

ITE® Molded Case Circuit Breakers

LMD Frame
Information and
Instruction Guide





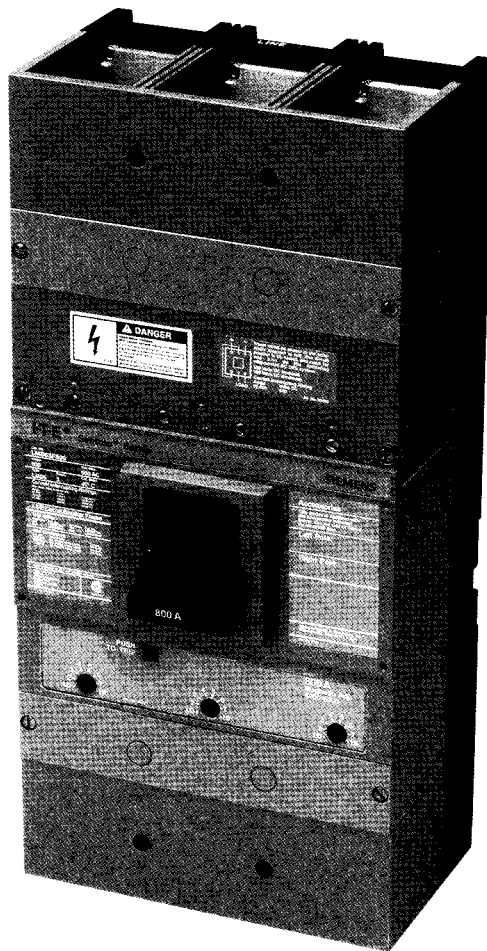
⚠ DANGER

Hazardous voltages are present inside the enclosures or panels in which the circuit breakers are installed. Death, serious injury, and/or equipment damage will result if circuit breakers are improperly applied or precaution is not used.

De-energize all incoming power prior to installation of circuit breakers or associated accessories.

Only qualified personnel should work on or around this equipment.

Position of circuit breaker handles shown in this booklet is for illustration purposes only. Circuit breakers are to be installed in OFF or TRIPPED position only.



I-T-E® LMD-Frame Circuit Breakers

2 and 3-Pole; 500-800 Amperes

Types LMD6, LMXD6, HLMD6, HLMXD6, LMXD6-ETI, HLMXD6-ETI

Table of Contents

Important Notices	2	Accessories	17-33
General Information	3-4	Shunt Trip, Undervoltage Trip, Auxiliary Switch and Bell Alarm Switch Installation	17-18
Dimensional Reference Drawings	5	Accessory Combinations	18
Trip Unit	6-7	Shunt Trip and Undervoltage Trip Electrical Check	19
Pressure Wire Connectors	8	Auxiliary Switch and Bell Alarm Switch Electrical Check	20
Operating Characteristics	9	Rotary Handle Operators (CRHOLMSD, CRHOLMVD)	21-22
Time Current Curves	9	TELEMAND® Electric Motor Operator	23-25
Rear Connecting Studs	10-11	Max-Flex™ Flange-Mount Handle Operator	26-30
Mechanical Interlock	12-15	Door Latch Mechanism	31-32
Handle Blocking Device	16	Enclosures	33
Padlocking Device	16	Ordering Information	34-36
		Circuit Breaker Catalog Numbers	34
		Circuit Breakers Accessories Catalog Numbers	35-36
		Miscellaneous:	
		UL Listing and File Numbers	36
		Industry Specifications	36



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IMPORTANT

The information contained herein is general in nature and not intended for specific application purposes. It does not relieve the user of responsibility to use sound practices in application, installation, operation, and maintenance of the equipment purchased. Siemens reserves the right to make changes in the specifications shown herein or to make improvements at any time without notice or obligations. 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.

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.

SUMMARY

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. The identification of catalog numbers in this bulletin does not assure availability. 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 sales office, listed on the back of this instruction guide.

The contents of this instruction manual should 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.

