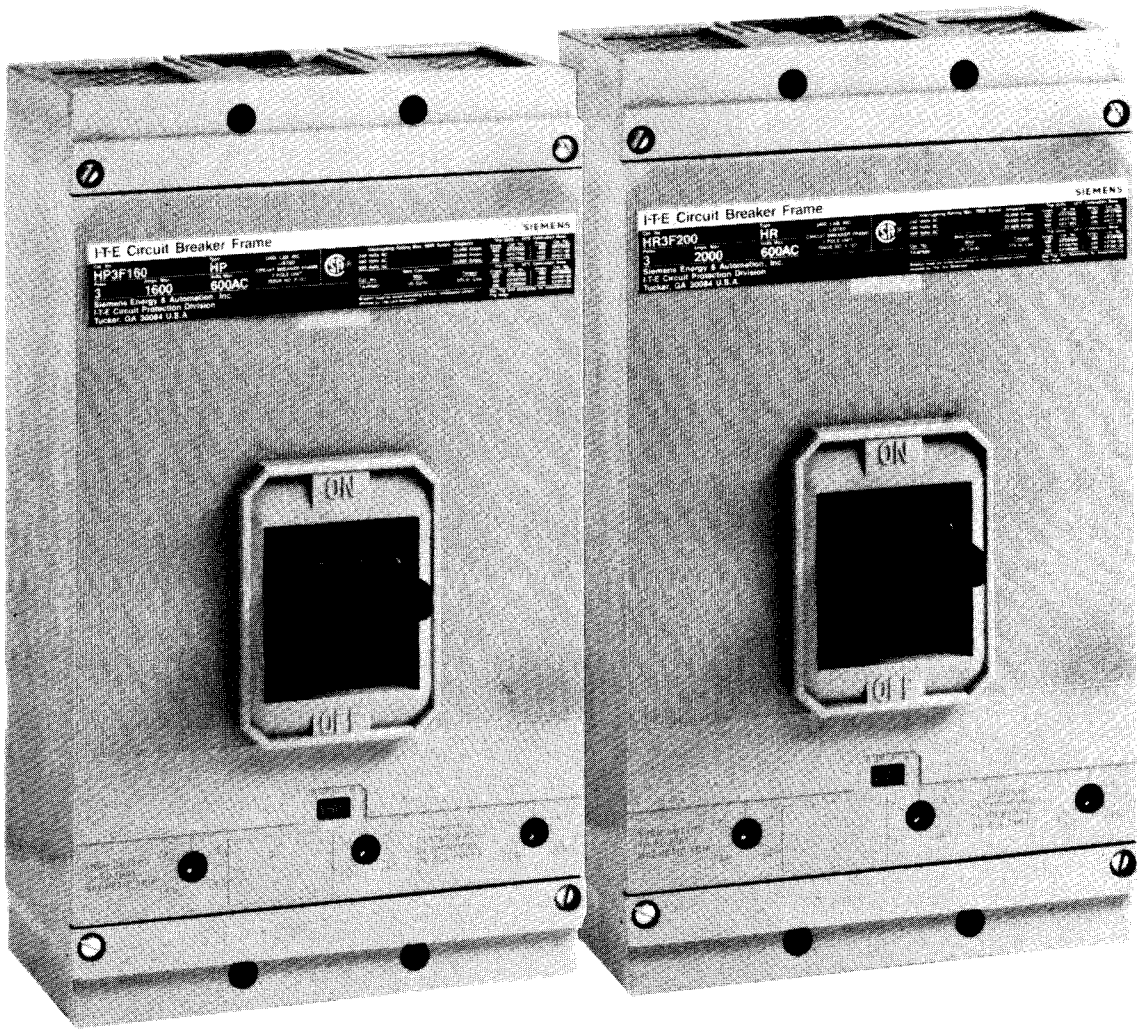
SIEMENS

Information and Instruction Guide

K Frame
Types HP, HR

I-T-E® Molded Case Circuit Breakers



Bulletin IB-2.3.7-4A

Information and Instruction Guide

I-T-E K Frame
Types HP, HR
Models ET, ET-H
3 Pole 600-2000 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 HP-HR CIRCUIT BREAKERS AND SWITCHES 3 POLE, 600-2000 AMPERES

General

K Frame circuit breakers, as shown in drawings on page 6, are for use in individual enclosures, switchboards, and in power and distribution panelboards.

They are available as thermal magnetic, with interchangeable trip units (Types HP and HR) and molded case switches. All units require either a Connect-All mounting assembly (cat. no. MB9300, see pages 8-9) or a reverse mounting block assembly (cat. no. MBR9307, see pages 10-11) – specify when ordering.

Pressure wire connectors, suitable for use with aluminum or copper wire are available for all K-Frame circuit breakers. Special features such as 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 page 29.

Thermal Magnetic

HP, HR 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:

Circuit Breaker Type	Breaker Ampere Rating	NOMINAL INSTANTANEOUS VALUES				
		Low	2	3	4	HI
HP	600-800	3200	3600	4100	5100	5600
	1000-1600	4000	5000	6000	7000	8000
HR	1800-2000	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 seals will void the Underwriters' Laboratories, Inc. listing for that specific trip unit.

Catalog numbers for ordering and informational purposes can be found on pages 28 & 29.

Molded Case Switch

A molded case switch is available in both the HP and HR type circuit breakers. This device has no means of self protection, and therefore must be used with other means of overload and short circuit protection. Catalog information is located on page 28.

Interrupting Ratings

The interrupting ratings of the HP and HR 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
HP	65,000	50,000	42,000
HR	65,000	50,000	42,000

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

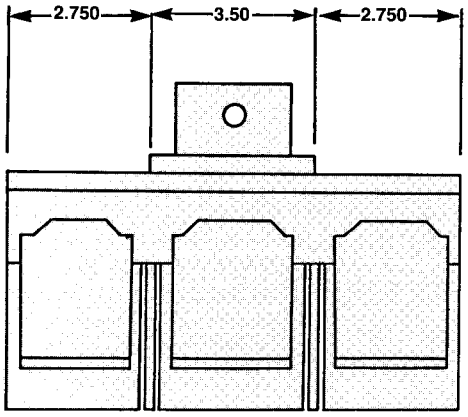
Failure to properly maintain this equipment can result in severe personal injury and product failure. The instructions contained herein should be carefully reviewed, understood and followed. The following maintenance procedure should be performed regularly:

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 and that terminal connectors are properly secured to Connect-All assembly.
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: HP and HR type circuit breakers must be mounted on a Connect All mounting block assembly (MB9300 or MBR9307) to be properly placed into service.

I-T-E K FRAME OUTLINE DRAWINGS



END
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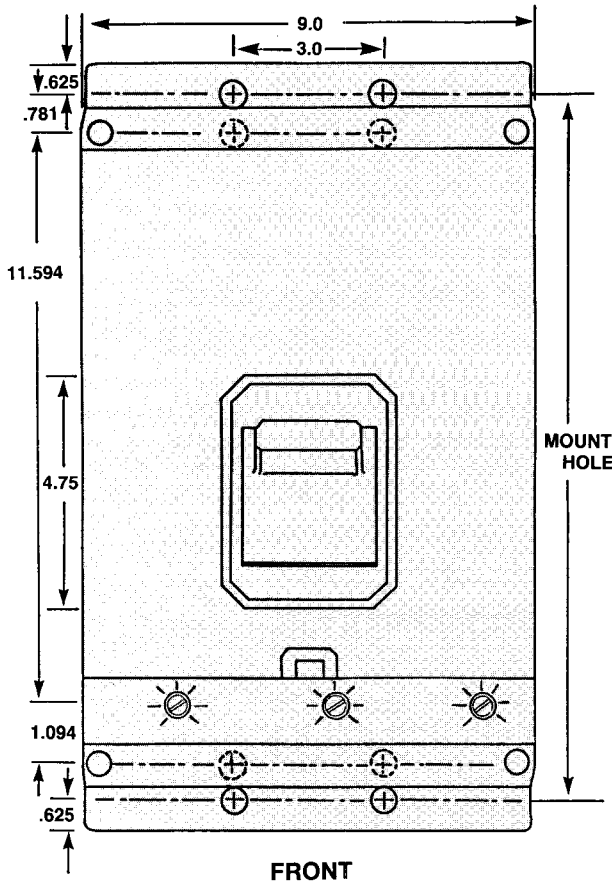

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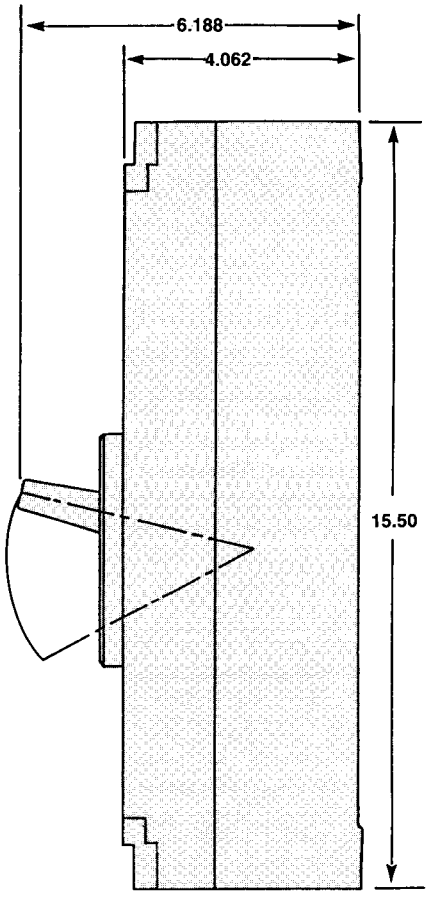

