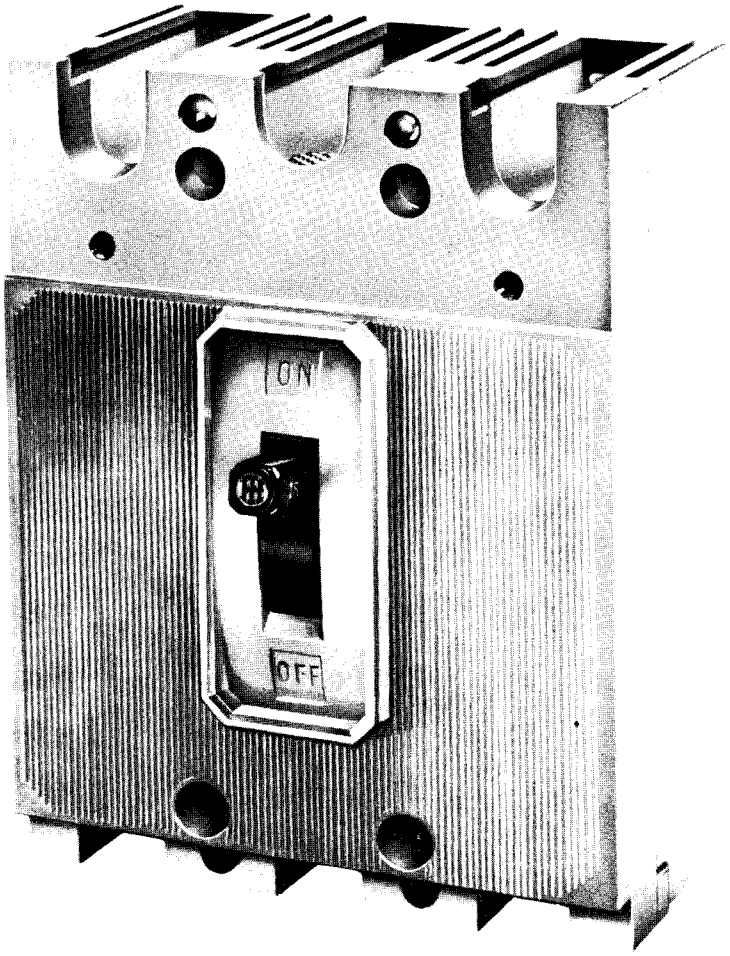
IB-2.3.7-1
ISSUE A

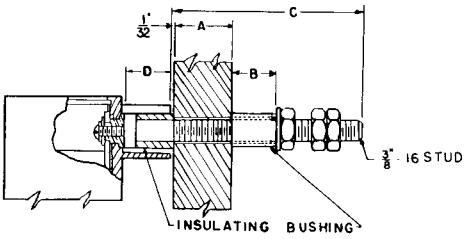
MOLDED-CASE CIRCUIT BREAKERS

INSTRUCTIONS

100-AMPERE
ET®-H HE-FRAME CIRCUIT BREAKERS
2 & 3 POLE, 15-100 AMPERES



ITE Imperial Corporation



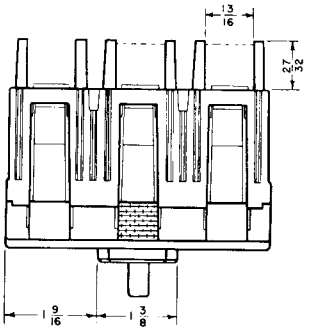
FRONT CONNECTED TERMINALS:

1- LOW AMPERE (15 TO 25 AMPS.) 1/4-20 SCREW AND CUPWASHER FOR BOTH LINE AND LOAD CONNECTIONS.
2- HIGH AMPERE (30 TO 100 AMPS.) PRESSURE WIRE CONNECTORS FOR BOTH LINE AND LOAD CONNECTIONS.
3- FOR BOTH OF THE ARRANGEMENTS ABOVE, LOAD SIDE CONNECTION ARRANGEMENTS ARE ASSEMBLED TO THE BREAKER TERMINALS AND LINE SIDE CONNECTION ARRANGEMENTS, WHEN REQUESTED, ARE SHIPPED LOOSE.
4- PRESSURE WIRE CONNECTOR COPPER WIRE RANGE #14 TO 1/0 INCLUSIVE, AND ALUMINUM WIRE RANGE #12 TO 1/0 INCLUSIVE.
5- 1/4-20 SCREW AND CUPWASHER WIRE RANGE #14 TO #10 COPPER AND #12 TO #10 ALUMINUM.

