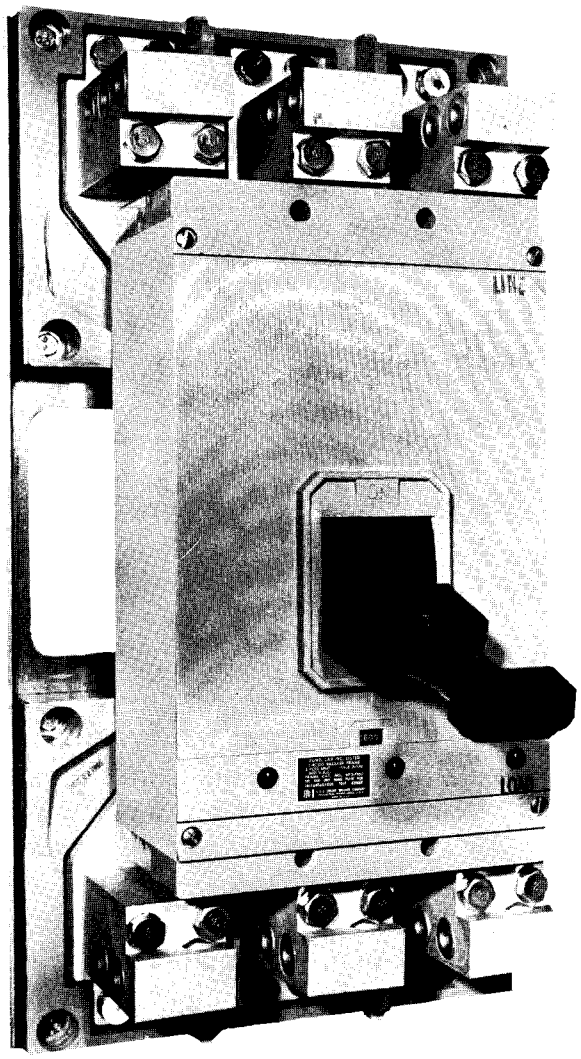
IB-2.3.7-4
ISSUE B

MOLDED-CASE CIRCUIT BREAKERS

INSTRUCTIONS

1600-AMPERE
ET®-H HP-FRAME CIRCUIT BREAKERS
3 POLE, 800-1600 AMPERES



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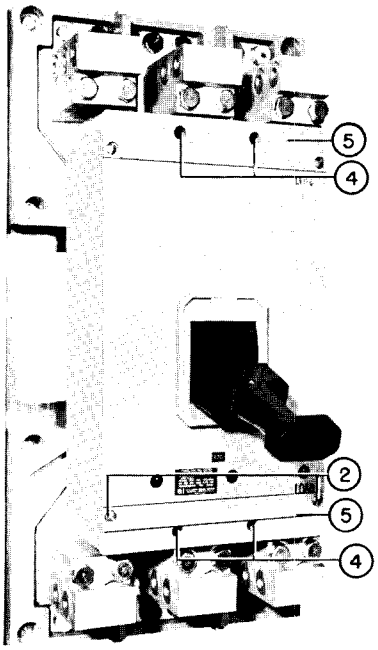

Fig. 1 — Front View of Circuit Breaker Extension Handle in Place

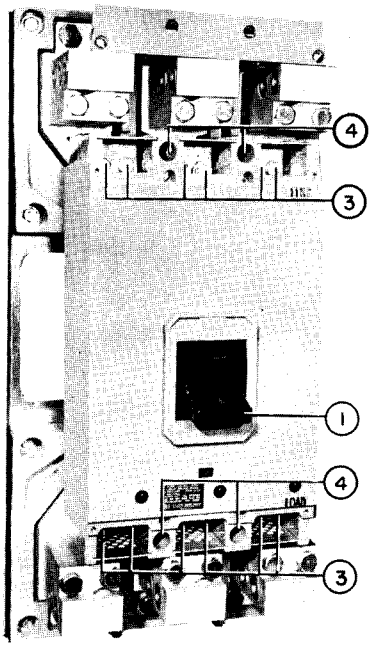

Fig. 2 — Front View of Circuit Breaker End Covers Removed

FIG.1 - 44758-A
FIG.2 - 44756-A

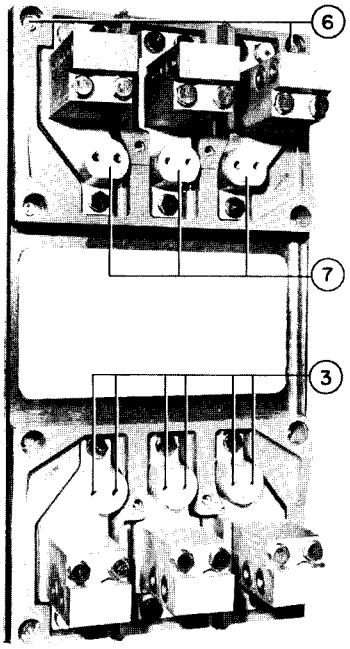

Fig. 3 — Connect-All Assembly (Front Connected)