SIDE
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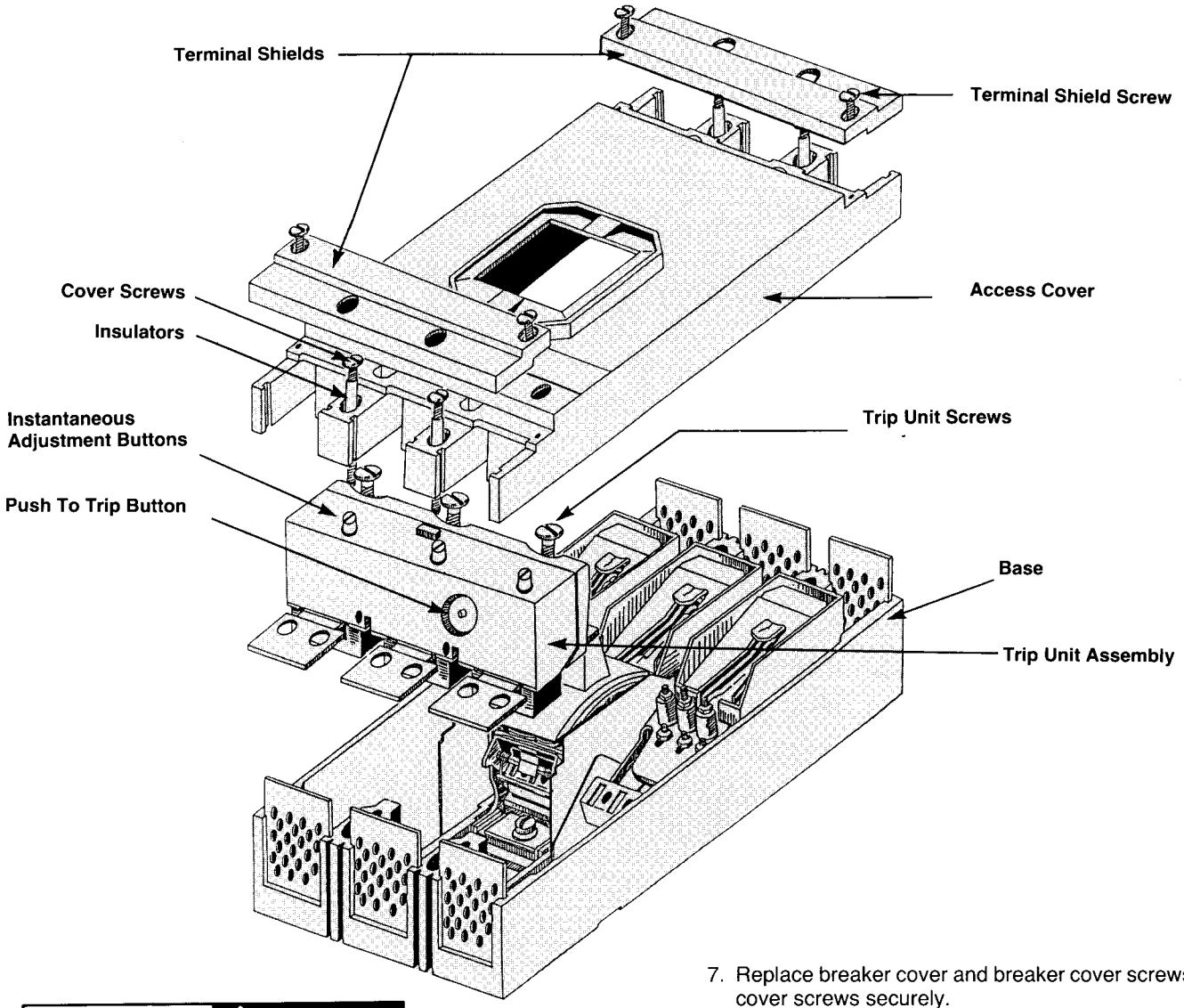
For a more detailed drawing, request drawing S15382 from your local Siemens, I-T-E sales office.

INSTRUCTIONS FOR INSTALLING I-T-E TRIP UNITS



⚠ DANGER

Hazardous Voltage. Will cause severe injury or death.

Turn power off supplying device before installing.

NOTE: CIRCUIT BREAKER MUST BE IN THE "OFF" OR "TRIPPED" POSITION BEFORE REMOVING ACCESS COVER.

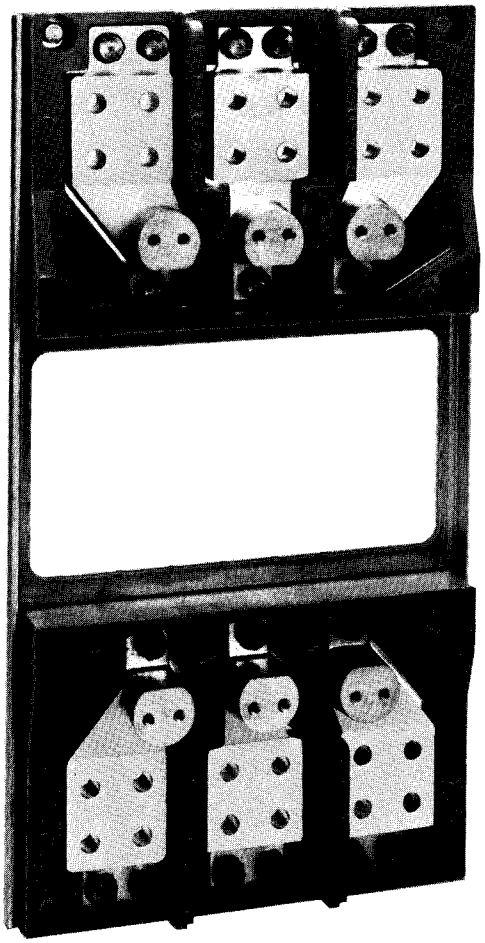
To Add Trip Unit To Breaker Frame:

1. Remove terminal shield screws and terminal shields.
2. Remove breaker cover screws and breaker cover.
3. On outside poles: Remove screws with lockwashers which hold arc wires and mechanism braid terminals to base; also bend arc wires up and away from breaker base.
4. Hold breaker handle away from trip unit area. Lower trip unit carefully into base. Make sure that slots in trip unit latch bracket engage latch pin on mechanism.
5. Tighten trip unit anchor screw (center pole) securely to base. (Recommended torque 11 to 13 foot pounds.)
6. Replace arc wires, lockwashers and screws on outside poles, previously removed at Step 3, and tighten securely. (Recommended torque 11 to 13 foot pounds.)
7. Replace breaker cover and breaker cover screws. Tighten cover screws securely.
8. Move operating handle to extreme OFF (reset) position.
9. Mount breaker on mounting block unit MB-9300 or MBR-9307 and replace terminal shields and terminal shield screws per instructions furnished with the breaker frame.

To Replace Trip Unit In Breaker Frame:

1. Circuit breaker must be in OFF position, and trip unit terminals must be disengaged from any source of power before removing terminal shields and circuit breaker cover.
2. Remove terminal shield screws and terminal shields.
3. Remove breaker cover screws and breaker cover.
4. Press metal button on right hand underside of trip unit cover. This will trip the breaker mechanism. The handle will move to TRIPPED position.
5. On the load end of the trip unit only, remove two (2) hex head bolts, lockwashers and flatwashers from each terminal and save for future use.
6. On outside poles: remove screws with lockwashers which are holding arc wires and trip unit terminals to mechanism terminals; also, bend arc wires up and away from breaker base.
7. Loosen trip unit anchor screw in center pole.
8. Hold breaker handle away from trip unit. Lift trip unit out of breaker while holding the TRIP button (mentioned in Step 4 above) depressed.
9. Add new trip unit as outlined under Steps 4 to 9 of ADD TRIP UNIT instructions.

INSTRUCTIONS FOR INSTALLING
I-T-E CONNECT-ALL MOUNTING BLOCK – MB9300



⚠ 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 Onto Mounting Block

E. Move breaker handle to "OFF" position.
F. Remove breaker terminal shield screws (**6**) and the terminal shields (**3**) from both line and load ends.
G. Set breaker onto round terminals protruding from Connect-All assembly and fasten breaker to the mounting block with four slotted fillister head screws (**4**), lockwashers and flatwashers (furnished). Tighten mounting screws securely.
H. **Make terminal electrical connections between breaker terminals and mounting block terminal pads. Use two hex head bolts (5), lockwashers and flatwashers (furnished) per terminal. Torque these 12 terminal bolts to 9-10 ft.-lbs.**
I. **Replace breaker terminal shields** (**3**). Tighten screws (**6**) securely.

DIAGRAMS FOR INSTALLATION OF I-T-E CONNECT-ALL MOUNTING BLOCK – MB9300

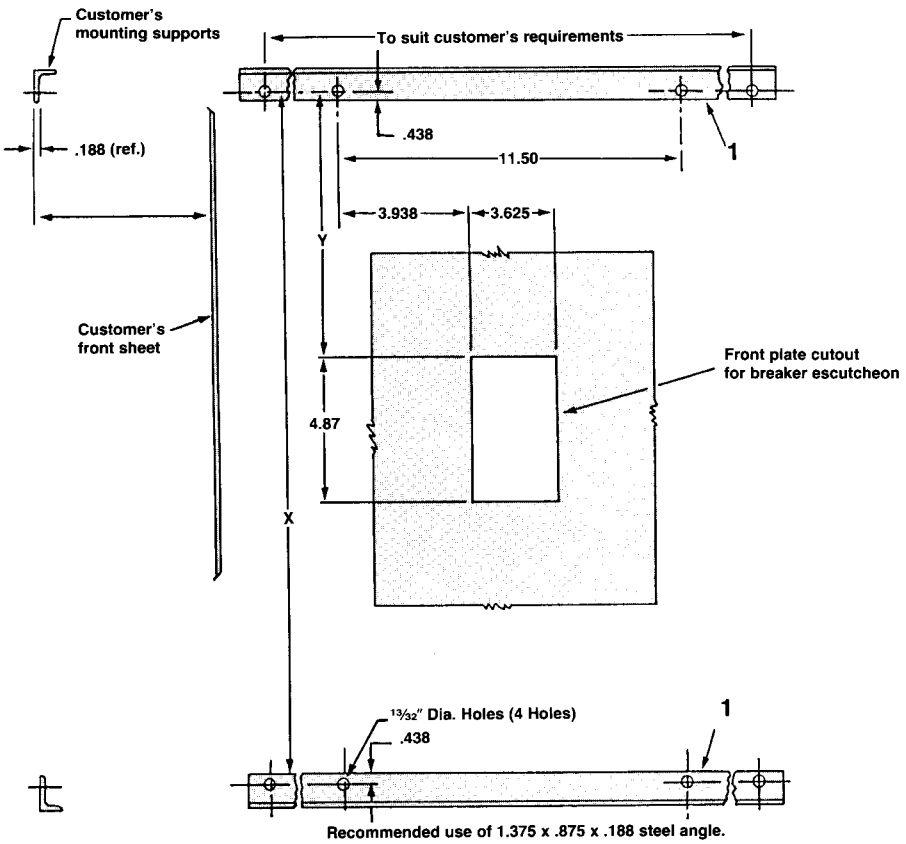
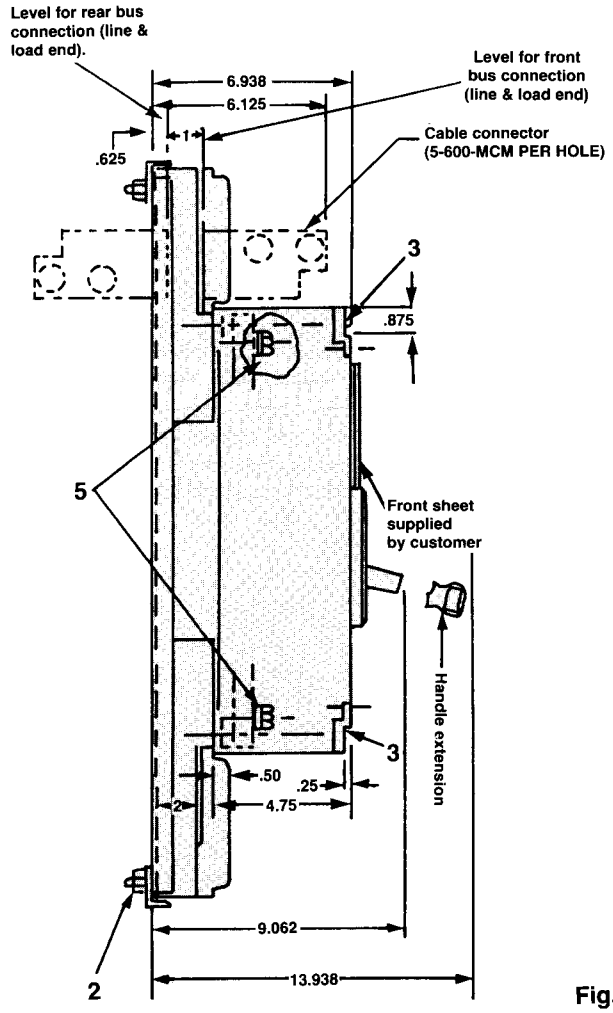