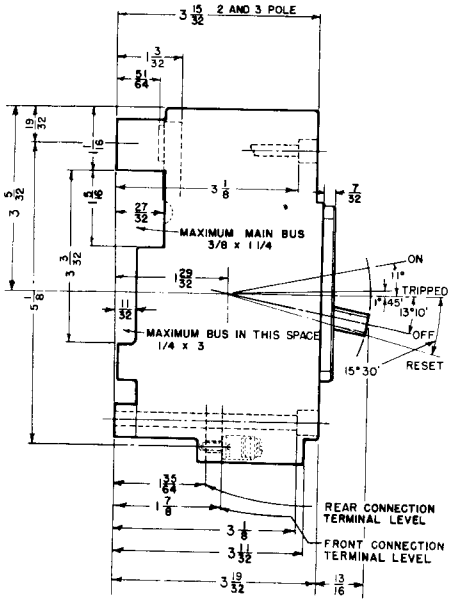
REAR CONNECTION STUD DATA

TYPE	CATALOG NUMBERS	PANEL "A"	BUSHING "B"	"C"	"D"
LONG - LINE SIDE	RS-2645	MAX. 1"	2 3/16	4 1/4	21/64
LONG - LOAD SIDE	RS-2646	MAX. 1"	2 3/16	4 3/4	35/64
SHORT - LINE SIDE	RS-2647	MAX. 1"	1/4	2 15/16	21/64
SHORT - LOAD SIDE	RS-2648	MAX. 1"	1/4	2 15/16	35/64

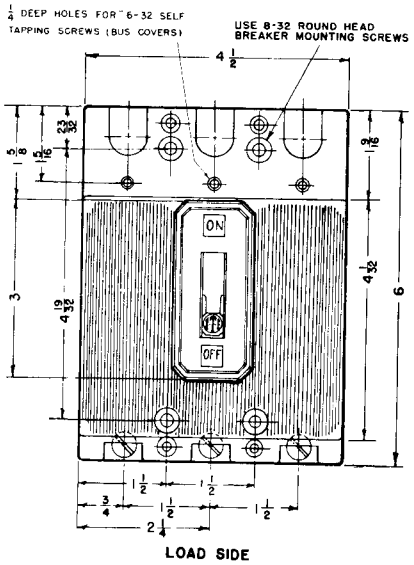
MAXIMUM BUS JUMPER 3/4 WIDE



TWO POLE SAME AS THREE POLE EXCEPT CENTER POLE OMITTED.



LINE SIDE



LOAD SIDE

100-Ampere HE-Frame Circuit Breaker Dimensional Drawings

INSTRUCTIONS FOR 100-AMPERE HE-FRAME CIRCUIT BREAKERS 2 & 3 POLE, 600 VOLTS AC, 250 VOLTS DC 15-100 AMPERES

GENERAL

HE-frame circuit breakers are for use in panelboards, switchboards, load centers, and all types of individual enclosures where the available fault currents are of a heavy magnitude.

INTERRUPTING RATINGS FOR 2 & 3 POLE CIRCUIT BREAKERS		
Based on NEMA Test Procedures		
Volts	Amperes	
	Asymmetrical	Symmetrical
240 ac	75,000	65,000
480 ac	30,000	25,000
600 ac	20,000	18,000
250 dc	10,000	

The HE-frame circuit breaker provides coordinated tripping action by combining the time limit of a thermal trip and a fixed instantaneous magnetic trip for protection on overloads or short circuits. Both types of action are trip free of the operating handle, and therefore, the circuit breakers cannot be held closed by means of the handle, should a tripping condition exist. The handle will also assume a central position after automatic operation, and the horizontal line, in the handle, cannot be seen, thus giving a clear indication of tripping.

The circuit breaker frames are constructed of a high-impact glass alkyd resin material designed to withstand stresses of operation at 75,000 amperes. The use of this material eliminates the need for any special fungus proofing. Consideration should be given, when applying these breakers, to provide adequate bus support and mechanical bracing.

These circuit breakers are carefully calibrated at the factory at controlled temperatures for a 40C ambient and sealed to prevent tampering (ETM circuit breakers, calibrated for a 50C ambient, are also covered by these instructions).

The circuit breakers operate on a common trip principle so that an overcurrent on any pole will simultaneously open all poles. The thermal overcurrent trip element is adjusted to suit the cable size for which the tripping device is intended, and will operate within the limits specified by the Underwriters' Laboratories, Inc. Any alteration of the calibration of these elements should not be attempted. The circuit breaker cover is sealed, and removal of this cover will void the Underwriters' Laboratories, Inc. approval for that particular circuit breaker.

ETI HE-frame circuit breakers (Adjustable Instantaneous Magnetic Trip only) are furnished and are designed for use in motor circuits and combination starters where short circuit protection only is required.

