the cover with the four screws with lockwasher, flat washer and insulating sleeve.

INSTRUCTIONS FOR INSTALLING
I-T-E CONNECT-ALL MOUNTING BLOCK – MB9309



⚠ DANGER

Hazardous Voltage. Will cause severe injury or death.

Turn power off supplying switchboard or panel before installing.

⚠ SAFETY INSTRUCTIONS

Mounting Block Preparation

A. Provide suitable mounting supports (**1**) and drill holes per Fig. 1.
B. Provide cutout for breaker escutcheon in front plate per Fig. 1.
C. Refer to Fig. 2. Remove four bolts (**2**) and re-use these bolts to mount pan and block assembly to support angles. Tighten mounting bolts securely.
D. Make line and load end bus or cable connections. Bus or pressure wire connectors may be mounted to front or back of Connect-All terminal pads, eliminating the need for cable looping. Use four ½ inch bolts and nuts per terminal for bus connection, torque bolts to 21-23 ft. lbs. Refer to page 12 for pressure wire connector installation instructions.

Mounting Breaker and Amp-Traps Onto Mounting Block

E. Move breaker handle to "OFF" position.
F. Remove breaker terminal shield screws (**3**) and the line end terminal shield (**4**). Set breaker on round copper terminals protruding from the line end mounting block connector (**5**). Fasten breaker to line end mounting block (**6**) with two 1¾ long slotted fillister head screws (**7**), washers, and lockwashers, furnished with mounting block unit. Fasten load end of breaker base to support block (**16**) with two 3¾ long slotted fillister head screws (**17**), washers, and lockwashers, furnished with mounting block unit. Tighten all mounting screws securely.
G. Make electrical terminal connections between line end breaker terminals and line end mounting block connector straps (**5**). **Use two silicon bronze hex. head bolts (8) ⅜ dia. 1¾ long, washers and lockwashers per terminal furnished with mounting block unit. Tighten these 6 bolts with a torque of 11-13 ft. lbs. Replace breaker end cover (3).**
H. Mount Amp-trap current limiting fuses (**9**) to breaker and round copper terminals (**10**) protruding from load end mounting block connector straps with four silicon bronze hex. head bolts (**11**), ⅜ dia. by 1½ inches long, washers and lockwashers furnished with the Amp-trap unit. Tighten these twelve terminal bolts with a torque of 11-13 ft. lbs.
I. Assemble Amp-trap cover studs (**12**) to mounting block (**13**). Tighten securely.
J. Fasten Amp-trap cover (**14**) to cover studs (**12**) with captivated screws (**15**) and to breaker with two no. 10 screws (**14**), washers and lockwashers, furnished with Amp-trap unit. Tighten screws securely.

DIAGRAMS FOR INSTALLATION OF I-T-E CONNECT-ALL MOUNTING BLOCK – MB9309

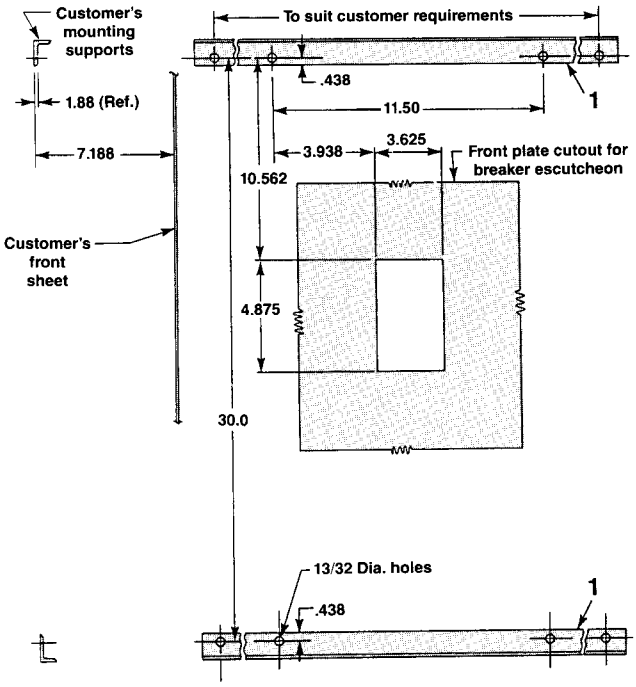
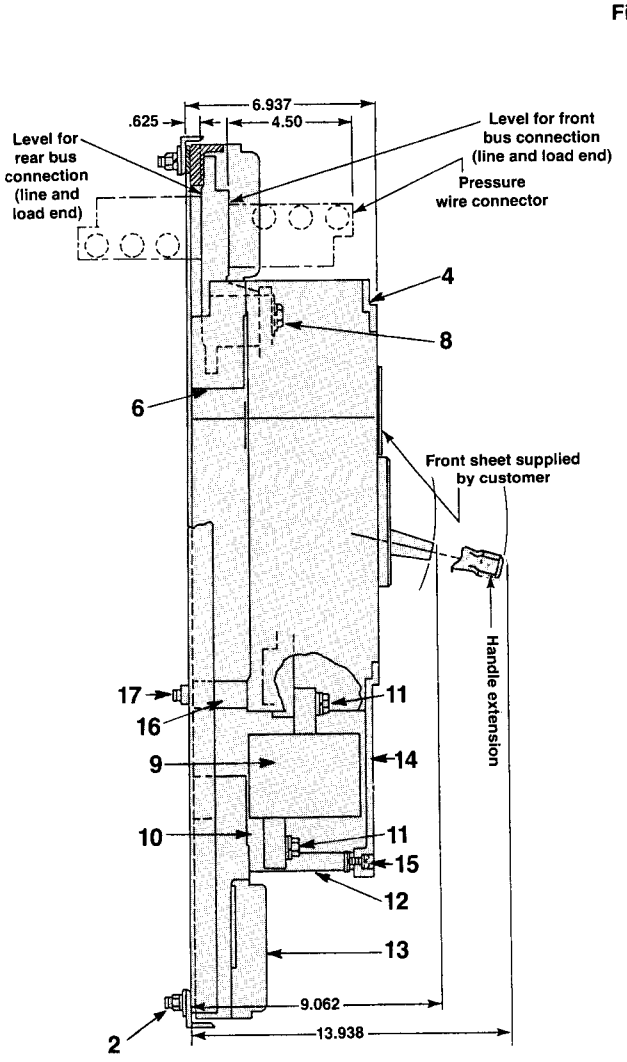


Fig. 1



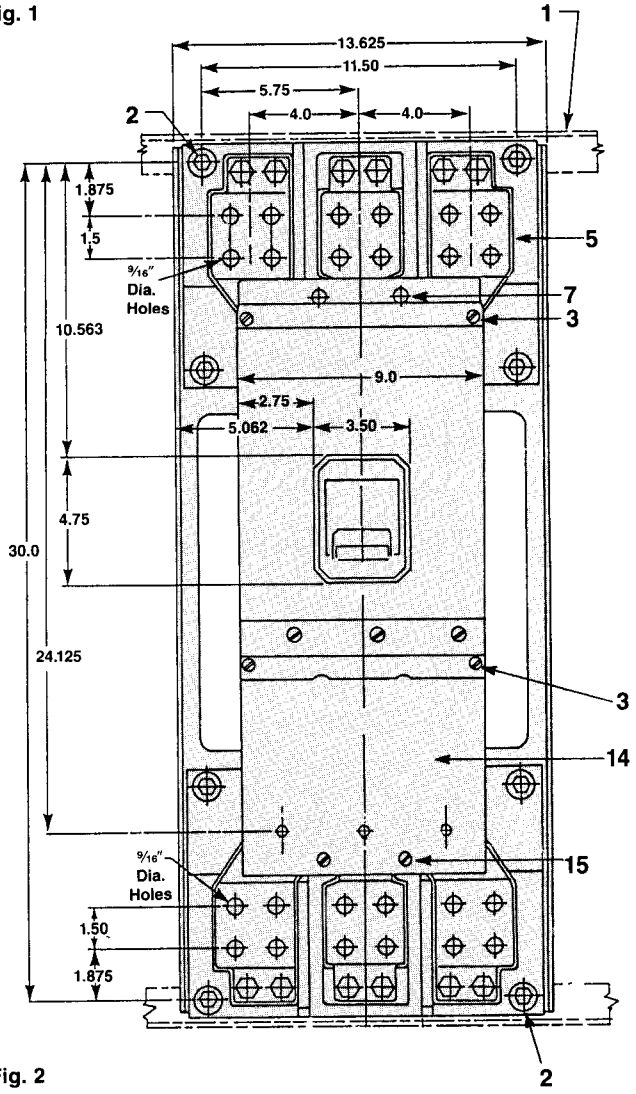
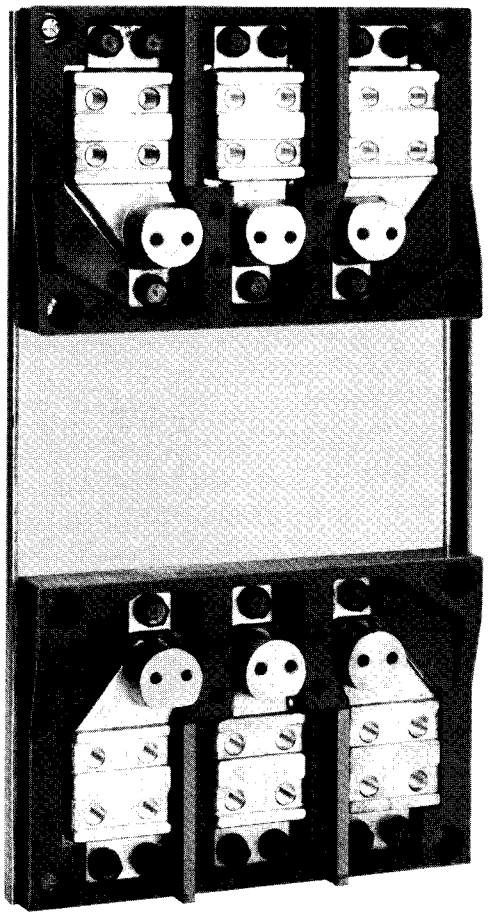


Fig. 2

INSTRUCTIONS FOR INSTALLING
I-T-E REVERSE MOUNTING BLOCK – MBR9308



⚠ DANGER

Hazardous Voltage. Will cause severe injury or death.