General Information

General

LMD-Frame Sentron Series Circuit Breakers are used in individual enclosures, switchboards and panelboards. They are available as thermal magnetic with interchangeable trip units (Type LMD6 and HLMD6), thermal magnetic with non-interchangeable trip units (Type LMXD6 and HLMXD6), instantaneous magnetic only (motor circuit protectors, Type LMXD6-ETI) and molded case switches (Type LMXD6).

Pressure wire connectors, suitable for use with aluminum or copper wire are available for all LMD-Frame circuit breakers. Rear connection stud assemblies are also available for both 2 and 3 pole constructions. This assembly permits cable or bus connections to be terminated behind the circuit breaker rather than to terminal connectors mounted on the breaker terminal pads. UL listed field addable accessories such as shunt trips, undervoltage devices, auxiliary switches and bell alarm switches are also available. The installation of all accessories should be done only by qualified personnel. Information concerning all accessories can be found on pages 17-20 and 35.

Thermal Magnetic

LMD6, LMXD6[Ⓢ] HLMD6 and HLMXD6[Ⓢ] type 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 the 8 trip points as shown below.

Instantaneous Adjustment Trip Range

Nominal Instantaneous Values

Ampere Ratings	± 25%							± 20% Tolerance High
	Tolerance Low	2	3	4	5	6	7	
500-600	3000	3430	3860	4290	4710	5140	5570	6000
700-800	3200	3500	3700	4200	4700	6400	7300	8000

Circuit Breakers are calibrated at the factory, under controlled temperature conditions for applications at 40°C (104°F) ambient to meet requirements as outlined in UL 489 (Molded Case Circuit Breakers and Circuit Breaker Enclosures) Standard. 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 sealed line cover voids any warranties related to this product as well as voiding of the UL listing. Product catalog number information can be located on pages 34 thru 36.

Molded Case Switch

A molded case switch is available in the LMXD6 type circuit breaker. This device employs the same operating mechanism as the thermal magnetic and magnetic only circuit breakers. A preset instantaneous function is factory installed to allow the switch to trip and protect itself at a high fault level. This level is approximately 8000 amperes. No overload or low fault



current protection is provided. This switch must be protected by a fuse or a molded case circuit breaker of equal ampere rating. When protected by a fuse or circuit breaker, the switch is suitable for use on a circuit capable of delivering not more than:

65,000A	RMS Symmetrical	@ 240 Volts AC
50,000A	RMS Symmetrical	@ 480 Volts AC
25,000A	RMS Symmetrical	@ 600 Volts AC

Interrupting Ratings – Symmetrical RMS Amperes (kA) Based on UL 489 Standards

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

Also shown is IEC 947-2 interruption rating information.

Interrupting Ratings Based on UL 489 Standards UL File #10848

Breaker Type	RMS Symmetrical Amperes (kA)										
	UL A.I.R.					IEC A.I.R.					
	Volts AC			Volts DC		Volts AC (50/60 Hz)					
	240	480	600	250	500	220/240		380/415		500	
					(Icu)	(Ics)	(Icu)	(Ics)	(Icu)	(Ics)	
LMD6, LMXD6	65	50	25	30 (2-P)	25 (3-P)	65	33	40	20	30	15
HLMD6, HLMXD6	100	65	50	30 (2-P)	50 (3-P)	100	50	65	33	42	21

[Ⓢ]Types LMXD6 and HLMXD6 are UL listed for reverse connection applications.

General Information

Instantaneous Trip

ETI motor circuit interrupter, type LMXD6 (adjustable instantaneous magnetic trip only) are designed for use in welding circuits, motor circuits and combination starters as a disconnecting means and for short circuit protection. They should be used in conjunction with motor-running, over-current protection devices, and should permit the motor to start without nuisance tripping from motor in-rush current. The circuit breaker should have a continuous current rating established in accordance with requirements outlined within the NEC.

The instantaneous settings indicated in the following table are based on information found in Article 430 of the NEC. Use of this information does not infer conformance with the NEC and/or local coding authority.