Fig. 1



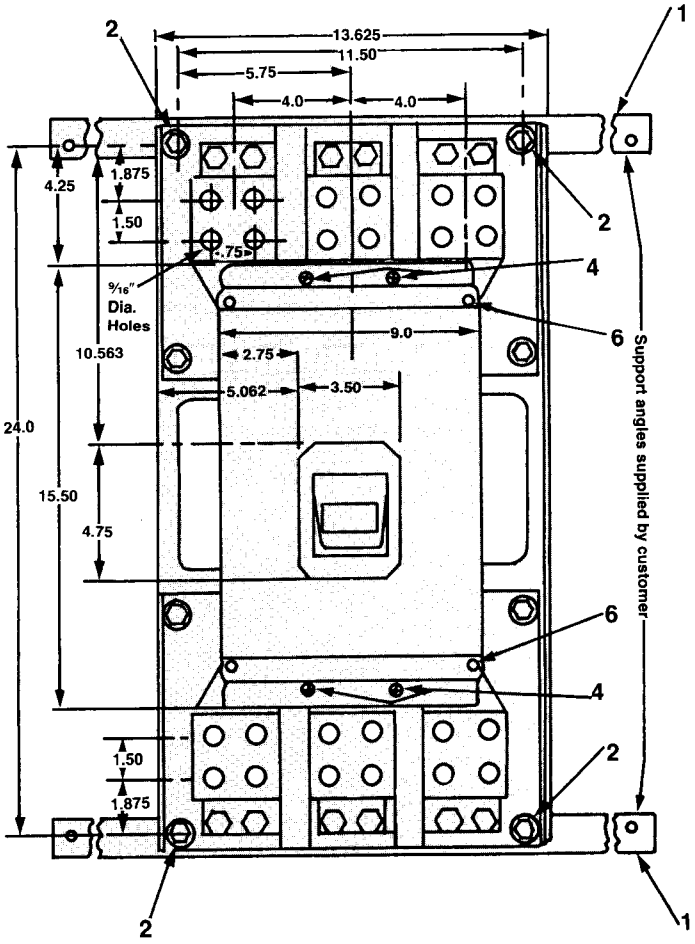
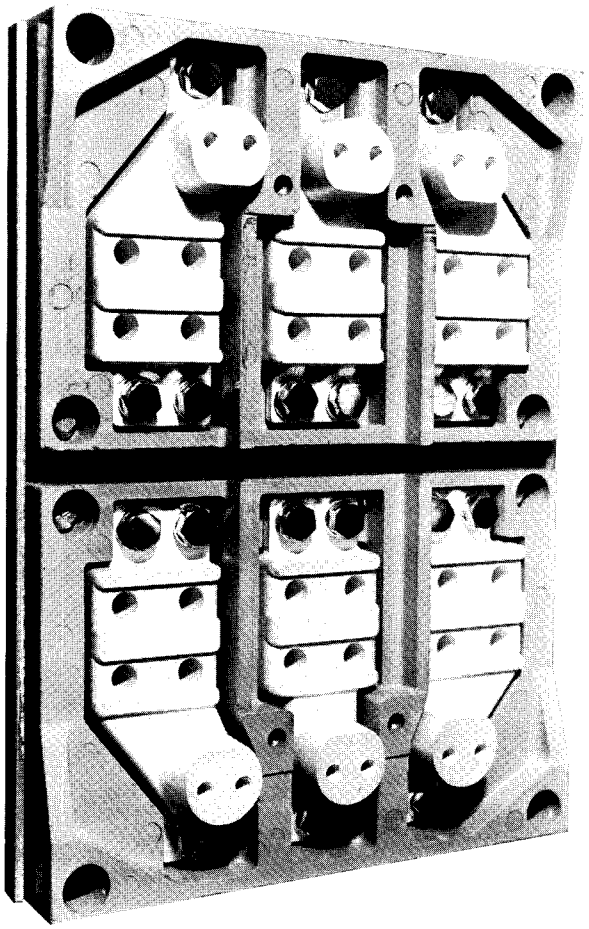


Fig. 2

INSTRUCTIONS FOR INSTALLING
I-T-E REVERSE MOUNTING BLOCK – MBR9307



⚠ 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 must 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 Onto Mounting Block

E. Move breaker handle to "OFF" position.
F. Remove breaker terminal shield screws (**6**) and the terminal shields (**3**) from both line and load ends.
G. Set breaker onto round terminals protruding from Reverse Mounting Block assembly and fasten breaker to the mounting block with four slotted fillister head screws (**4**), lockwashers and flatwashers (furnished). Tighten mounting screws securely.
H. **Make terminal electrical connections between breaker terminals and mounting block terminal pads. Use two hex head bolts (5), lockwashers and flatwashers (furnished) per terminal. Torque these 12 terminal bolts to 9-10 ft.-lbs.**
I. **Replace breaker terminal shields** (**3**). Tighten screws (**6**) securely.

DIAGRAMS FOR INSTALLATION OF I-T-E REVERSE MOUNTING BLOCK – MBR9307

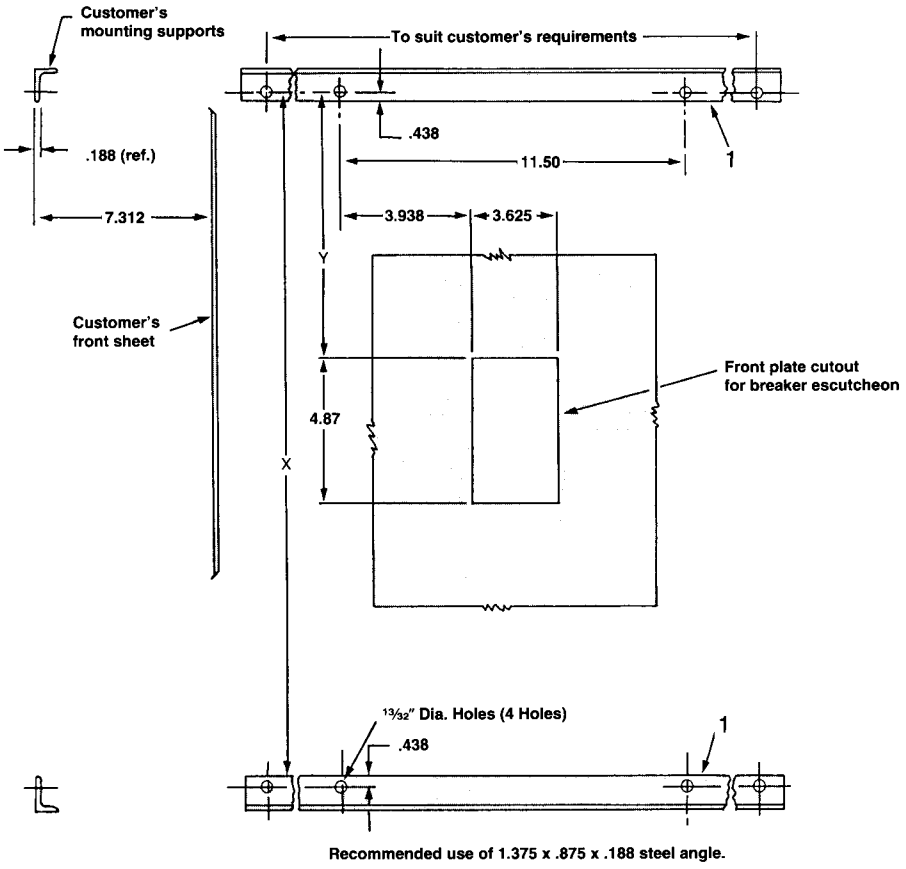
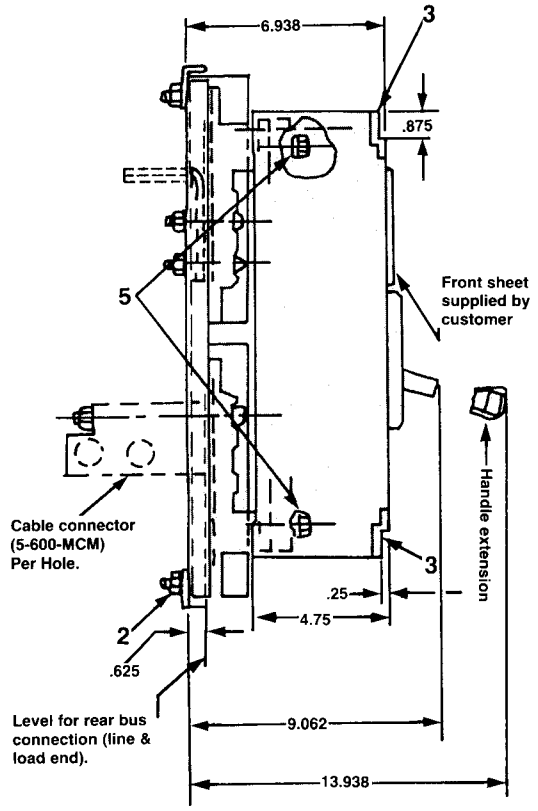