FIG.3 - 44757-A
COVER - 44758-R

INSTRUCTIONS FOR 1600-AMPERE HP-FRAME CIRCUIT BREAKERS 3 POLE, 800-1600 AMPERES

GENERAL

HP-frame circuit breakers are for use in individual enclosures and in switchboards where the available fault currents are of a heavy magnitude.

Complete HP-frame circuit breakers, as listed, are furnished with a Connect-All mounting assembly (Fig. 3) or a Reverse Mounting Block assembly (Fig. 7). Pressure wire connectors are available suitable for use with copper or aluminum cables. To facilitate wiring to the terminals, pressure wire connectors may be mounted on the front or rear of the Connect-All assembly, but only on the rear of the Reverse Mounting Block.

NOTE: These circuit breakers are furnished in 3 pole construction only; for 2 pole application use outside poles.

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
800	3200	3600	4100	5100	5600
1000-1600	4000	5000	6000	7000	8000

HP-frame circuit breakers combine instantaneous-magnetic short circuit protection with thermal time-delay overload protection. They have a quick-make, quick-break, trip-free mechanism design, coupled with common trip operation to assure all poles of the breaker opening simultaneously and automatically in the event of a fault or overload on any pole. These breakers cannot be held closed under abnormal conditions. A three position handle visually indicates if breaker is "ON", "OFF", or has "tripped" on automatic operation.

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.

Trip units are carefully calibrated and adjusted at the factory in a temperature controlled room. Trip unit covers are sealed in place and any alteration of the calibration of the unit should not be attempted. Removing the trip unit cover will void the Underwriters' Laboratories, Inc. listing for that particular unit.

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

INTERRUPTING RATINGS

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

Based on NEMA Test Procedures		
Volts	Amperes	
	Asymmetrical	Symmetrical
240 ac	75,000	65,000
480 ac	60,000	50,000
600 ac	50,000	42,000
250 dc	20,000	

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.

WARNING FOR CIRCUIT BREAKER REMOVAL

THE CIRCUIT BREAKER SHOULD BE IN THE "OFF" POSITION AND, IF PRACTICABLE, THE SWITCHBOARD DE-ENERGIZED BEFORE CHANGING, 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 MOUNT CONNECT-ALL ASSEMBLY AND CONNECTORS OR REVERSE MOUNTING BLOCK ASSEMBLY AND CONNECTORS

See WARNING FOR CIRCUIT BREAKER REMOVAL.

1. Drill required holes and provide escutcheon cut-out in accordance with mounting arrangement desired (reference Fig. 4) in support angles and front sheet supplied by customer.
2. Remove four (4) bolts (6, Fig. 3) in the Connect-All assembly, and in a similar location in the Reverse Mounting Block assembly, re-use these

bolts to mount the appropriate mounting arrangement to support angles. Tighten bolts securely.

NOTE: Do not disturb similar bolts on inside corners of insulating blocks.

3. (Refer to Fig. 6 or 7.) Make line and load bus or cable connections. If CONNECT-ALL assembly is used, bus or pressure wire connectors may be mounted on front or back of terminal connector straps. If REVERSE MOUNTING BLOCK assembly is used, bus or pressure wire connectors can only be mounted on back of terminal connector straps.

TO MOUNT CIRCUIT BREAKER ON CONNECT-ALL ASSEMBLY OR REVERSE MOUNTING BLOCK ASSEMBLY

NOTE: HP-frame circuit breakers can be added to or removed from the Connect-All mounting assembly or Reverse Mounting Block assembly without disturbing cable or bus connections.

See WARNING FOR CIRCUIT BREAKER REMOVAL.

1. Move operating handle (1, Fig. 2) to "OFF" position.
2. Remove four (4) end cover screws (2, Fig. 1) and end covers (5, Fig. 1).
3. Locate circuit breaker on round copper terminals (7, Fig. 3). Fasten circuit breaker to insulating blocks with four (4) slotted fillister head screws, lockwashers and washers (furnished) (location 4, Figs. 1 and 2). Tighten screws securely.
4. Secure circuit breaker terminals to Connect-All assembly terminals (location 3, Figs. 2 & 3) or to the terminals of the Reverse Mounting Block assembly (refer to Fig. 7) using two (2) hex head bolts, lockwashers and washers (furnished) per terminal. Recommended tightening torque of 11-13 foot-pounds.
5. Replace end covers and tighten screws securely.