Turn power off supplying switchboard or panel before installing.

⚠ SAFETY INSTRUCTIONS

Mounting Block Preparation

A. Provide suitable mounting supports (**1**) and drill holes per Fig. 1.

B. Provide cutout for breaker escutcheon in front plate per Fig. 1.

C. Refer to Fig. 2. Remove four bolts (**2**) and re-use these bolts to mount pan and block assembly to support angles. Tighten mounting bolts securely.

D. Make line and load end bus or cable connections. Bus or pressure wire connectors may be mounted to back of terminal pads. Use four ½ inch bolts and nuts per terminal for bus connection, torque bolts to 21-23 ft. lbs. Refer to page 12 for pressure wire connector installation instructions.

Mounting Breaker and Amp-Traps Onto Mounting Block

E. Move breaker handle to "OFF" position.

F. Remove breaker terminal shield screws (**3**) and the line end terminal shield (**4**). Set breaker on round copper terminals protruding from the line end mounting block connector (**5**). Fasten breaker to line end mounting block (**6**) with two 1¾ long slotted fillister head screws (**7**), washers, and lockwashers, furnished with mounting block unit. Fasten load end of breaker base to support block (**16**) with two 3¾ long slotted fillister head screws (**17**), washers, and lockwashers, furnished with mounting block unit. Tighten all mounting screws securely.

G. **Make electrical terminal connections between line end breaker terminals and line end mounting block connector straps (5). Use two silicon bronze hex. head bolts (8) ⅜ dia. 1¾ long, washers and lockwashers per terminal furnished with mounting block unit. Tighten these 6 bolts with a torque of 11-13 ft. lbs. Replace breaker end cover (3).**

H. Mount Amp-trap current limiting fuses (**9**) to breaker and round copper terminals (**10**) protruding from load end mounting block connector straps with four silicon bronze hex. head bolts (**11**), ⅜ dia. by 1½ inches long, washers and lockwashers furnished with the Amp-trap unit. Tighten these twelve terminal bolts with a torque of 11-13 ft. lbs.

I. Assemble Amp-trap cover studs (**12**) to mounting block (**13**). Tighten securely.

J. Fasten Amp-trap cover (**14**) to cover studs (**12**) with captivated screws (**15**) and to breaker with two no. 10 screws (**14**), washers and lockwashers, furnished with Amp-trap unit. Tighten screws securely.

DIAGRAMS FOR INSTALLATION OF I-T-E REVERSE MOUNTING BLOCK – MBR9308

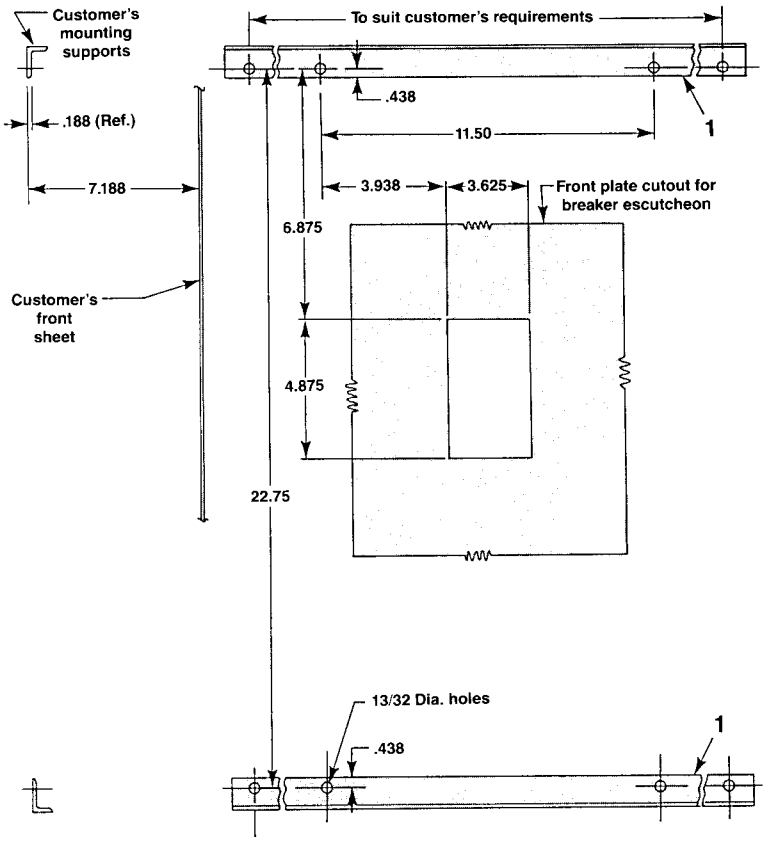


Fig. 1

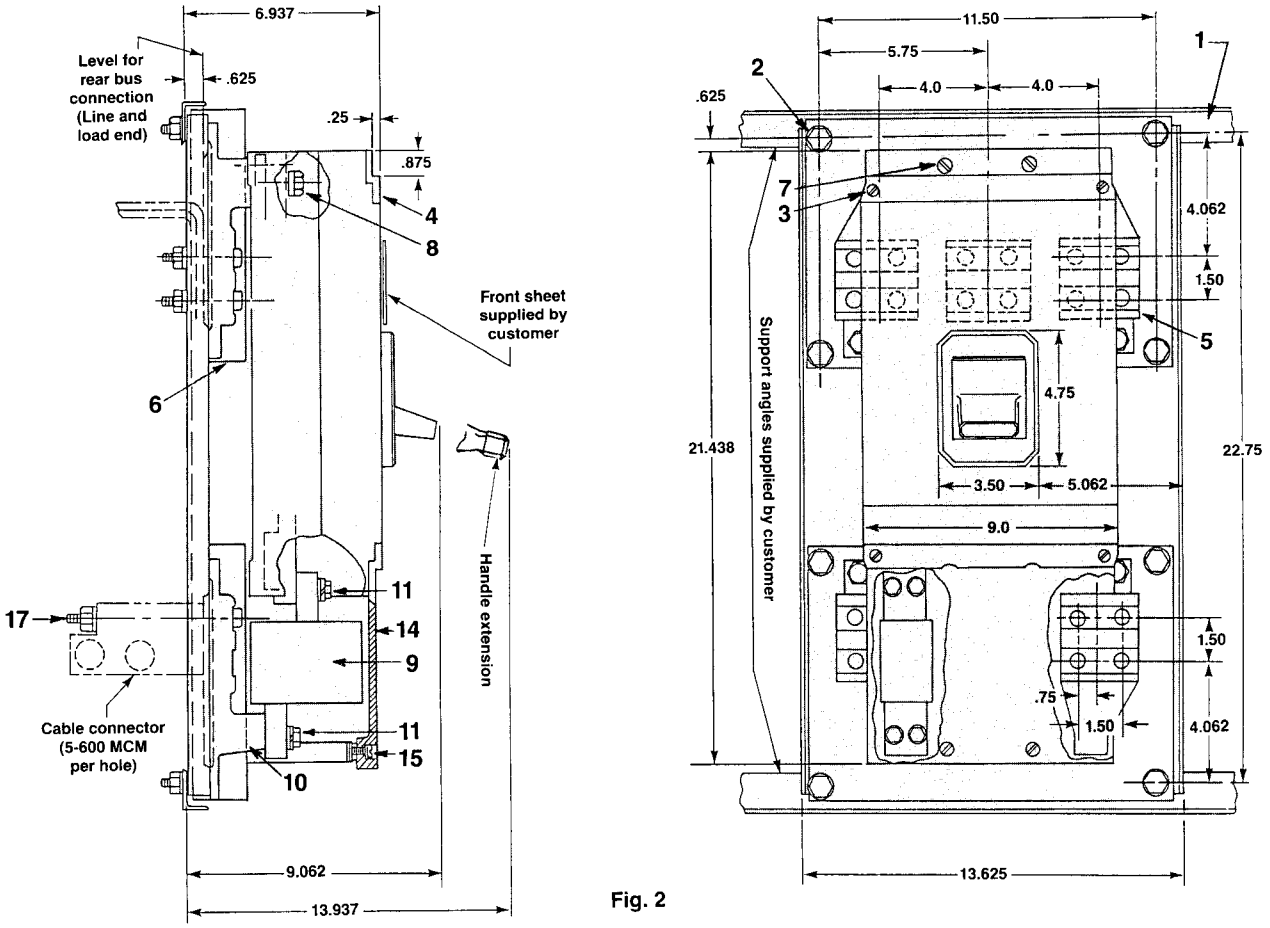
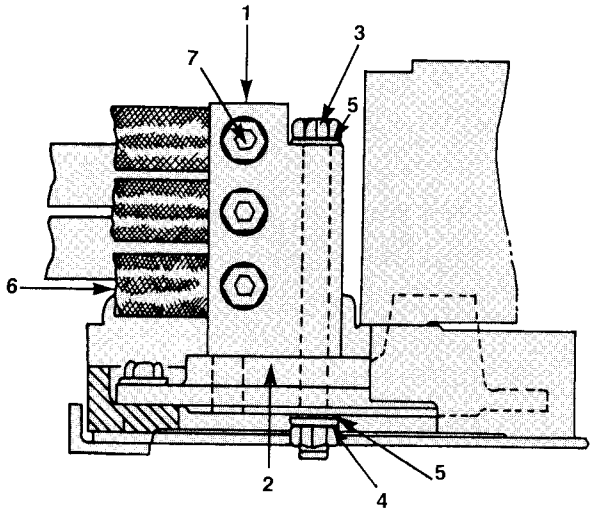
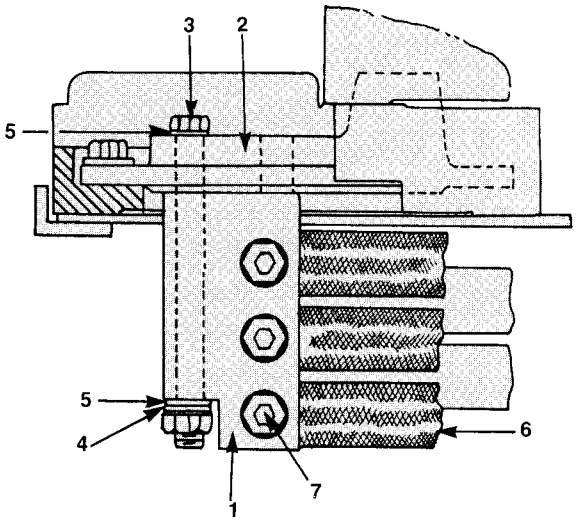