Fig. 1



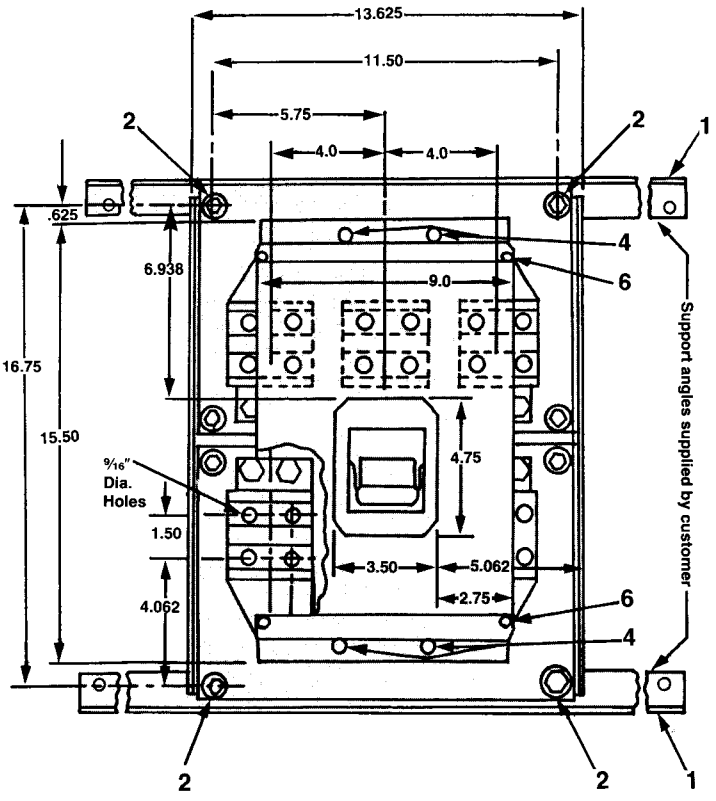
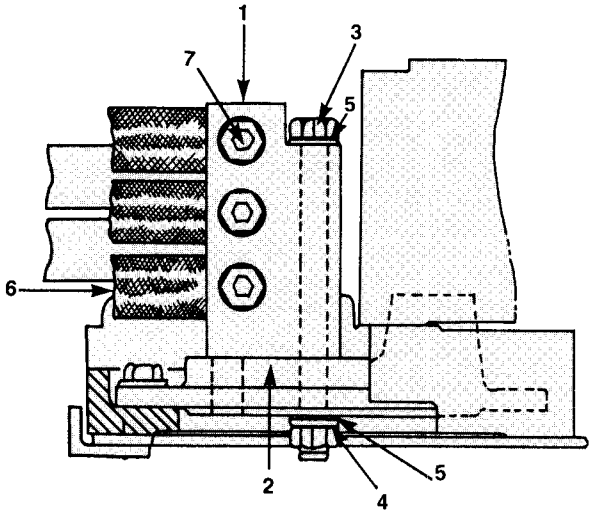
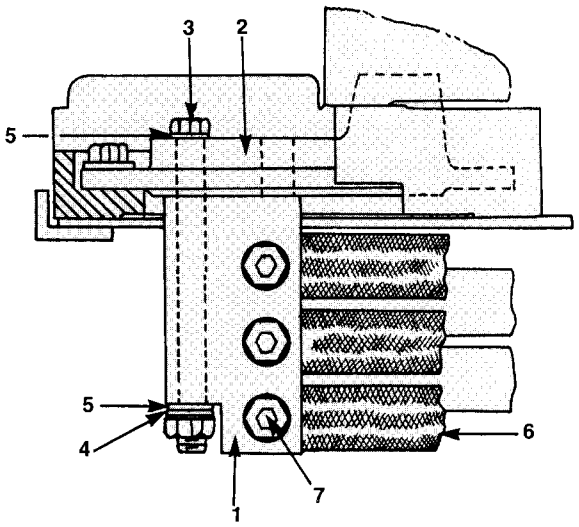


Fig. 2

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.

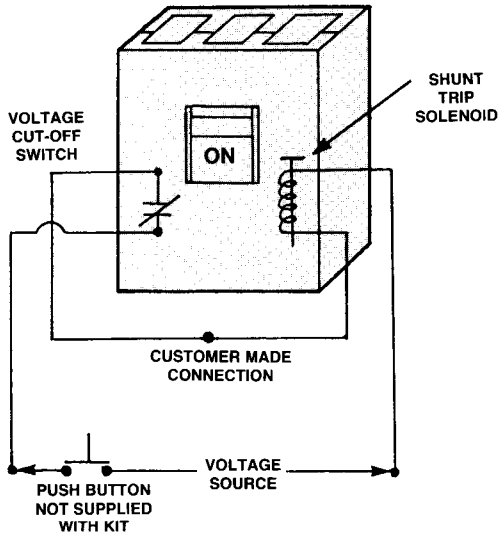
SHUNT TRIP

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

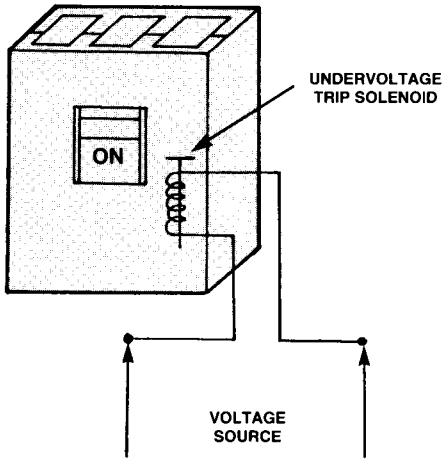
UNDERVOLTAGE TRIP

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



ELECTRICAL CHECK

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 – MI5482

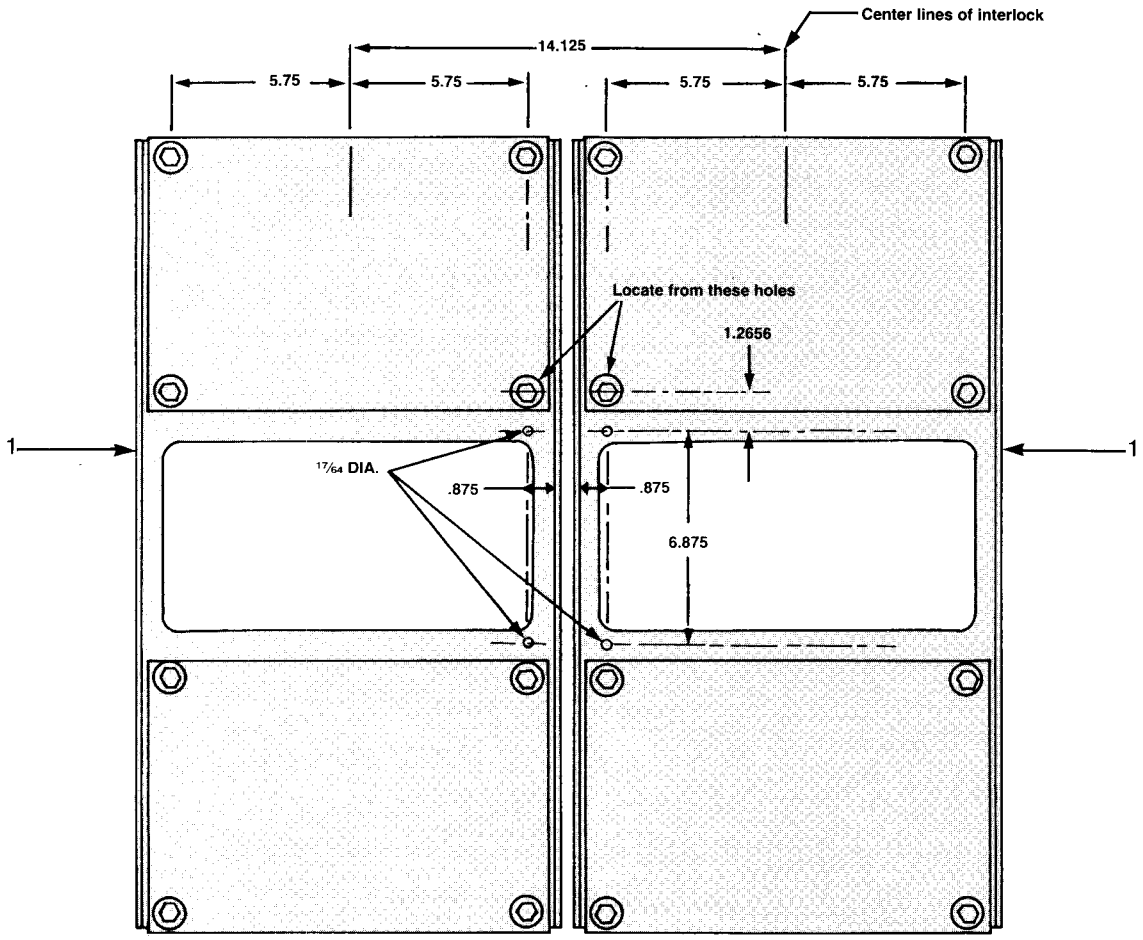


Fig. 1

DANGER

Hazardous Voltage. Will cause severe injury or death.

Turn power off supplying switchboard or panel before installing.

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.