The circuit breaker is now ready for operation.

TO REMOVE CIRCUIT BREAKER FROM CONNECT-ALL ASSEMBLY OR REVERSE MOUNTING BLOCK ASSEMBLY

NOTE: HP-frame circuit breakers can be added to or removed from the Connect-All mounting assembly or Reverse Mounting Block assembly without disturbing cable or bus connections.

See WARNING FOR CIRCUIT BREAKER REMOVAL.

1. Move operating handle (1, Fig. 2) to "OFF" position.
2. Remove four (4) end cover screws (2, Fig. 1) and end covers (5, Fig. 1).
3. Remove circuit breaker terminal bolts (3, Fig. 2).
4. Exercise extreme care and release the circuit breaker mounting screws (4, Figs. 1 and 2); circuit breaker is now free of its mounting. Carefully pull breaker away from its mounting assembly.

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.

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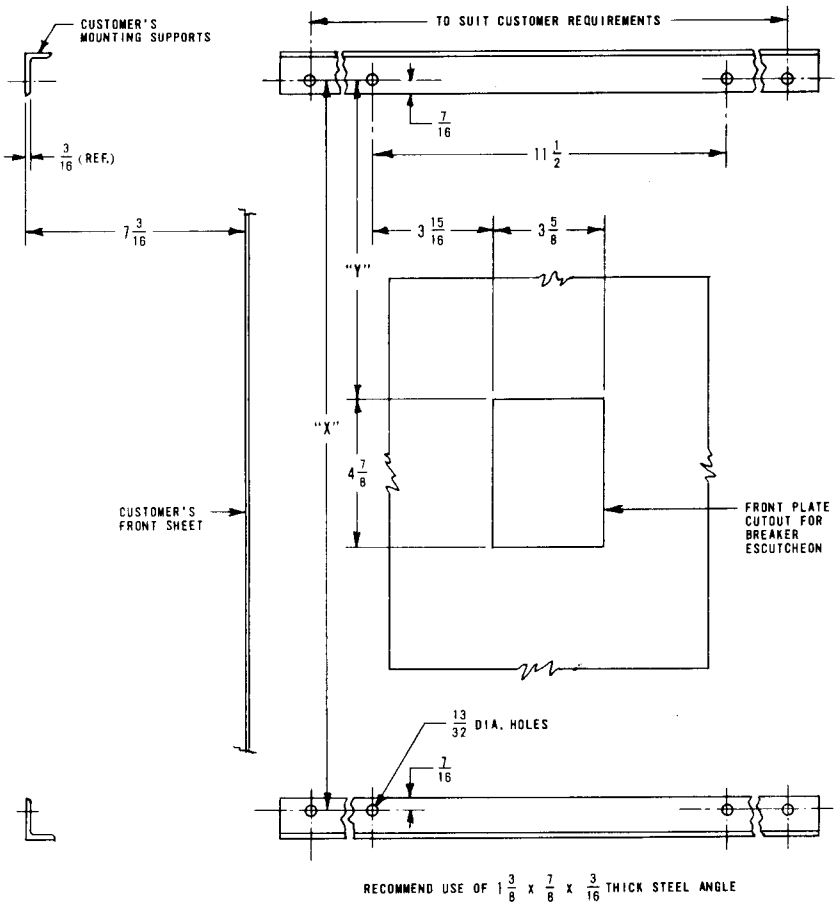

MOUNTING BLOCK ASSEMBLY	"X" DIM.	"Y" DIM.
CONNECT-ALL MOUNTING BLOCK CAT. NO. MB-9300	24	10 1/2
REVERSE MOUNTING BLOCK CAT. NO. MBR-9307	16 3/4	6 7/8