Fig. 2

INSTRUCTIONS FOR INSTALLING
I-T-E PRESSURE WIRE CONNECTORS



Connectors – Front Mounted



Connectors – Rear Mounted

⚠ DANGER

Hazardous Voltage. Will cause severe injury or death.

Turn power off supplying device before installing.

⚠ SAFETY INSTRUCTIONS

A. Pressure wire connectors can be installed on the Connect-All Mounting Block assembly (see pages 8-11) before assembly is mounted or on the mounted assembly either before or after the circuit breaker is installed on the mounting block.

NOTE: Steps B & C may be completed in any convenient order.

B. Mount pressure wire connectors (**1**) to mounting block assembly (**2**) with two each mounting bolts (**3**), lockwashers (**4**) and flatwashers (**5**) supplied with connectors as shown. Torque mounting bolts to 300 in. lbs.

C. Attach power cable (**6**) to pressure wire connectors (**1**) and tighten cable set screws (**7**) as follows:

Catalog No.	Wire Range	Set Screw Torque
TA5P600	(1-5) 300MCM-600MCM Cu-Al	375 in. lbs.
TC4P750	(1-4) 750 MCM Cu	375 in. lbs.

D. Complete mounting block assembly and circuit breaker installation as detailed on pages 8-11.

ACCESSORY INFORMATION FOR I-T-E SHUNT TRIP AND UNDERVOLTAGE TRIP DEVICES

The following is for INFORMATION PURPOSES ONLY. These devices are to be installed only by the factory or specific authorized personnel.

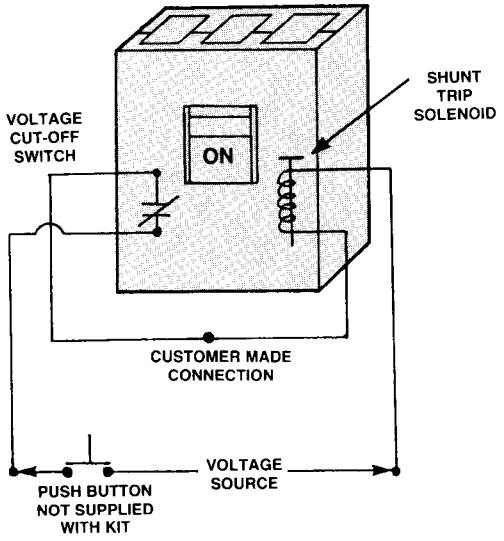
SHUNT TRIP

Control Voltage		1 Shunt Trip
AC	DC	Cat. No.
120		S01HP0R0
240		S02HP4R0
480		S02HP4R0
600		S06HP2R0
	24	S07HP0R0
	48	S09HP0R0
	125	S10HP2R0
	250	S12HP2R0

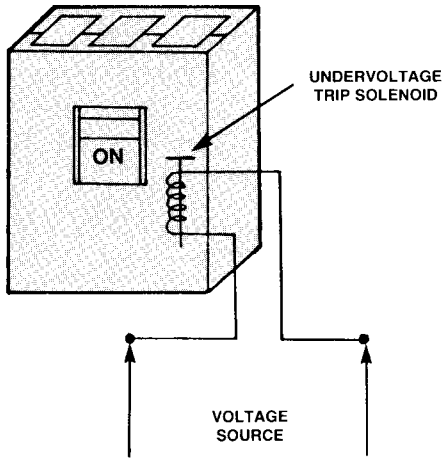
UNDERVOLTAGE TRIP

Control Voltage		1 Undervoltage Trip
AC	DC	Cat. No.
120		U01HP0R0
240		U03HP0R0
480		U04HP3R0
600		U07HP2R0
	12	U15HP0R0
	24	U13HP0R0
	48	U14HP0R0
	125	U09HP2R0
	250	U11HP2R0

LINE END



LINE END



SHUNT TRIP ACCESSORY

1. Place circuit breaker into the "ON" position.
2. Attach test circuit to accessory leads. (Be sure that the supplied and installed voltage cutoff switch is wired in series with the solenoid coil). Shunt trip device must trip the circuit breaker at a value of at least 55% of the marked coil voltage rating.
3. With the circuit breaker in the "TRIPPED" or "OFF" position, check to make sure coil circuit is open.

UNDERVOLTAGE TRIP ACCESSORY

1. With circuit breaker in "TRIPPED" position, connect test circuit to accessory leads. Energize undervoltage device at 85% of the marked coil voltage. Reset breaker to "OFF" position, then move breaker handle to "ON".
2. Raise voltage to full rated voltage level.
3. Lower voltage to 70% of rated voltage. Breaker must not trip.
4. Continue to lower voltage – undervoltage device must trip the breaker at a level of 35% to 70% of the rated coil voltage.

ELECTRICAL DATA FOR SHUNT TRIP

Source Voltage	Inrush Current At Rated Voltage (Amperes)	Cat. No.
60 CYCLES AC		
120	5.6	S01HP0R0
240	2.2	S02HP4R0
480	4.4	S02HP4R0
600	1.5	S06HP2R0
DC		
24	7.1	S07HP0R0
48	4.6	S09HP0R0
125	0.66	S10HP2R0
250	0.56	S12HP2R0

ELECTRICAL DATA FOR UNDERVOLTAGE TRIP

Source Voltage	Sealed-In Current At Rated Voltage (Amperes)	Cat. No.
60 CYCLES AC		
120	.054	U01HP0R0
240	.034	U03HP0R0
480	.013	U04HP0R0
600	.009	U07HP2R0
DC		
24	.106	U13HP0R0
48	.061	U14HP0R0
125	.027	U09HP2R0
250	.022	U11HP2R0

I-T-E AUXILIARY SWITCH INFORMATION

AUXILIARY SWITCH KITS

Cat. No.	Number Of Switches	Ampere Rating of Switch		
		AC Voltage	DC Voltage	
		480 V	125 V	250 V
A01HP0R0	1	15	0.50	0.25
A02HP0R0	2	15	0.50	0.25
A01HP0R0	1	15	0.50	0.25
A02HP0R0	2	15	0.50	0.25

ALL SWITCHES HAVE THREE LEADS AND ARE IDENTIFIED AS FOLLOWS:

Wire Markings	Wire Color	Switch Terminals or Contacts
C or C1	White	C – Common Terminal
A or A1	Black	A – Contact open when breaker is open, closed when breaker is closed.
B or B1	Red	B – Contact closed when breaker is open, open when breaker is closed.

MECHANICAL/ELECTRICAL CHECK

1. Use a buzzer or light attached to switch leads A and C. With breaker in "ON" position, a light or buzz should be observed.
2. Move handle to "OFF" position. Indicator light or buzzer should turn off.
3. Attach test to leads B and C. Light or buzzer should turn on.
4. Move handle to "ON" position. Indicator light or buzzer should turn off.

SHOULD THE INDICATOR NOT FUNCTION PROPERLY DURING CHECK PROCEDURE, CHECK FOR INCORRECT INSTALLATION OR WIRING.