Table established using 1100% of FLC. Maximum setting should be no greater than 1300% for non-E motor design and no greater than 1700% for E motor design. (This table for AC motors only)

Base on NEC Requirements Settings No Greater Than 1300% of FLC

FLC	Cat. No.	ADJ.	Amps
215-238	LMXD62L800 LMXD63L800	LOW	2800
238-261		2	3100
261-284		3	3400
284-308		4	3700
308-369		5	4000
369-423		6	4800
423-462		7	5500
462-490		HIGH	6000
246-269	LMXD62A800 LMXD63A800	LOW	3200
269-284		2	3500
284-323		3	3700
323-362		4	4200
362-492		5	4700
492-562		6	6400
562-616		7	7300
616-660		HIGH	8000

Use of this table should always be done in accordance to the NEC requirements to allow for short circuit protection as well as the ability to overcome motor current in-rush during the starting period.

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 automatically trip or open the breaker, the operating handle moves to a position between ON and OFF. 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. After automatic operation, the handle assumes an intermediate position between ON and OFF, displaying a clear indication of tripping.

Maintenance

Experience has shown that properly applied molded case circuit breakers normally do not require maintenance. However, some industrial users may choose to establish an inspection and maintenance procedure to be carried out on a regular basis. For detailed information, consult applicable NEMA publications or your local Siemens sales office.

SPECIAL NOTE:

LMXD6, HLMXD6 circuit breakers are not UL listed as interchangeable trips—DO NOT REMOVE TRIP UNIT and replace with another. Removal of trip unit voids UL listing.

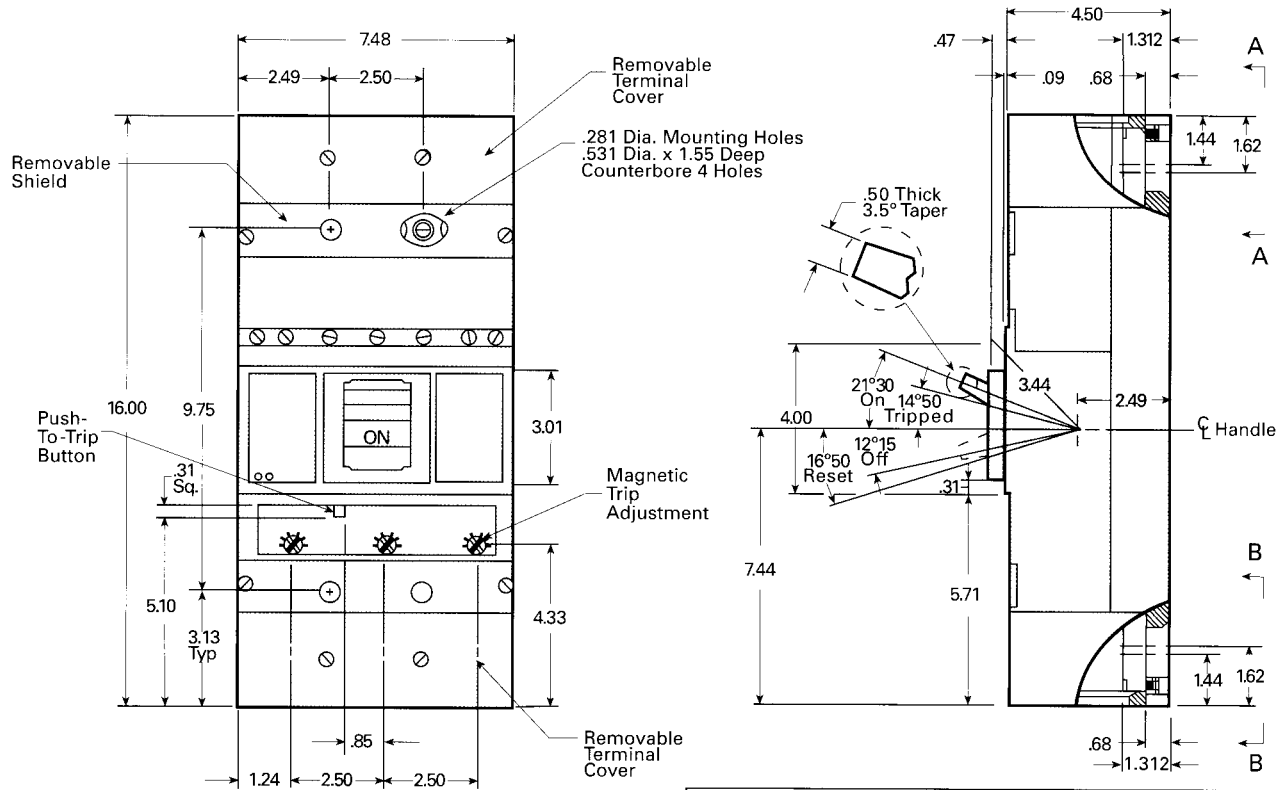
LMXD6, HLMXD6 type circuit breakers are UL listed for reverse connection applications.