Fig. 4 — Mounting Supports & Front Plate Drilling

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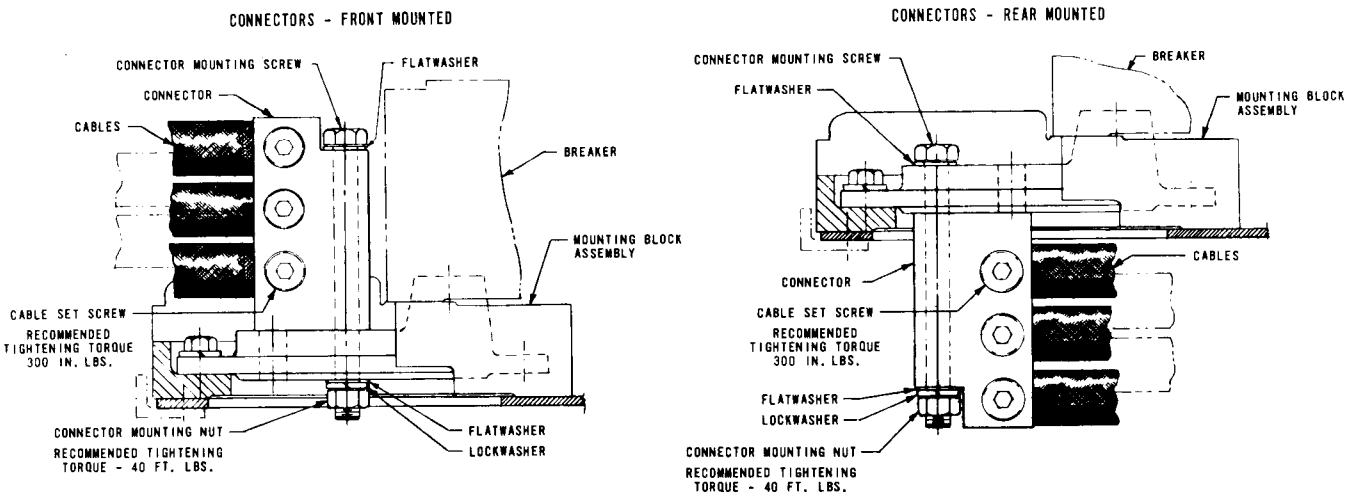