MAXIMUM ACCESSORY COMBINATIONS THAT CAN BE INSTALLED

ONE SHUNT TRIP + ONE EXTRA AUXILIARY SWITCH (Example – S01HP0R0 + A02HP0R0)
ONE UNDERVOLTAGE + 2 AUXILIARY SWITCHES
ONE AUXILIARY SWITCH + 1 BELLALARM SWITCH + 1 UNDERVOLTAGE
THREE AUXILIARY SWITCHES + 1 BELLALARM
ONE SHUNT TRIP + 1 BELLALARM

INSTRUCTIONS FOR ASSEMBLING
I-T-E WALKING BEAM INTERLOCK – MI5484

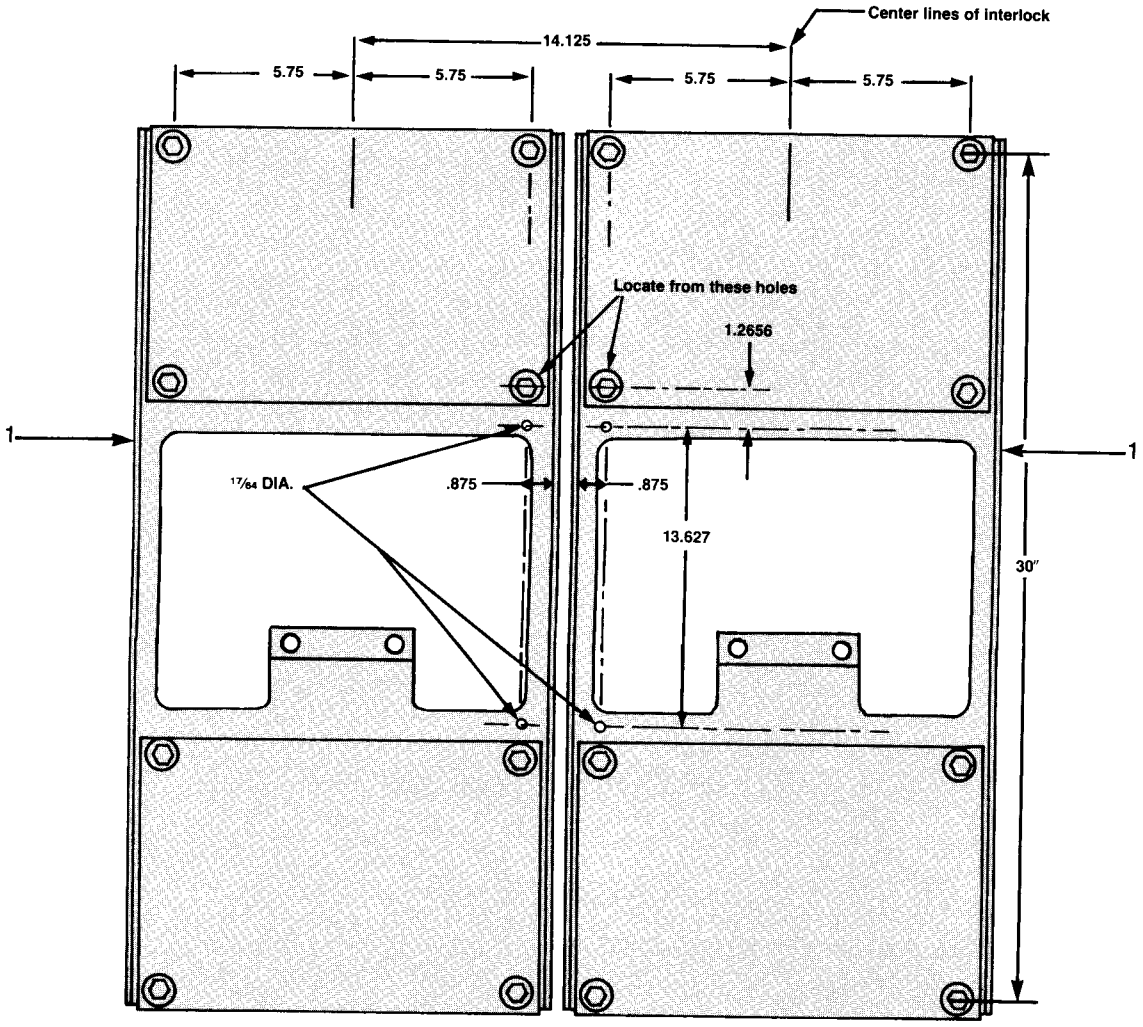
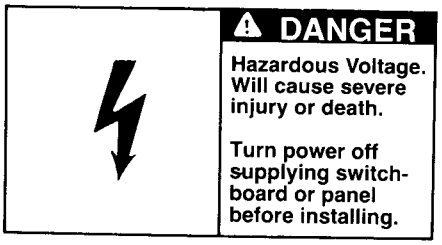


Fig. 1



SAFETY INSTRUCTIONS

1. Drill mounting block assemblies (**1**), as shown in Fig. 1.
2. Assemble support channels (**2**) to predrilled mounting blocks (**1**) with screws (**3**), flatwashers (**4**), lockwashers (**5**), and nuts (**6**) as shown in Fig. 2. Tighten securely.
3. Assemble rocker arm support (**7**) to support plate (**8**) with screws (**9**), lockwashers (**10**), and nuts (**11**). Tighten securely.
4. Assemble support plate (**8**) to support channels (**2**) with screws (**12**), lockwashers (**13**), flatwashers (**14**), and spacers (**15**). Tighten securely.
5. Assemble plungers (**16**) to rocker arm (**17**). Insert pivot pins (**18**) through rocker arm and plungers. Insert cotter pins (**19**) into pivot pins (**18**). Spread cotter pins.
6. Assemble rocker arm assembly to support (**7**). Insert cotter pin (**21**) into pivot pin (**20**). Spread cotter pin.
   IMPORTANT: heads of pivot pins must be on upper side, and cotter pins on lower side of assembly.
7. With both circuit breakers in the "OFF" position, interlock must move freely.
8. With one circuit breaker "ON," the other circuit breaker must not close.

DIAGRAMS FOR ASSEMBLING
I-T-E WALKING BEAM INTERLOCK – MI5484

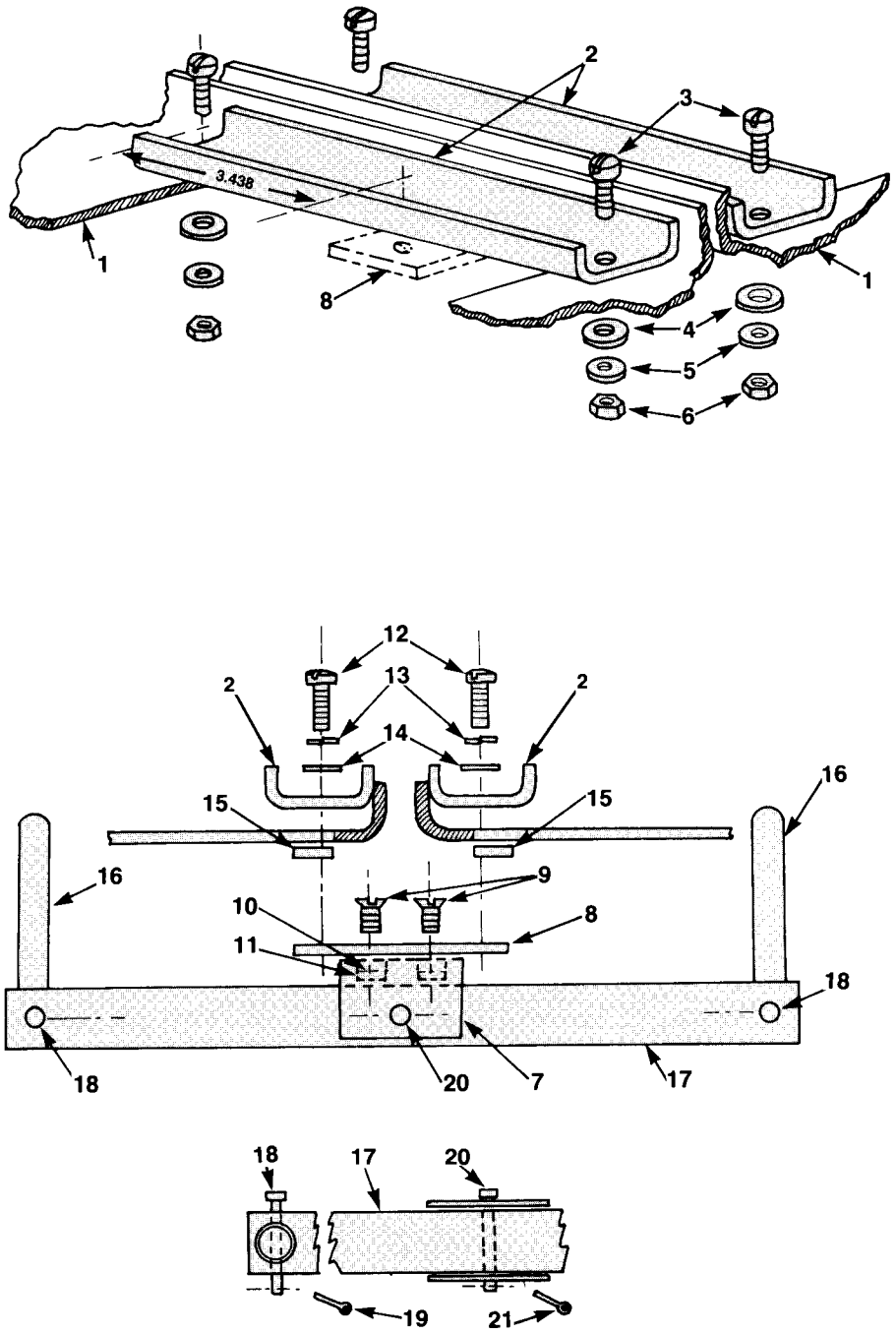
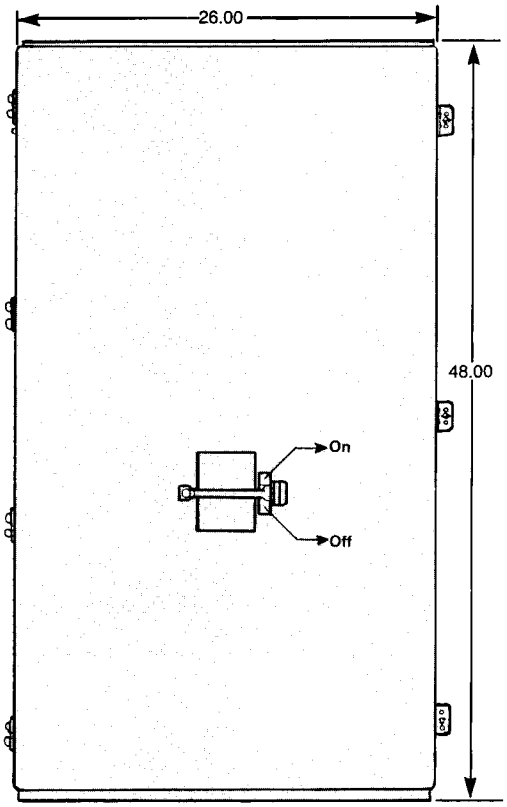