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

Breaker Ampere Rating	Nominal Instantaneous Values				
	LO	2	3	4	HI
3	7	10	12	16	21
5	14	18	22	29	41
10	27	36	45	58	84
25	75	105	125	170	210
50 LO	160	210	260	330	470
50 HI	320	400	475	565	670
100	475	630	760	930	1125

Pressure wire connectors for either copper or aluminum conductors are furnished for load terminal connections on all HE-frame, Thermal Magnetic Type circuit breakers rated from 30 to 100 amperes inclusive. The same type connectors will be furnished for line terminal connections when requested. Circuit breakers below 30 amperes are furnished with wire binding screws and cupwashers for load terminal connections and, when requested, line terminal connections. Binding screws and cupwashers are also for use with either copper or aluminum conductors.

On ETI HE-frame circuit breakers rated from 50 to 100 amperes inclusive, pressure wire connectors for either copper or aluminum conductors are furnished for line and load connections. ETI HE-frame circuit breakers rated 25 amperes or less are furnished on both line and load terminals with wire binding screws and cupwashers for either copper or aluminum conductors.

HE-frame circuit breakers can be furnished with rear connection studs for switchboard applications. They can also be furnished with "plug-in" connector assemblies. This arrangement permits the removal of the circuit breaker from its leads without physically coming in contact with either the line or load terminals.

Special features such as shunt trip, auxiliary switch, alarm switch, and undervoltage trip can be obtained and are mounted internally at the factory. Information concerning these special features is available upon request.

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.

WARNING FOR CIRCUIT BREAKER REMOVAL

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

TO REMOVE A REAR-CONNECTED CIRCUIT BREAKER FROM ITS MOUNTING

See WARNING FOR CIRCUIT BREAKER REMOVAL.

Remove the "circuit breaker terminal to stud" screws, lockwashers and flatwashers. Pull the circuit breaker forward.

TO REMOVE A FRONT-CONNECTED CIRCUIT BREAKER FROM ITS MOUNTING

See WARNING FOR CIRCUIT BREAKER REMOVAL.

Loosen the cable anchor screws, then bend cables clear of the terminals. Remove the circuit breaker mounting screws, then pull the circuit breaker forward.

TO REMOVE A CIRCUIT BREAKER EQUIPPED WITH PLUG-IN CONNECTOR ASSEMBLIES FROM ITS MOUNTING

See WARNING FOR CIRCUIT BREAKER REMOVAL.

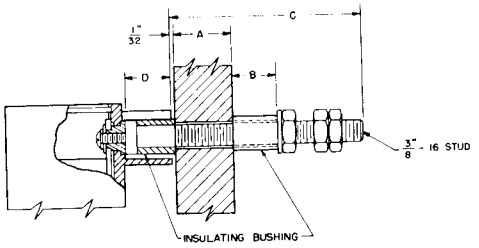
Remove the "circuit breaker to mounting block" mounting screws. Pull the circuit breaker forward.

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.



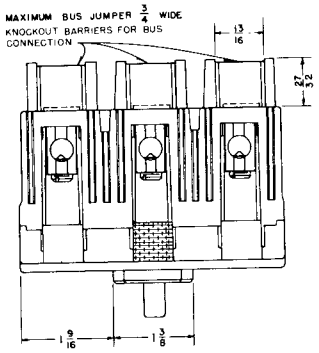
FRONT CONNECTED TERMINALS

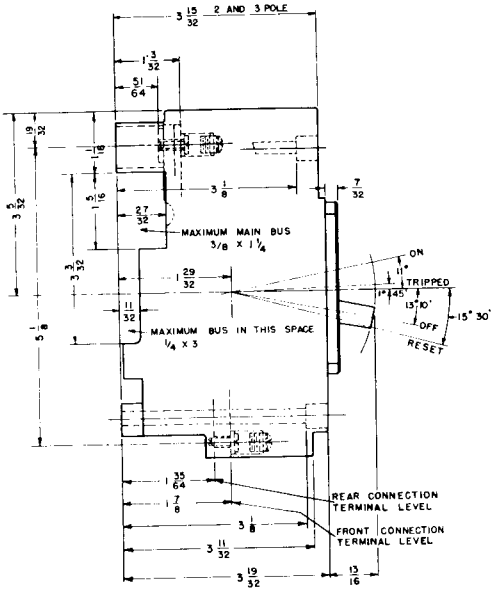
1. LOW AMPERE (25 AMPERES AND LESS) 1/4-20 SCREW AND CUPWASHER FOR BOTH LINE AND LOAD CONNECTIONS.
2. HIGH AMPERE (50 TO 100 AMPERES INCLUSIVE) PRESSURE WIRE CONNECTORS FOR BOTH LINE AND LOAD CONNECTIONS.
3. FOR BOTH OF THE ABOVE ARRANGEMENTS, LINE AND LOAD SIDE CONNECTORS ARE ASSEMBLED TO THE CIRCUIT BREAKER TERMINALS.
4. PRESSURE WIRE CONNECTOR COPPER WIRE RANGE #14 TO 1/0 INCLUSIVE, AND ALUMINUM WIRE RANGE #12 TO 1/0 INCLUSIVE.
5. 1/4-20 SCREW AND CUPWASHER WIRE RANGE #14 TO #10 COPPER AND #12 TO #10 ALUMINUM.