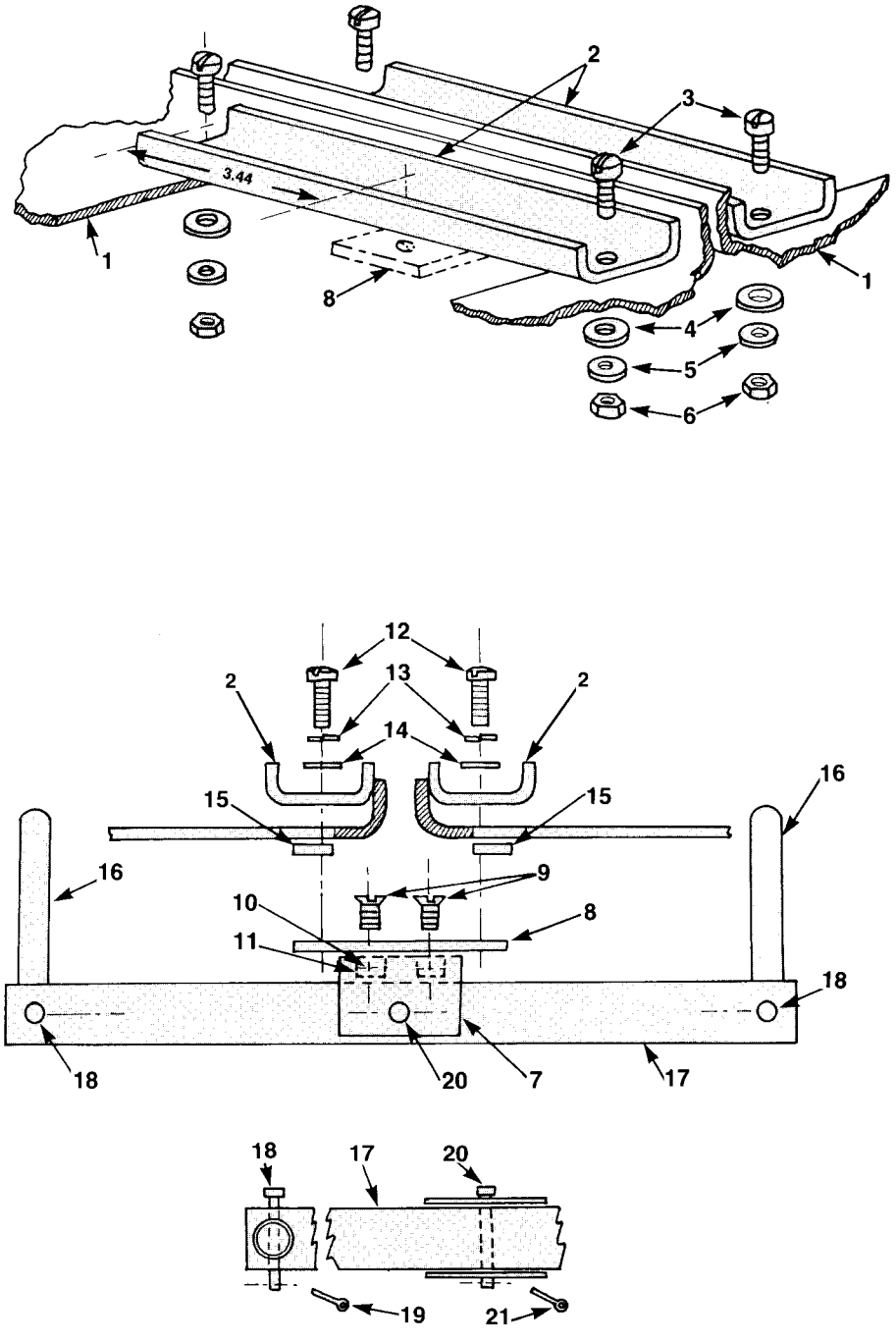

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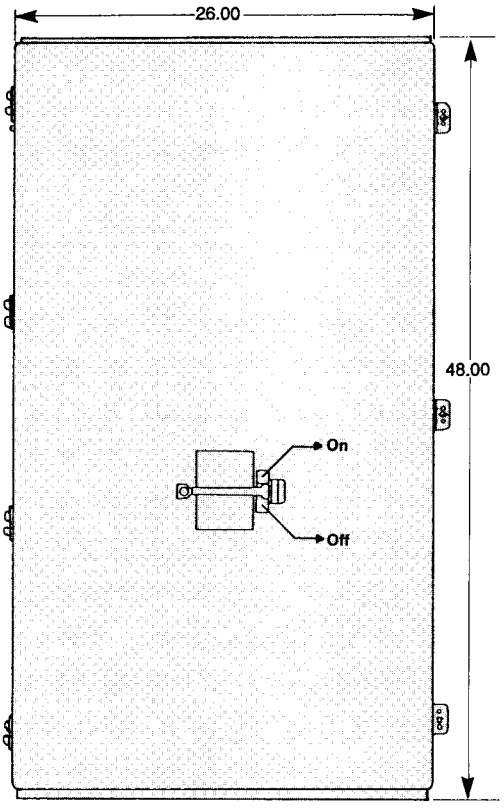
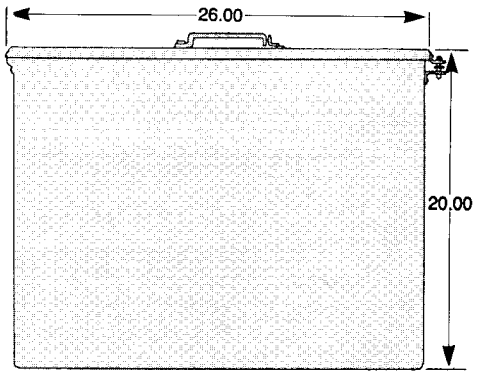
Fig. 2

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.

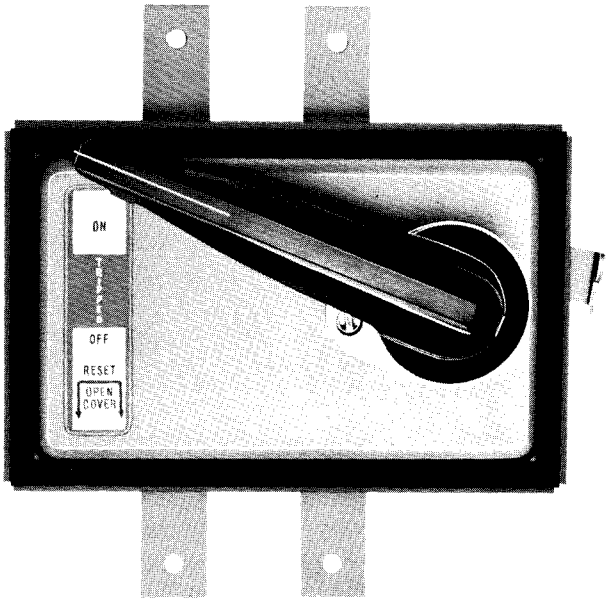
⚠ SAFETY INSTRUCTIONS

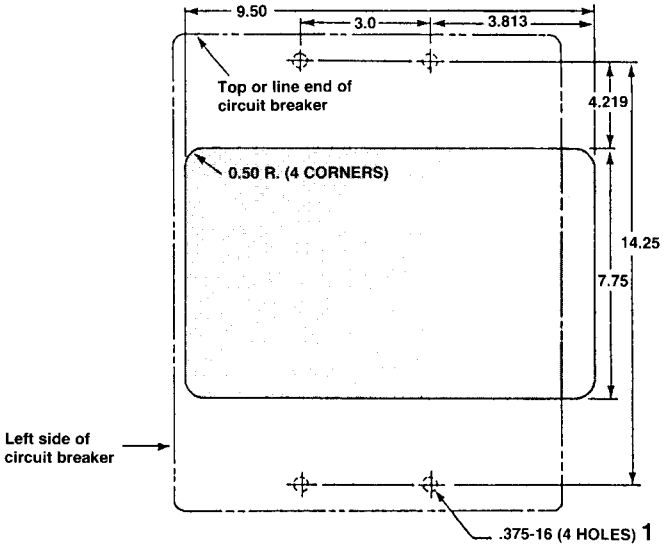
Drilling of Enclosure and Enclosure Cover

A. Drill and tap four ⅜-16 breaker mounting holes as shown (**1**) in drilling plan.
B. Cut opening in enclosure cover and attach latch bracket (**2**) (furnished with handle).

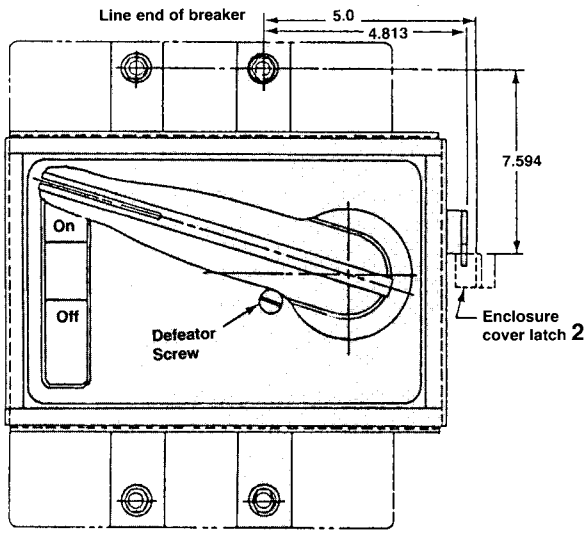
Mounting of Breaker and Mechanism

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.

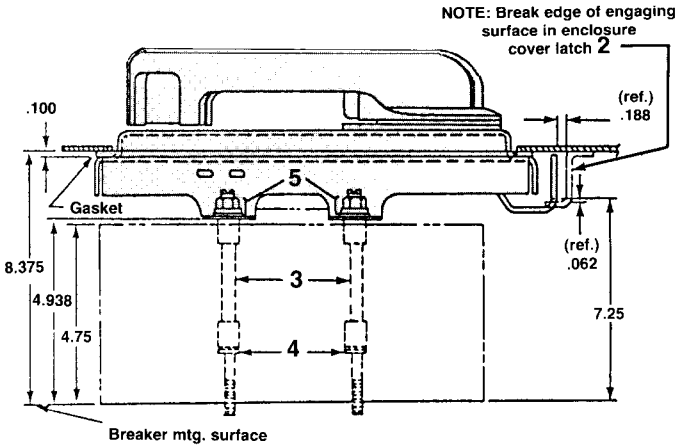




DRILLING PLAN



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**).