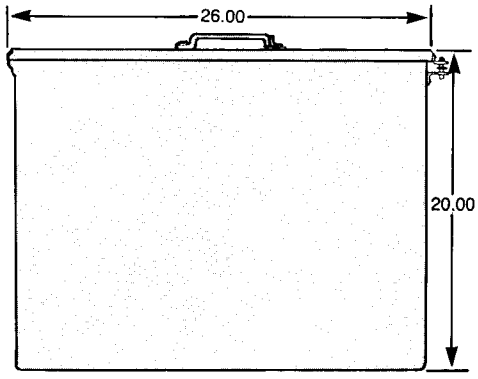
Fig. 2

TYPE 1 – HR1

General purpose indoor, sheet-steel enclosure for use in normal atmosphere, listed as service-entrance equipment.



FRONT VIEW



END VIEW

INSTRUCTIONS FOR MOUNTING
I-T-E INTEGRAL HANDLE OPERATING MECHANISM – OH5942

⚠ DANGER

Hazardous Voltage. Will cause severe injury or death.

Turn power off supplying device before installing.

⚠ SAFETY INSTRUCTIONS

Drilling of Enclosure and Enclosure Cover

A. Drill and tap four 3/8-16 breaker mounting holes as shown (**1**) in drilling plan.

B. Cut opening in enclosure cover and attach latch bracket (**2**) (furnished with handle).

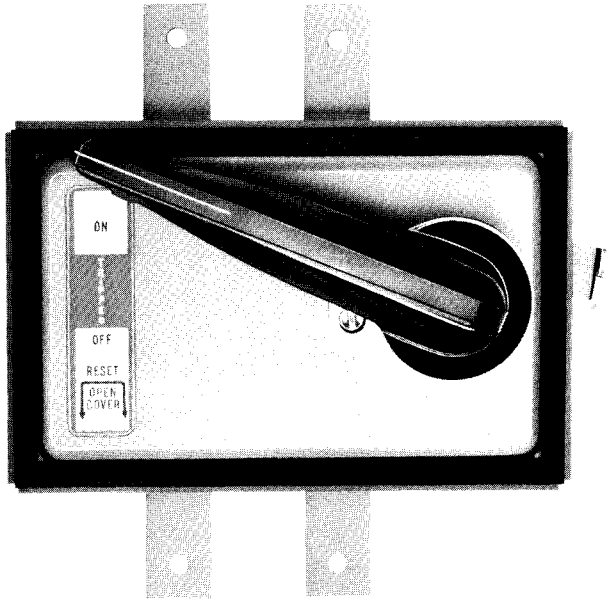
Mounting of Breaker and Mechanism

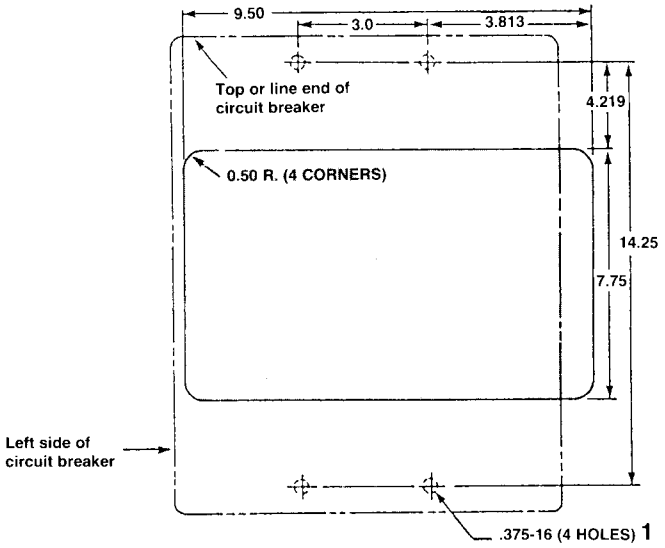
C. Mount breaker with "ON" up, using four mounting studs (**3**) supplied with mechanism. Insert end with attached washers (**4**) through cover holes and screw into plate or mounting pan.

D. With breaker in the "OFF" position, set mechanism on mounting stud shoulders and fasten with supplied flat-washers, lockwashers and nuts (**5**).

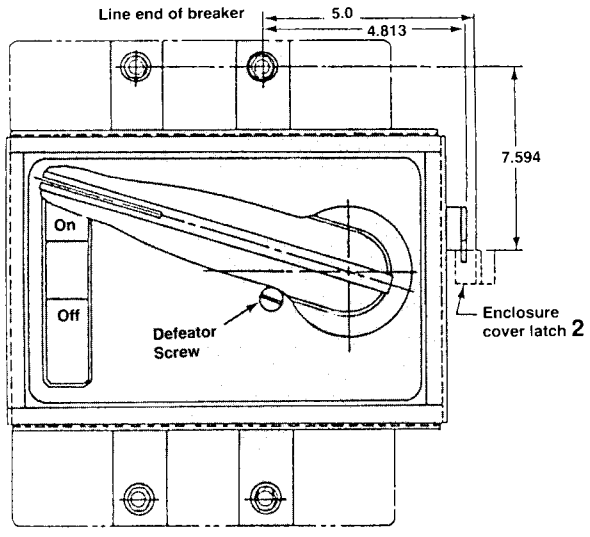
E. Close enclosure door. Latch on mechanism should engage latch bracket on cover. Mechanism will now operate breaker to any position, "ON," "OFF" or "RESET."

F. Enclosure cover may be opened when breaker is "ON" by turning defeator screw counter clockwise for a left handed mechanism. Once cover is opened, the breaker can be turned "OFF" but cannot be turned "ON" or "RESET" until the enclosure cover is closed, or the latch is raised to release interlock.

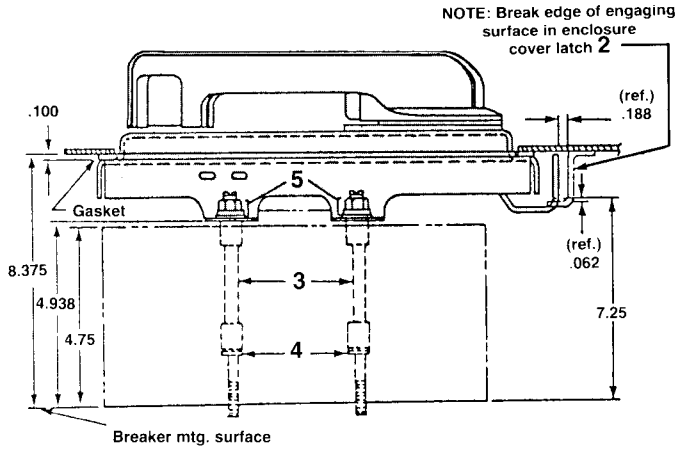




DRILLING PLAN



FRONT VIEW



VIEW FROM LOAD END

INSTRUCTIONS FOR
I-T-E STANDARD-DEPTH HORIZONTAL-HANDLE
ENCLOSURE MECHANISMS – OH8650 & OH8651

⚠ DANGER

Hazardous Voltage. Will cause severe injury or death.

Turn power off supplying device before installing.

⚠ SAFETY INSTRUCTIONS

A. Drill customer supplied front panel (**5**) in accordance with applicable figures shown in Fig. 2 and Fig. 3.
B. Add nameplate (**4**) to front of panel by pressing firmly in place. Refer to dimensions in Fig. 2 and Fig. 3 for proper location.
C. Mount mechanism assembly (**6**) on rear of panel (breaker side) with screws (**7**) protruding through front of panel – place top plate (**3**) on front and fasten securely with screws (**7**). (Screws (**8**) should not extend beyond surface of latch plate.)
D. Add spacer washer (**2**) over handle shaft. Insert handle (**1**) through bushing from front of panel. (Handle grip should cover screw (**9**) protruding through front panel.)
   NOTE: Washers fit over shaft and inside bushing and should be added until approximately .015 exists between top plate (**3**) and handle flange, with handle fully inserted and mechanism assembly held firmly in place.
E. Add spacer washers (**10**) until handle shaft is below the surface of the cam.
   NOTE: Washers (**2**) and (**10**) are identical. As more are added in step D, fewer will be required here. Proper number will make cam secure on handle shaft.
F. Add flatwasher (**11**), lockwasher (**12**), and screw (**13**).
G. Tighten securely.
H. Remove mechanism holding screws (**8**) and discard.
   NOTE: Handle assembly, if properly spaced, should return to the "ON" position when released.
I. To lock enclosure operating handle with handle in either "ON" or "OFF" position, press slide (**14**) toward hub and insert lock in slot (**15**).
J. As received, screw (**16**) is against spring post to give normal latch movement – To increase latch movement, turn adjustment screw counter-clockwise. When desired position is reached, lock screw with nut (**17**).