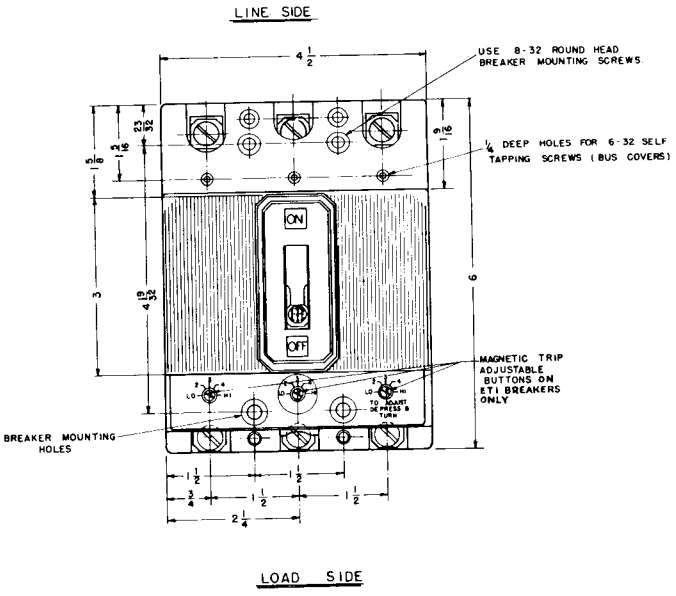
REAR CONNECTION STUD DATA

TYPE	CATALOG NUMBERS	PANEL "A"	BUSHING "B"	"C"	"D"
LONG - LINE SIDE	RS-2645	MAX. 1"	2 3/8	4 3/4	21/64
LONG - LOAD SIDE	RS-2646	MAX. 1"	2 9/16	4 3/4	1 35/64
SHORT - LINE SIDE	RS-2647	MAX. 1"	3/4	2 15/16	21/64
SHORT - LOAD SIDE	RS-2648	MAX. 1"	3/4	2 15/16	1 35/64

TWO POLE SAME AS THREE POLE EXCEPT CENTER POLE OMITTED.







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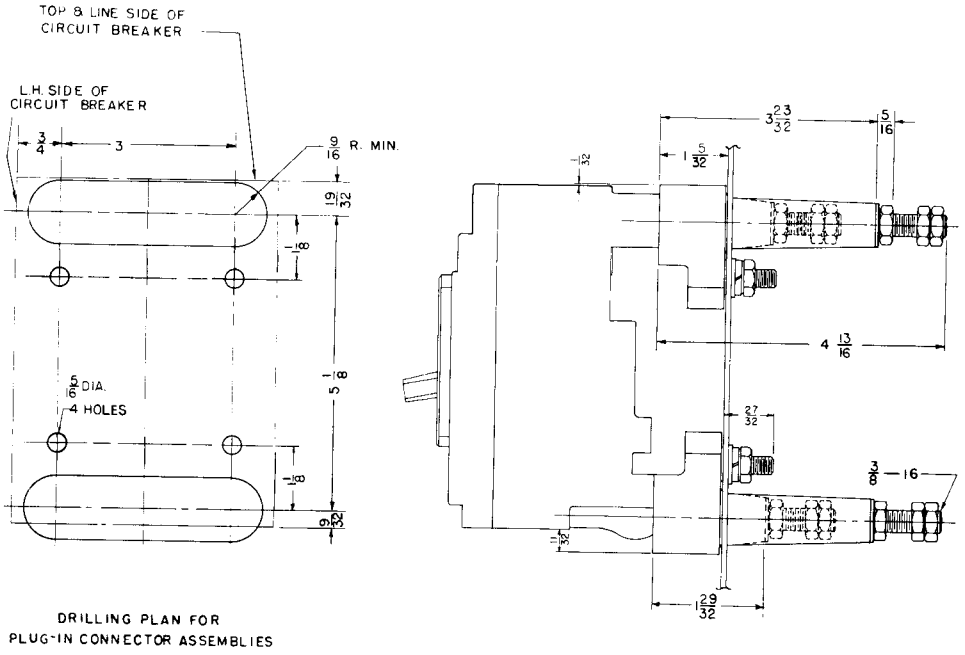
100-Ampere ETI HE-Frame Circuit Breaker Dimensional Drawings



Plug-In Connector Assemblies and Drilling Plan Dimensional Drawings

S-15238 SHT. 2

NOTES