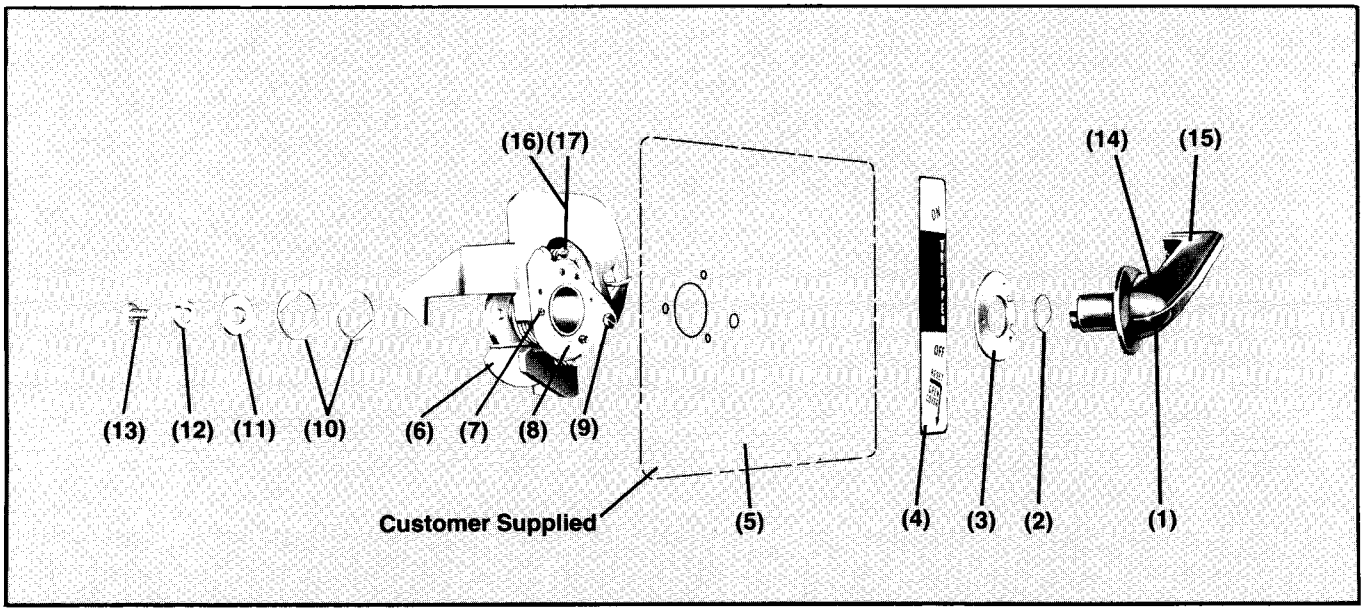
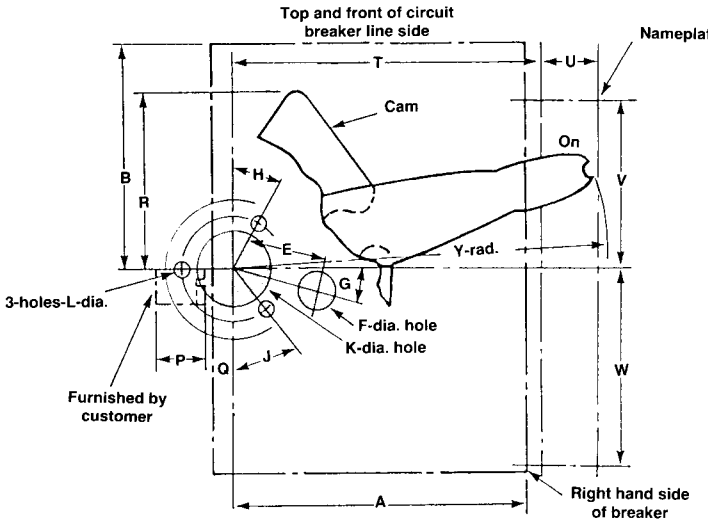


Fig. 1

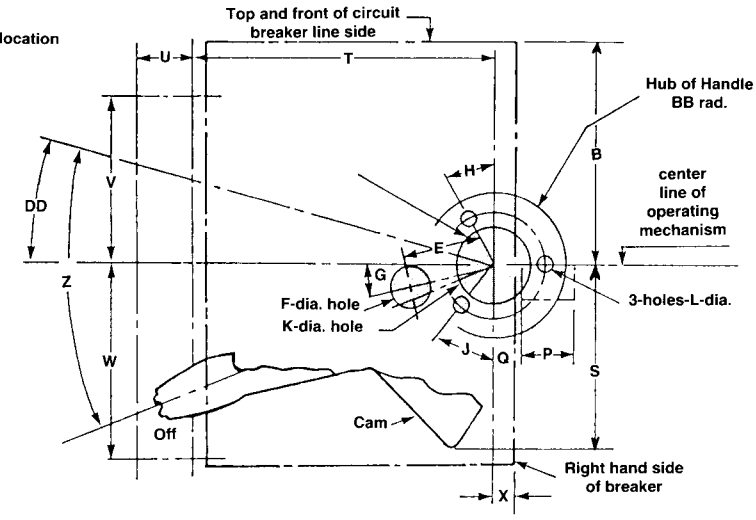
DIMENSIONS FOR
I-T-E STANDARD-DEPTH HORIZONTAL-HANDLE
ENCLOSURES MECHANISMS – OH8650 & OH8651



FRONT VIEW
Right hand operation

OH8650

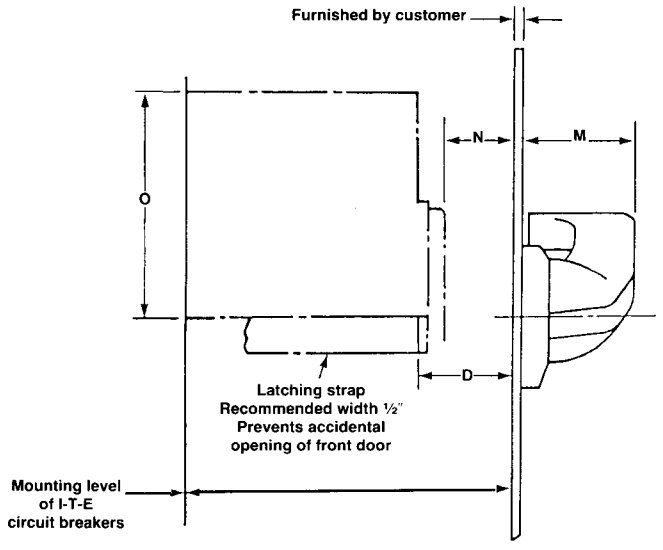
Fig. 2



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		

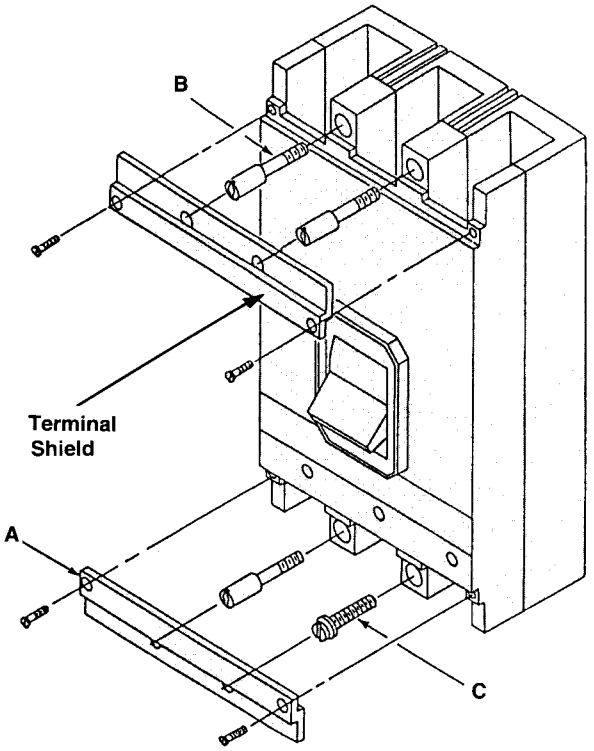
INSTRUCTIONS FOR MOUNTING
I-T-E TELEMAND® MOTOR OPERATOR
CAT. NO. T06K120, T06K240

⚠ DANGER

Hazardous Voltage. Will cause severe injury or death.

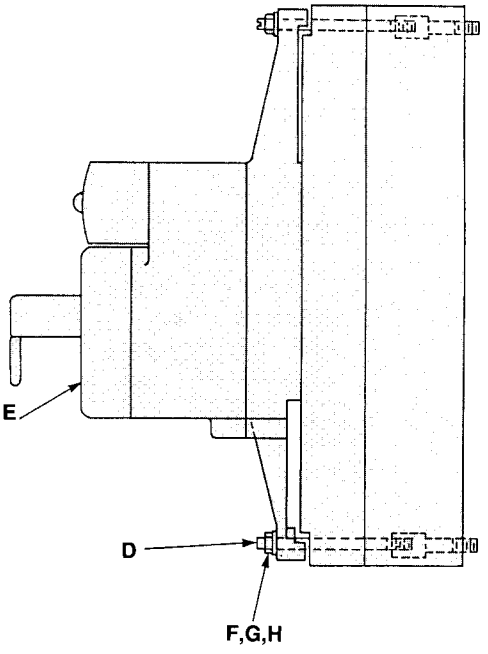
Turn power off supplying device before installing.

⚠ SAFETY INSTRUCTIONS



Mounting The Circuit Breaker

1. Remove the four terminal shield screws and the terminal shields (**A**).
2. Fasten the circuit breaker to the prepared mounting surface using three special ⅜-16 x 2½ slotted extension studs (**B**) in the lower left and both top hole positions. The ⅜-16 screw and lockwasher (**C**) are used in the bottom right hole position.
3. Confirm that the power from the supplying device has been turned off. Connect all cables to the circuit breaker at this time.
4. Replace the terminal shields and screws.



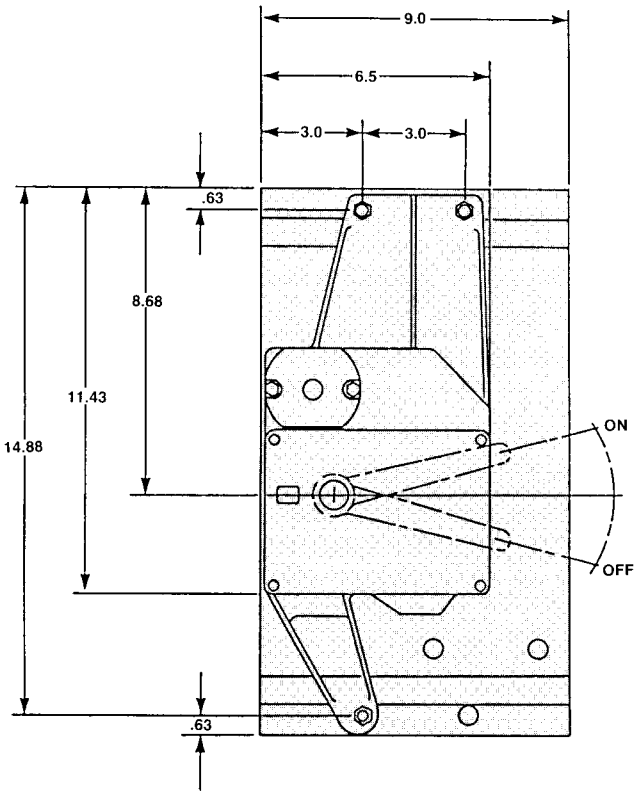
Mounting The Telemand® Motor Operator

5. Insert three 5⁄16 slotted threaded rods (**D**) through the breaker cover and tighten into the extension studs (**B**). The slotted end of the rod must extend past the face of the breaker.
6. Move the breaker handle firmly to the OFF position to permit mounting of the TELEMAND.
7. The TELEMAND operator (**E**) must also be in its OFF position – place the manual TELEMAND operating handle over the operating shaft, depress to engage the handle and turn clockwise until it stops.
8. Position and place the TELEMAND operator over the three threaded rods (**D**). Fasten with flatwashers (**F**), lockwashers (**G**) and 5⁄16-18 hex nuts (**H**).
9. Remove top cover of motor mechanism. Wire TELEMAND in accordance with the diagram located on the underside of the motor cover and replace the cover.