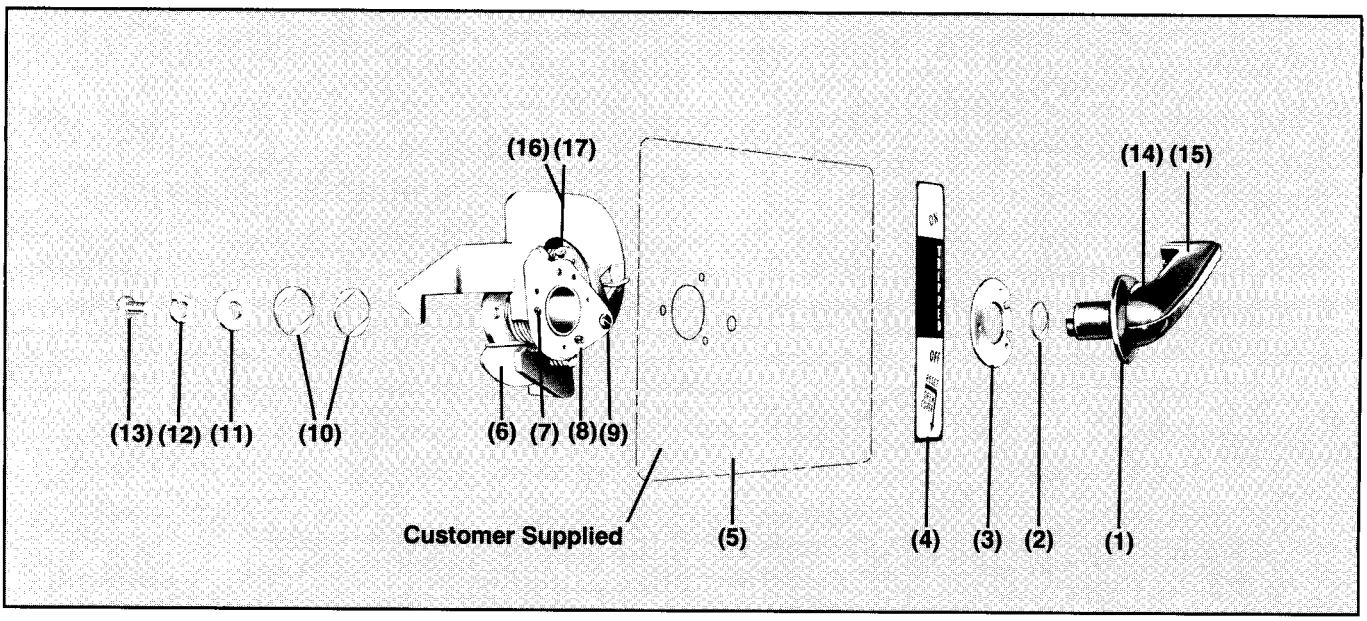
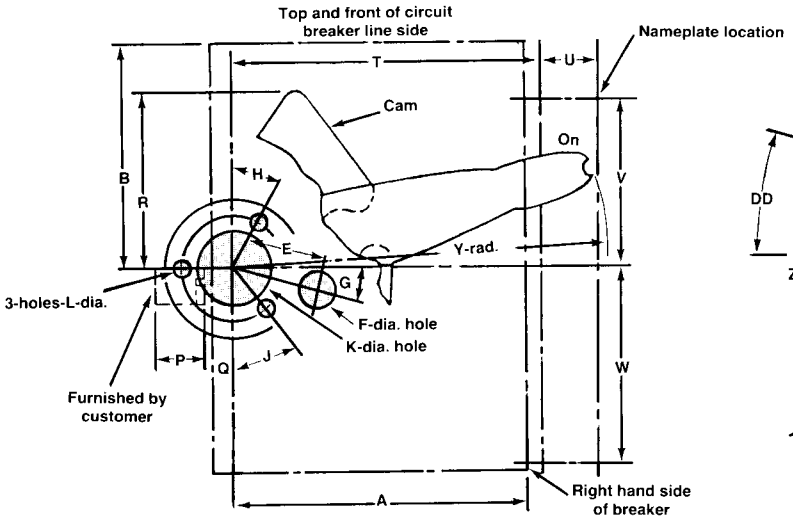


Fig. 1

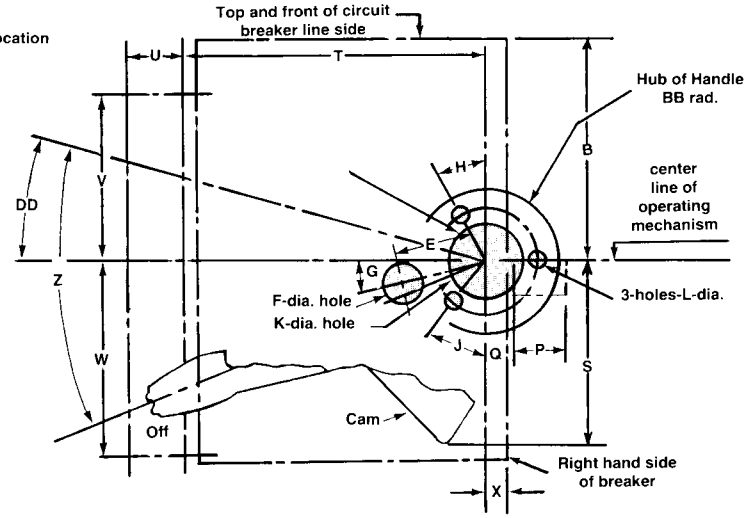
DIMENSIONS FOR
I-T-E STANDARD-DEPTH HORIZONTAL-HANDLE
ENCLOSURES MECHANISMS – OH8650 & OH8651