Fig. 5 — Connector Mounting

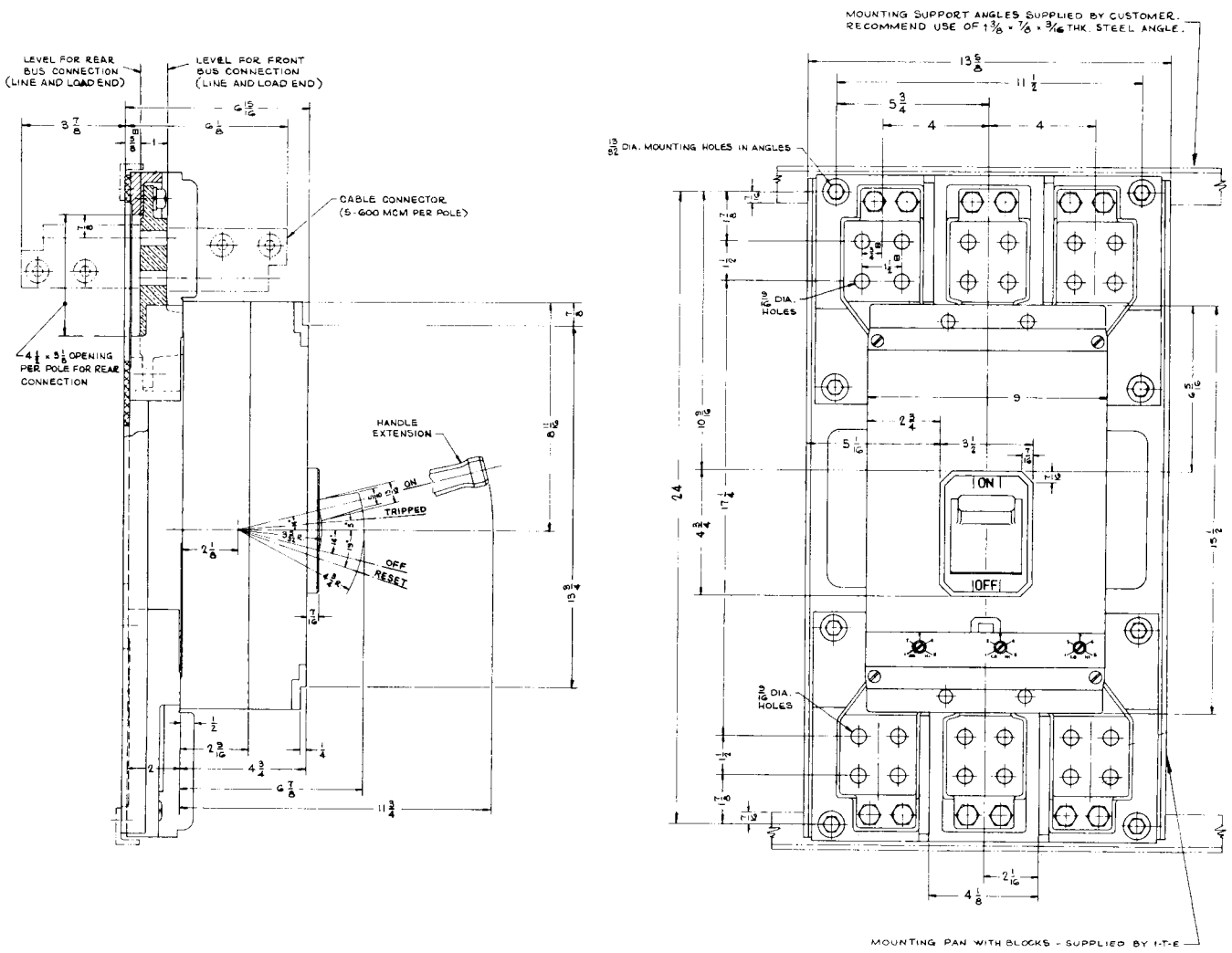

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Fig. 6 — 1600-Ampere HP-Frame Circuit Breaker Dimensional Drawings with Connect-All Assembly

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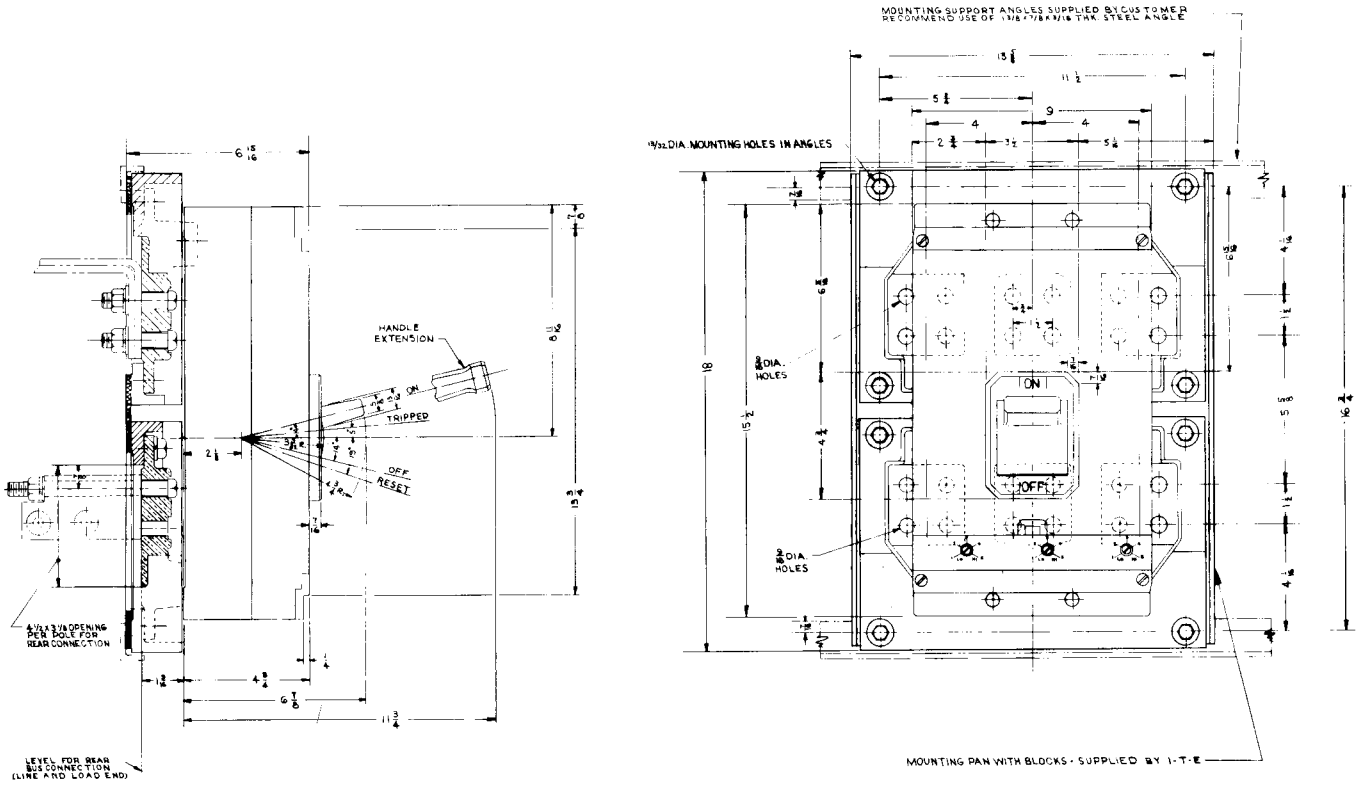

Fig. 7 — 1600-Ampere HP-Frame Circuit Breaker Dimensional Drawings with Reverse Mounting Block Assembly