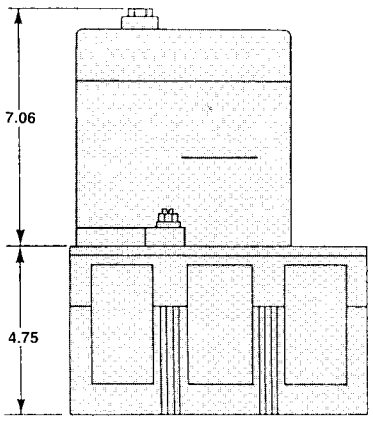
Circuit Breaker is now ready for TELEMAND operation.

DIMENSIONAL INFORMATION FOR
I-T-E TELEMAND® MOTOR OPERATOR
CAT. NO. T06K120, T06K240

Control Voltage	Cat. No.
120 VAC	T06K120
240 VAC	T06K240

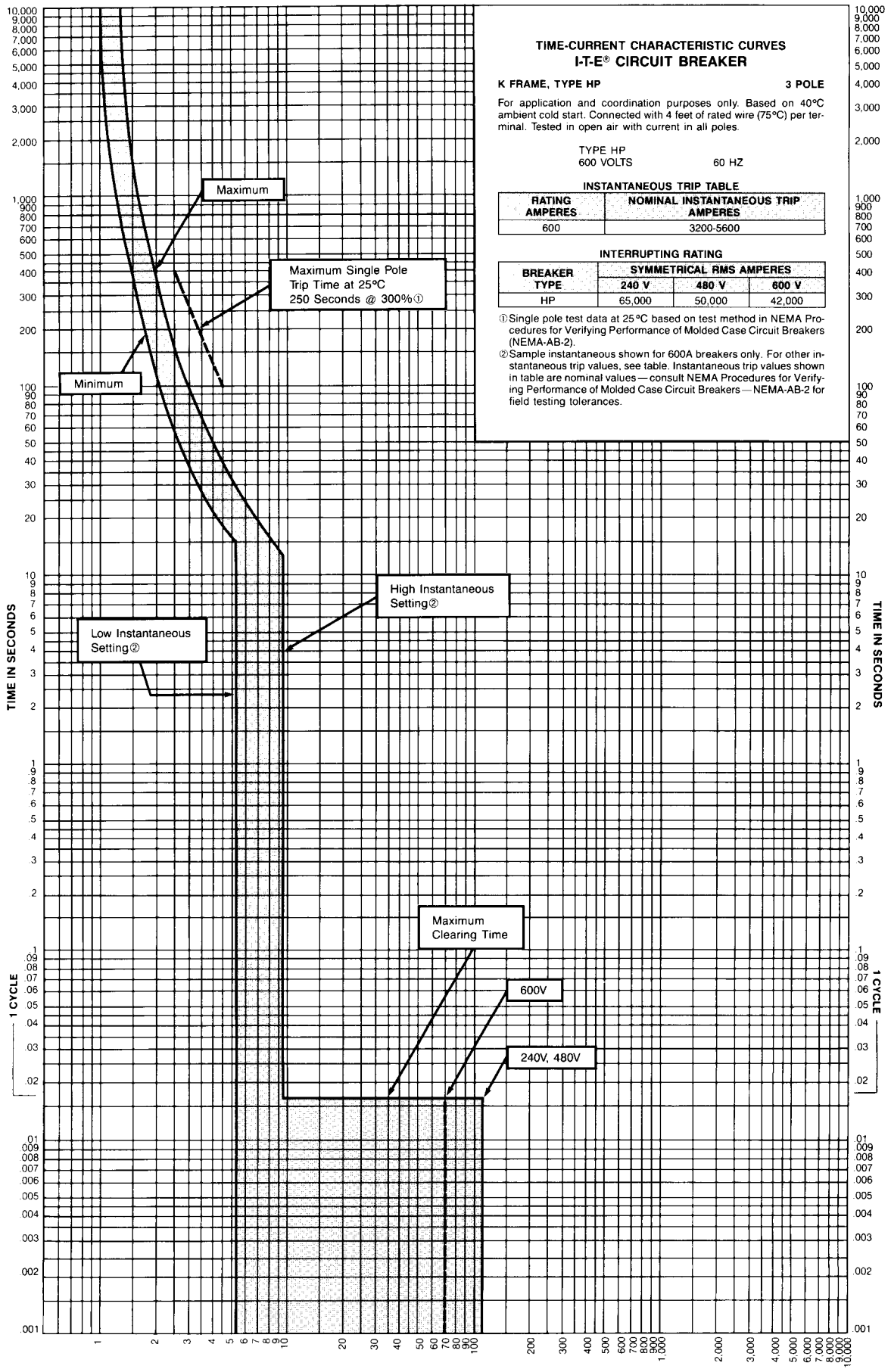


FRONT VIEW



END VIEW

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



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

K FRAME, TYPE HP **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 HP
600 VOLTS 60 HZ

INSTANTANEOUS TRIP TABLE

RATING AMPERES	NOMINAL INSTANTANEOUS TRIP AMPERES
600	3200-5600

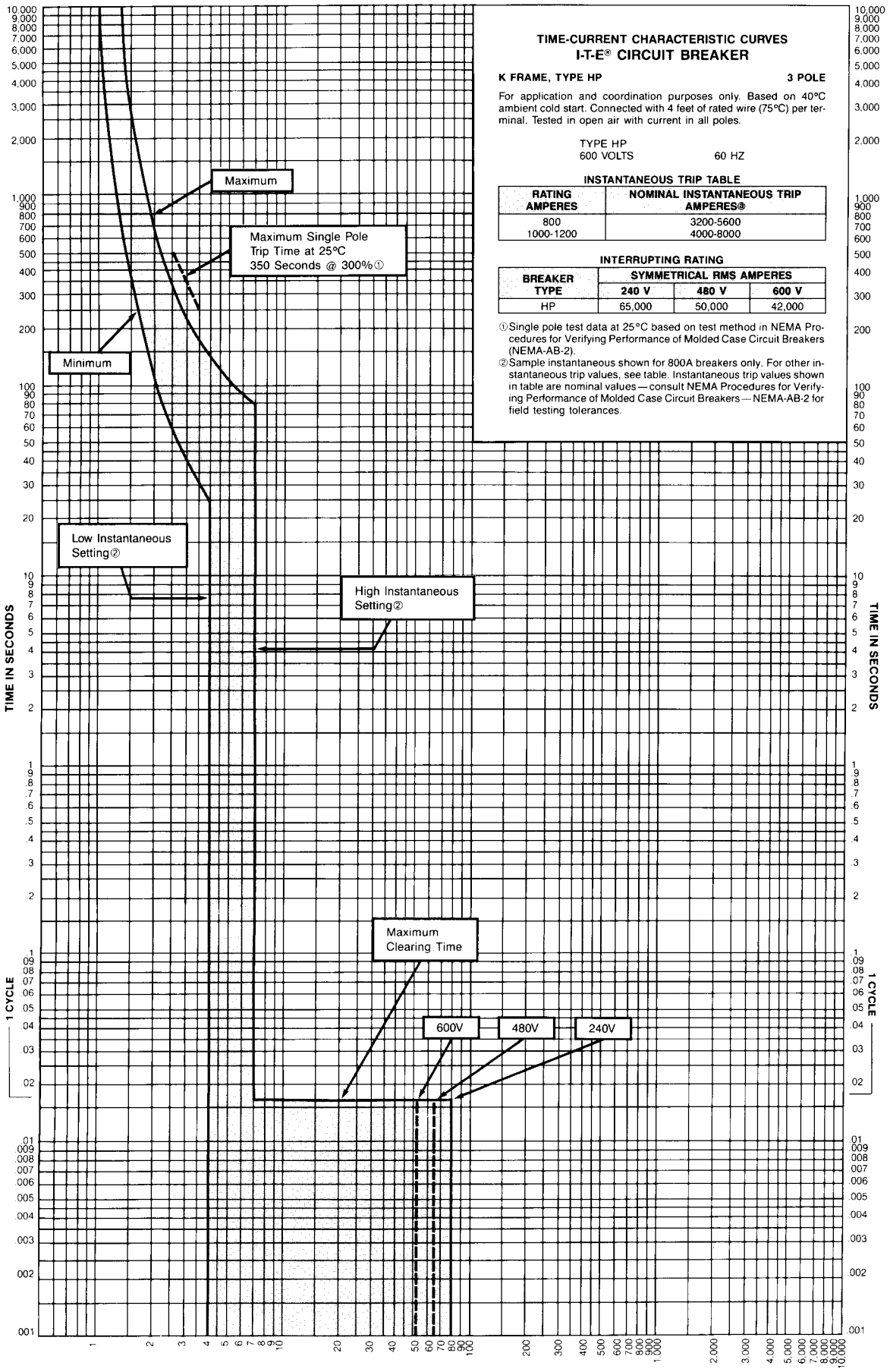
INTERRUPTING RATING

BREAKER TYPE	SYMMETRICAL RMS AMPERES		
	240 V	480 V	600 V
HP	65,000	50,000	42,000

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).