FRONT VIEW
Right hand operation

OH8650

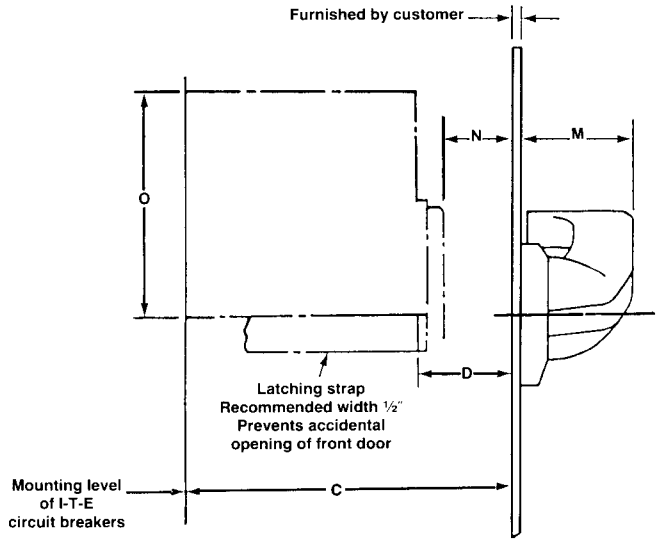
Fig. 2



FRONT VIEW
Left hand operation

OH8651

Fig. 3

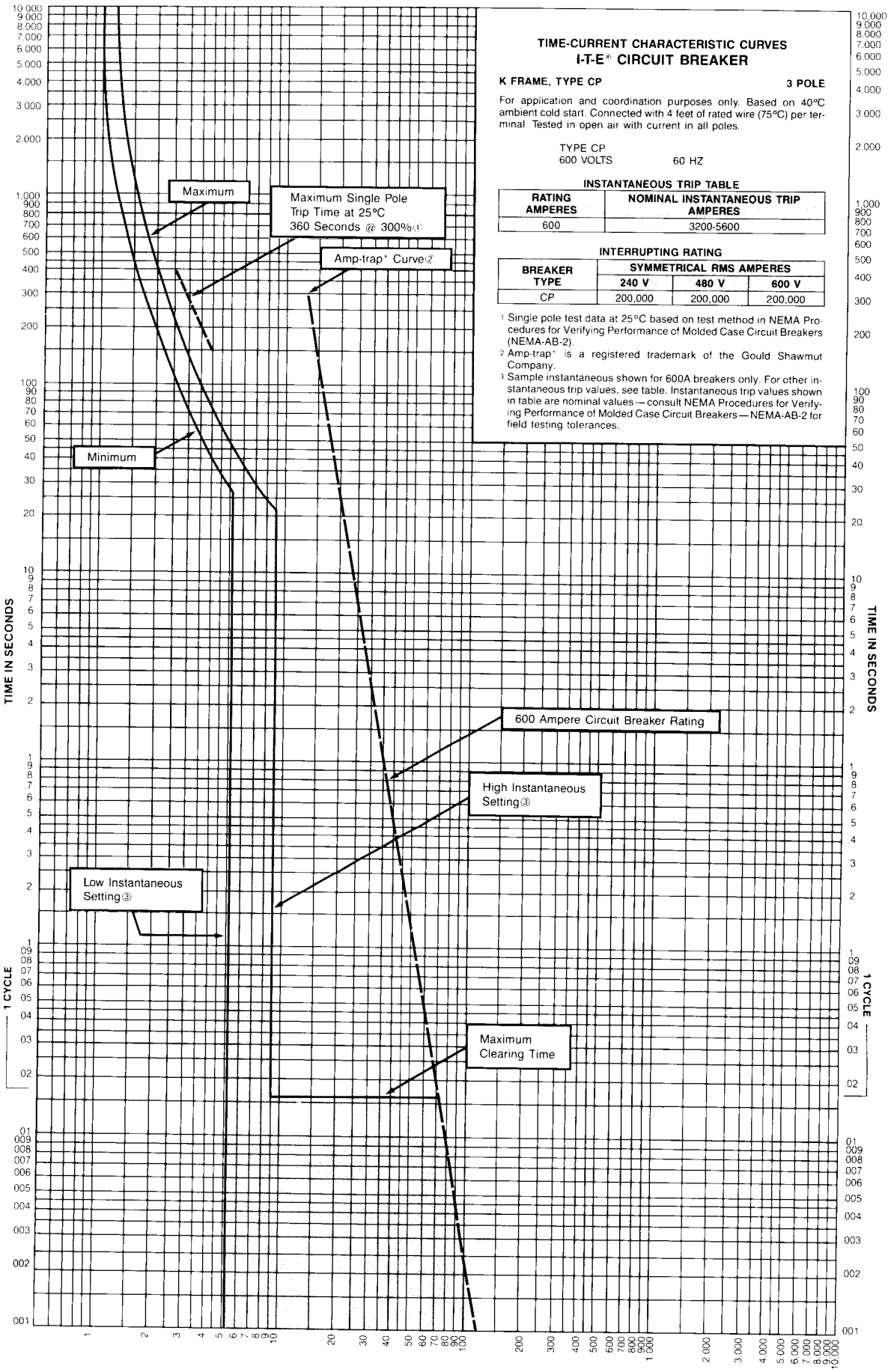


SIDE VIEW
Right and left hand operation

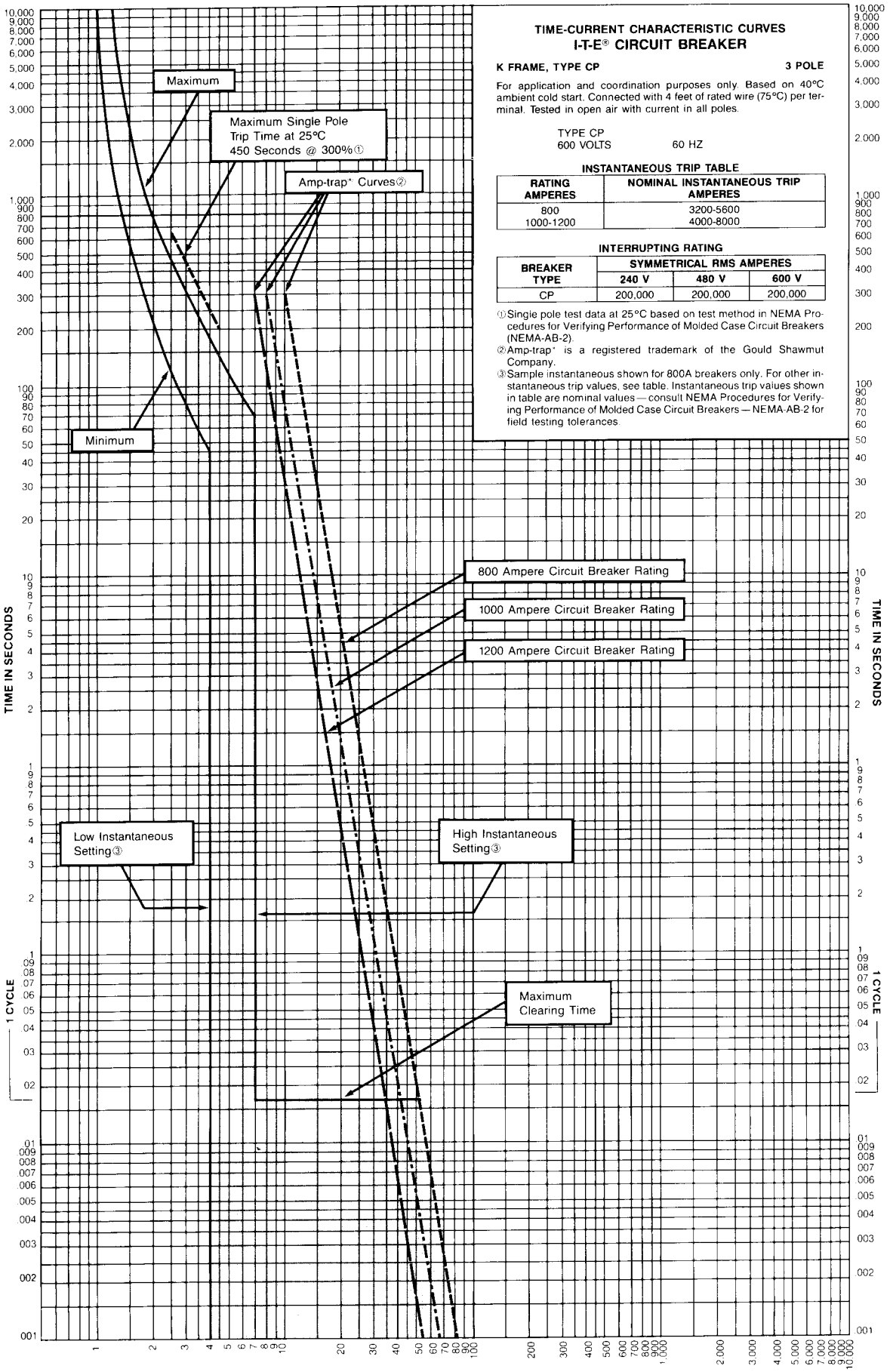
Fig. 4

Dimensions – Inches			
A	6.875	Q	2.187
B	8.719	R	4.125
C	8.750	S	3.625
D	2.062	T	6.844
E	1.875	U	1.50
F	0.50	V	4.344
G	10°	W	5.344
H	30°	X	2.125
J	40°	Y	7.50
K	1.50	Z	64°
L	0.265	AA	1.438
M	1.844	BB	2.125
N	3.563	CC	27°
O	8.687	DD	—
P	1.0		

I-T-E TIME/CURRENT CURVES K FRAME
600 VOLTS, 60 HZ, 600 AMPERES



I-T-E TIME/CURRENT CURVES K FRAME
600 VOLTS, 60 HZ, 800-1200 AMPERES



TIME-CURRENT CHARACTERISTIC CURVES
I-T-E® CIRCUIT BREAKER

K FRAME, TYPE CP **3 POLE**

For application and coordination purposes only. Based on 40°C ambient cold start. Connected with 4 feet of rated wire (75°C) per terminal. Tested in open air with current in all poles.

TYPE CP
600 VOLTS 60 HZ

INSTANTANEOUS TRIP TABLE

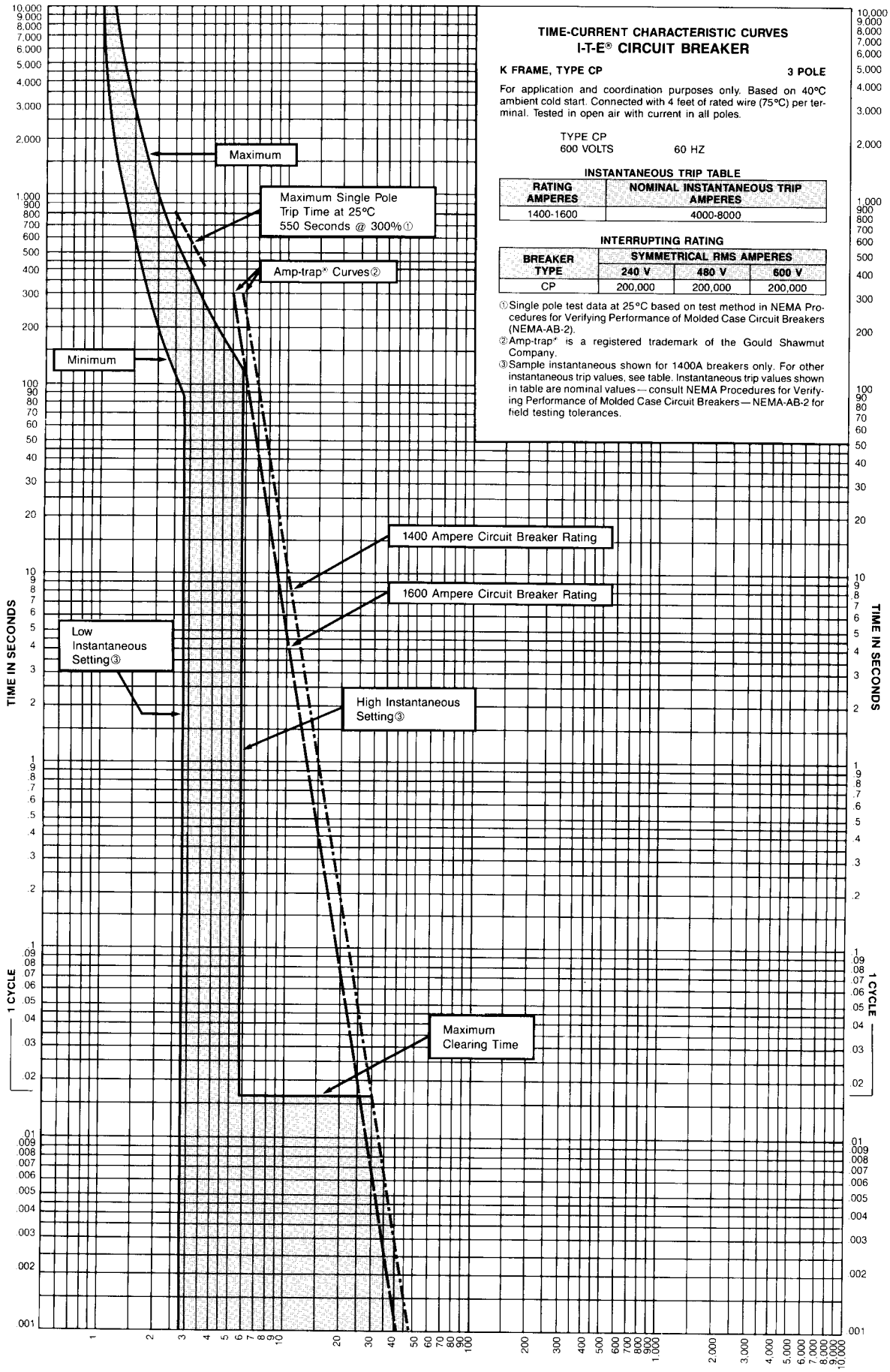
RATING AMPERES	NOMINAL INSTANTANEOUS TRIP AMPERES
800	3200-5600
1000-1200	4000-8000

INTERRUPTING RATING

BREAKER TYPE	SYMMETRICAL RMS AMPERES		
	240 V	480 V	600 V
CP	200,000	200,000	200,000

①Single pole test data at 25°C based on test method in NEMA Procedures for Verifying Performance of Molded Case Circuit Breakers (NEMA-AB-2).
②Amp-trap* is a registered trademark of the Gould Shawmut Company.
③Sample instantaneous shown for 800A breakers only. For other instantaneous trip values, see table. Instantaneous trip values shown in table are nominal values—consult NEMA Procedures for Verifying Performance of Molded Case Circuit Breakers—NEMA-AB-2 for field testing tolerances.

I-T-E TIME/CURRENT CURVES K FRAME
600 VOLTS, 60 HZ, 1400-1600 AMPERES



TIME-CURRENT CHARACTERISTIC CURVES
I-T-E® CIRCUIT BREAKER

K FRAME, TYPE CP **3 POLE**

For application and coordination purposes only. Based on 40°C ambient cold start. Connected with 4 feet of rated wire (75°C) per terminal. Tested in open air with current in all poles.

TYPE CP
600 VOLTS 60 HZ

INSTANTANEOUS TRIP TABLE

RATING AMPERES	NOMINAL INSTANTANEOUS TRIP AMPERES
1400-1600	4000-8000

INTERRUPTING RATING

BREAKER TYPE	SYMMETRICAL RMS AMPERES		
	240 V	480 V	600 V
CP	200,000	200,000	200,000

①Single pole test data at 25°C based on test method in NEMA Procedures for Verifying Performance of Molded Case Circuit Breakers (NEMA-AB-2).
②Amp-trap® is a registered trademark of the Gould Shawmut Company.
③Sample instantaneous shown for 1400A breakers only. For other instantaneous trip values, see table. Instantaneous trip values shown in table are nominal values — consult NEMA Procedures for Verifying Performance of Molded Case Circuit Breakers — NEMA-AB-2 for field testing tolerances.

TD-4961 REV. 2
SHEET 3 OF 3 — MAY, 1985

A Division of Siemens Energy & Automation, Inc.
Alpharetta, Georgia 30201

I-T-E ORDERING INFORMATION
CIRCUIT BREAKER CATALOG NUMBERS

		Instantaneous Trip Range		Complete Breaker Unenclosed	Frame Only	Trip Unit Only	UL Interrupting Ratings (kA) (RMS Symmetrical Amperes)		
							VAC		
Breaker Frame	Ampere Rating	Min.	Max.	Cat. No.	Cat. No.	Cat. No.	240	480	600
CP **3 Pole** 600V AC	600	3200	5600	CP3B600	Non-Interchangeable Trip		200	200	200
	800	3200	5600	CP3B800			200	200	200
	1000	4000	8000	CP3B100			200	200	200
	1200	4000	8000	CP3B120			200	200	200
	1400	4000	8000	CP3B140			200	200	200
	1600	4000	8000	CP3B160			200	200	200

I-T-E ORDERING INFORMATION
CIRCUIT BREAKER ACCESSORIES

AUXILIARY SWITCH

Number of Switches	Pole	Cat. No.
1	Right	A01HP0R0
2	Right	A02HP0R0
1	Left	A01HP0L0
2	Left	A02HP0L0

SHUNT TRIP

Control Voltage		1 Shunt Trip
AC	DC	Cat. No.
120		S01HP0R0
240		S02HP4R0
480		S02HP4R0
	24	S07HP0R0
	48	S09HP0R0
	125	S10HP2R0
	250	S12HP2R0

UNDERVOLTAGE TRIP

Control Voltage		1 Undervoltage Trip
AC	DC	Cat. No.
120		U01HP0R0
240		U03HP0R0
480		U04HP0R0
600		U07HP2R0
	12	U15HP0R0
	24	U13HP0R0
	48	U14HP0R0
	125	U09HP0R0
	250	U11HP0R0

ADDITIONAL ACCESSORIES

Item	Catalog No.
Extension Handle	EX9
Mounting Screw	MSKP
Fuse Housing/Plus 3 Fuses*	AH3P160
Replacement Fuses	AT1CP25
Connect-All Mounting Assemblies	
Standard Mounting	MB9309
Reverse Mounting	MBR9308

* See page 27.

Item	Catalog No.
Enclosures	
Type 1	HR1
Handle Blocking Device	KML1
Mechanical Interlock	
Breaker panel mounted	MI5484
Handle Operators	
Standard Depth Operator	
Left Hand	OH8651
Right Hand	OH8650

I-T-E Item	UL File Number	CSA File Number
Breakers	E9896	LR33845
Terminal Connectors	E9896	—
Rear Bus	—	—
Internal Accessories		
Shunt trips	E57501	—
Undervoltage	E57501	—
Aux. Switch	E57501	—
Bellalarm	—	—
Molded Case Switch	—	—
Enclosures	—	—
Connector Straps	—	—

Circuit Breaker Mounting Screws 3/8-16x 1.750"

PROCEDURES FOR VERIFYING PERFORMANCE OF MOLDED CASE CIRCUIT BREAKERS — AB2

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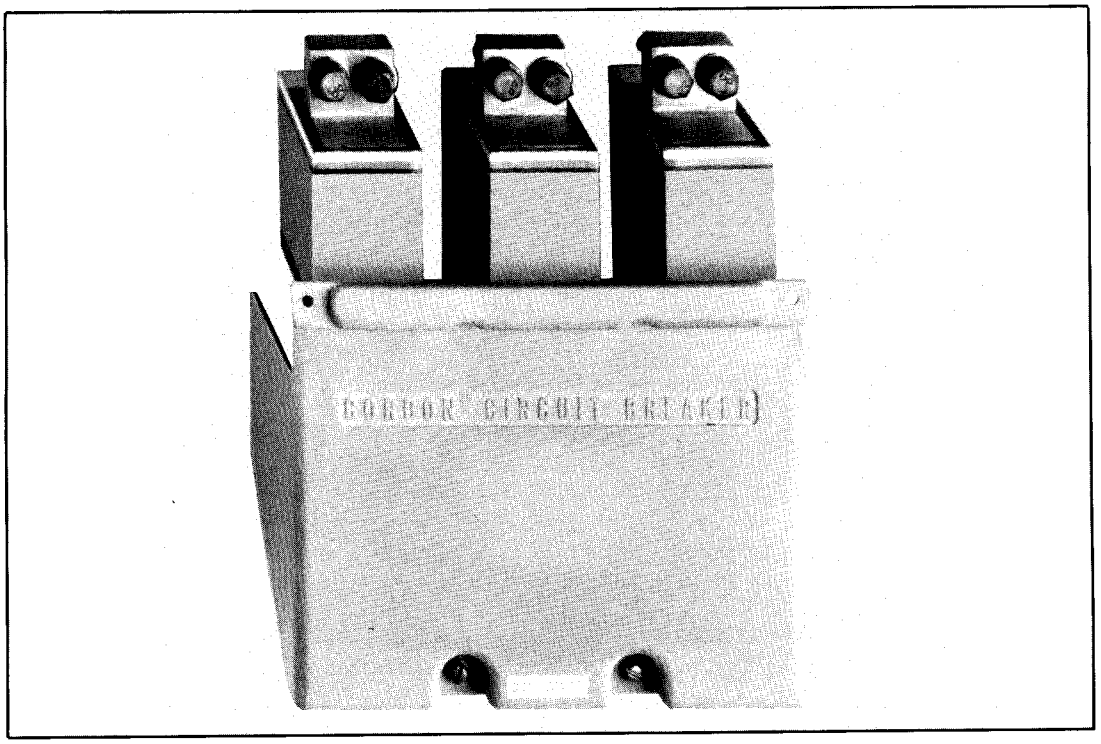
Washington, DC 20037



Catalog No. AH3P160 (See page 26)

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