②Sample instantaneous shown for 600A 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, 800-1200 AMPERES



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

K FRAME, TYPE HP **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 HP
600 VOLTS 60 HZ

INSTANTANEOUS TRIP TABLE

RATING AMPERES	NOMINAL INSTANTANEOUS TRIP AMPERES②
800	3200-5600
1000-1200	4000-8000

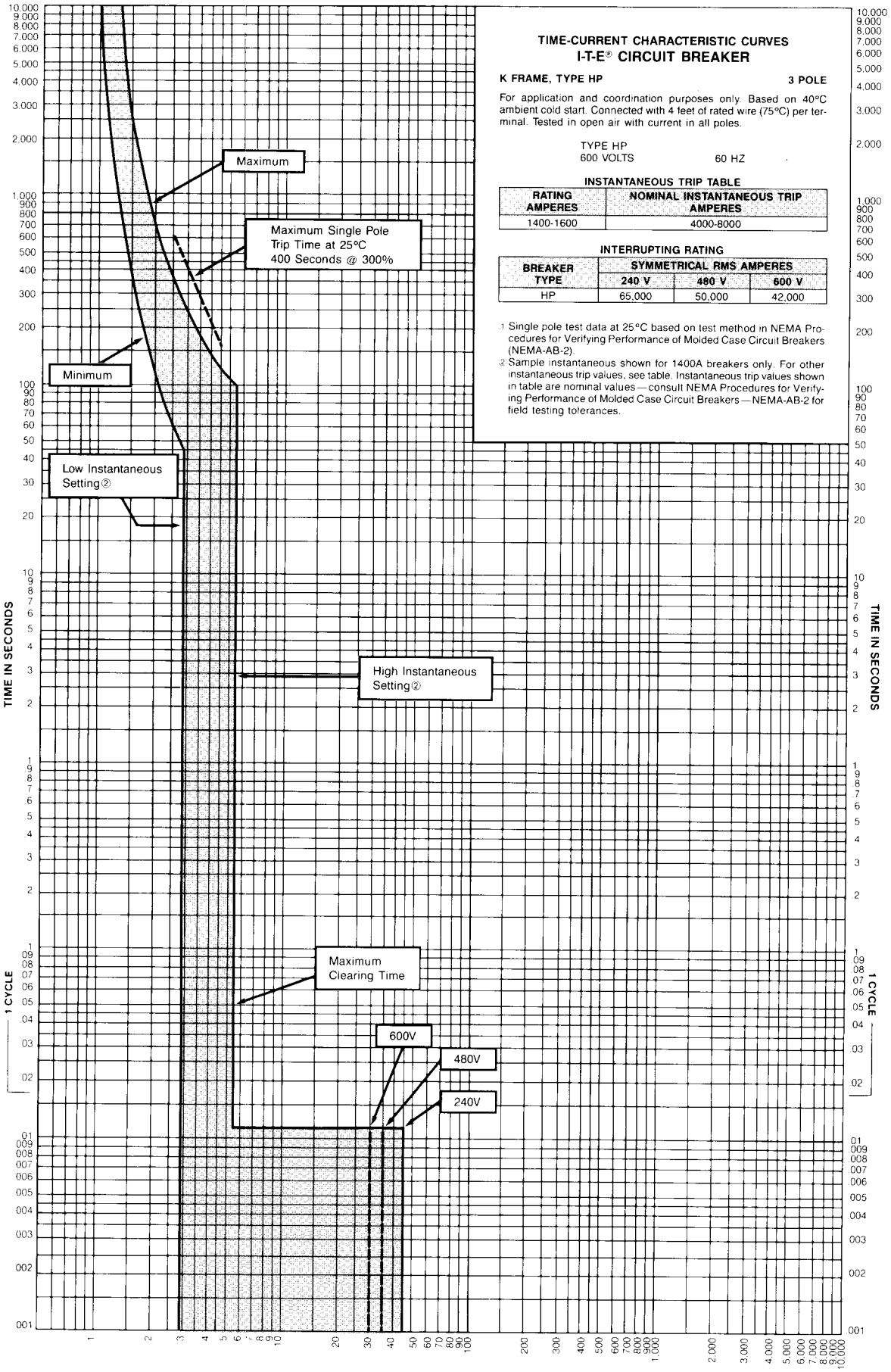
INTERRUPTING RATING

BREAKER TYPE	SYMMETRICAL RMS AMPERES		
	240 V	480 V	600 V
HP	65,000	50,000	42,000

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).

②Sample 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, 60HZ, 1400-1600 AMPERES



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

K FRAME, TYPE HP **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 HP
600 VOLTS 60 HZ

INSTANTANEOUS TRIP TABLE

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

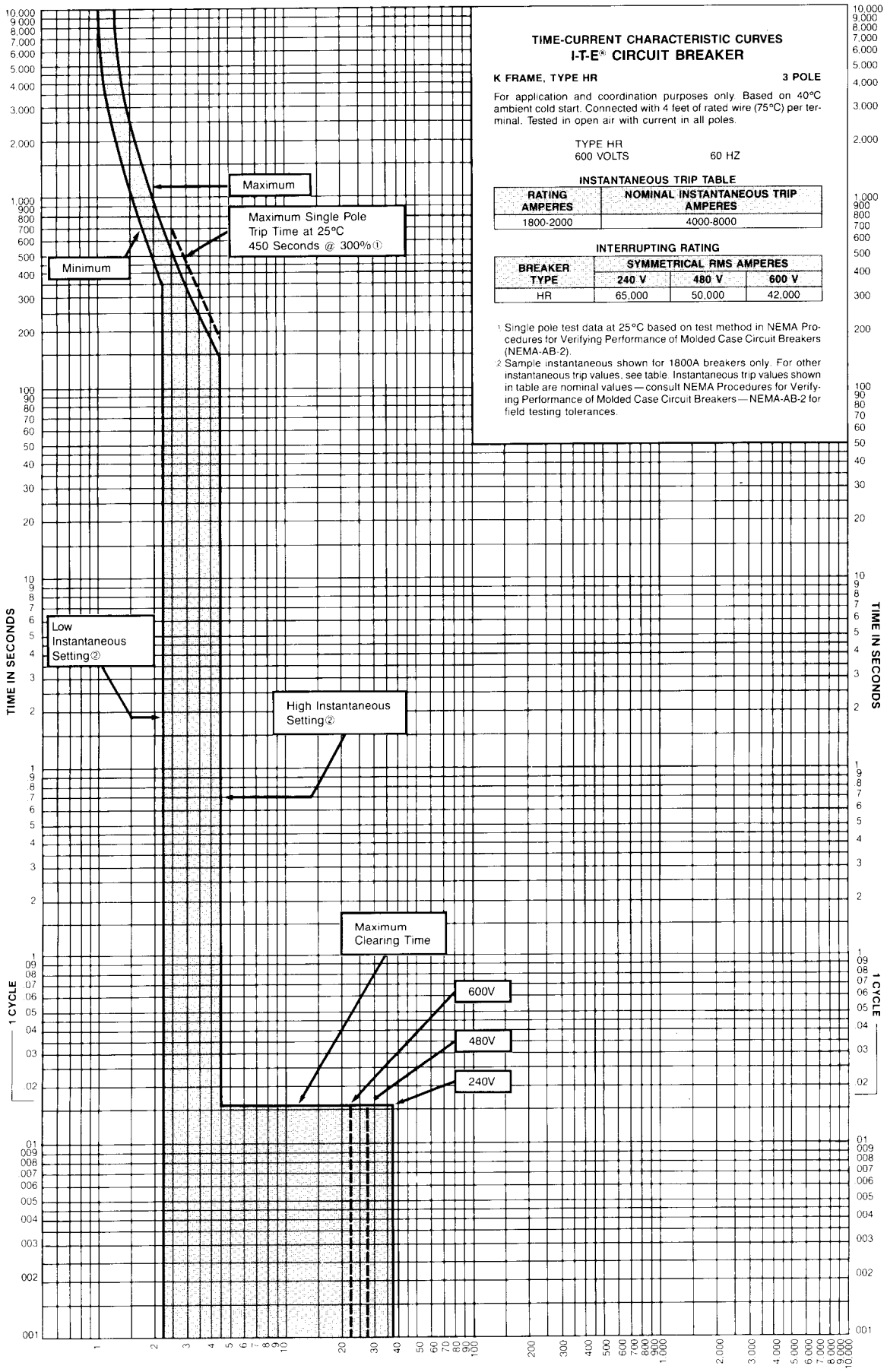
INTERRUPTING RATING

BREAKER TYPE	SYMMETRICAL RMS AMPERES		
	240 V	480 V	600 V
HP	65,000	50,000	42,000

1 Single pole test data at 25°C based on test method in NEMA Procedures for Verifying Performance of Molded Case Circuit Breakers (NEMA-AB-2).

2 Sample 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.

I-T-E TIME/CURRENT CURVES K FRAME
600 VOLTS, 60HZ, 1800-2000 AMPERES



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

K FRAME, TYPE HR **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 HR
600 VOLTS 60 HZ

INSTANTANEOUS TRIP TABLE

RATING AMPERES	NOMINAL INSTANTANEOUS TRIP AMPERES
1800-2000	4000-8000

INTERRUPTING RATING

BREAKER TYPE	SYMMETRICAL RMS AMPERES		
	240 V	480 V	600 V
HR	65,000	50,000	42,000

1 Single pole test data at 25°C based on test method in NEMA Procedures for Verifying Performance of Molded Case Circuit Breakers (NEMA-AB-2).
2 Sample instantaneous shown for 1800A 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 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			VDC
Breaker Frame	Ampere Rating	Min.	Max.	Cat. No.	Cat. No.	Cat. No.	240	480	600	250
HP 3 Pole 600 VAC	600	3200	5600	HP3B600	HP3F160	HP3T600	65	50	42	30
	700	3200	5600	HP3B700	HP3F160	HP3T700	65	50	42	30
	800	3200	5600	HP3B800	HP3F160	HP3T800	65	50	42	30
	900	4000	8000	HP3B900	HP3F160	HP3T900	65	50	42	30
	1000	4000	8000	HP3B100	HP3F160	HP3T100	65	50	42	30
	1200	4000	8000	HP3B120	HP3F160	HP3T120	65	50	42	30
	1400	4000	8000	HP3B140	HP3F160	HP3T140	65	50	42	30
	1600	4000	8000	HP3B160	HP3F160	HP3T160	65	50	42	30
	1600	Molded Case Switch①		HP3S160						
	SHIPPING:			50 lbs. each	42 lbs. each	8 lbs. each				
HR 3 Pole 600 VAC	1800	4000	8000	HR3B180	HR3F200	HR3T180	65	50	42	30
	2000	4000	8000	HR3B200	HR3F200	HR3T200	65	50	42	30
	2000	Molded Case Switch①		HR3S200						
	SHIPPING:			50 lbs. each	42 lbs. each	8 lbs. each				

① Non-automatic circuit interrupter. Use only on circuits capable of delivering not more than 10,000 amperes RMS symmetrical.

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

UNDERVOLTAGE TRIP

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

ADDITIONAL ACCESSORIES

Item	Catalog No.
Extension Handle	EX9
Mounting Screw	MSKP
Connect-All Mounting Assemblies	
Standard Mounting	MB9300
Reverse Mounting	MBR9307
Telemand® Electric Motor Operator	
120 VAC	T06K120
240 VAC	T06K240

Item	Catalog No.
Enclosure	
Type 1	HR1
Handle Blocking Device	KML1
Mechanical Interlock	MI5482
Handle Operators	
Integral handle operator	OH5942
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	–
Internal Accessories		
Shunt trips	E57501	–
Undervoltage	E57501	–
Aux. Switch	E57501	–
Bell-alarm	–	–
Molded Case Switch	E57556	LR33844
Enclosures	–	–

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

PROCEDURES FOR VERIFYING PERFORMANCE OF MOLDED CASE CIRCUIT BREAKERS — AB2

National Electrical Manufacturers Association
2101 L Street N.W. Suite 300
Washington, DC 20037

NOTES

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Bulletin IB-2.3.7-4A (New) Printed in U.S.A. 5M 586 AP