Operating Forces (In Lbs.)

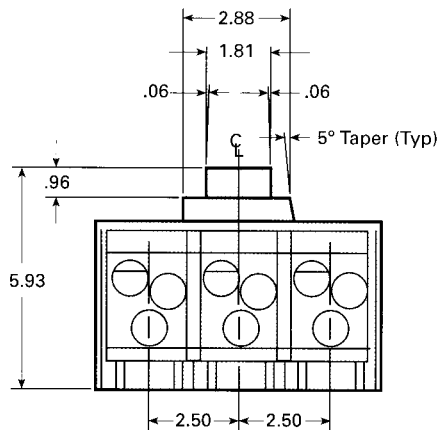
Operating Action	Pounds
OFF to ON	22
ON to OFF	36
TRIPPED to RESET	48

LMD-Frame Outline Dimension Drawings

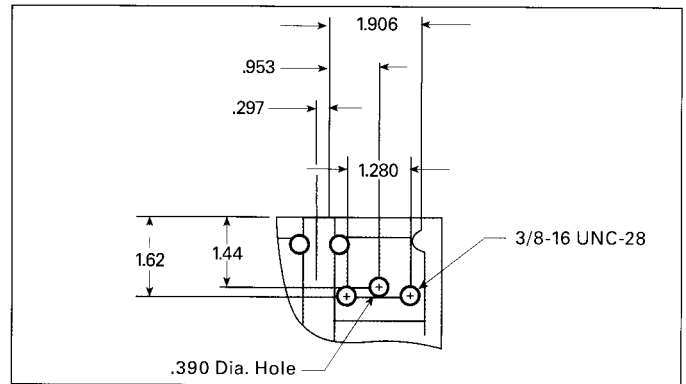
Types LMD6, LMXD6, HLMD6, HLMXD6, LMXD6-ETI, HLMXD6-ETI



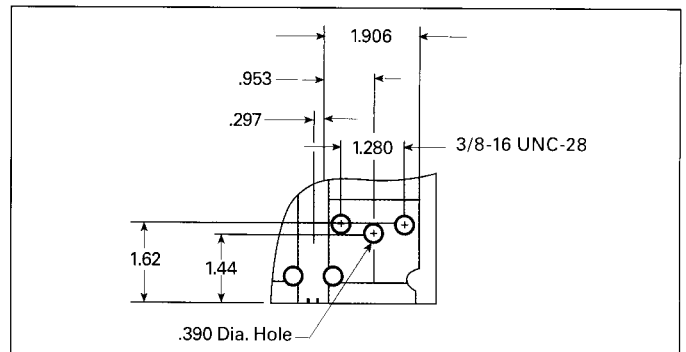
Front View



End View



Section AA (Side View)



Section BB (Side View)

NOTE: 2 and 3 pole breakers are the same physical size. Current carrying parts are omitted from the center pole for 2 pole configurations.

Trip Unit Installation

For use with Circuit Breaker Types LMD6 and HLMD6

⚠ DANGER

Hazardous Voltage.
Will cause death or severe injury.

Turn off and lock out all power supplying this device before removing cover(s) or device and while cover(s) are removed.

Replace all covers and shields before power supplying this device is turned on.

Safety Instructions

NOTE: This instruction outlines the recommended installation procedure.

To Add Trip Unit to Breaker Frame:

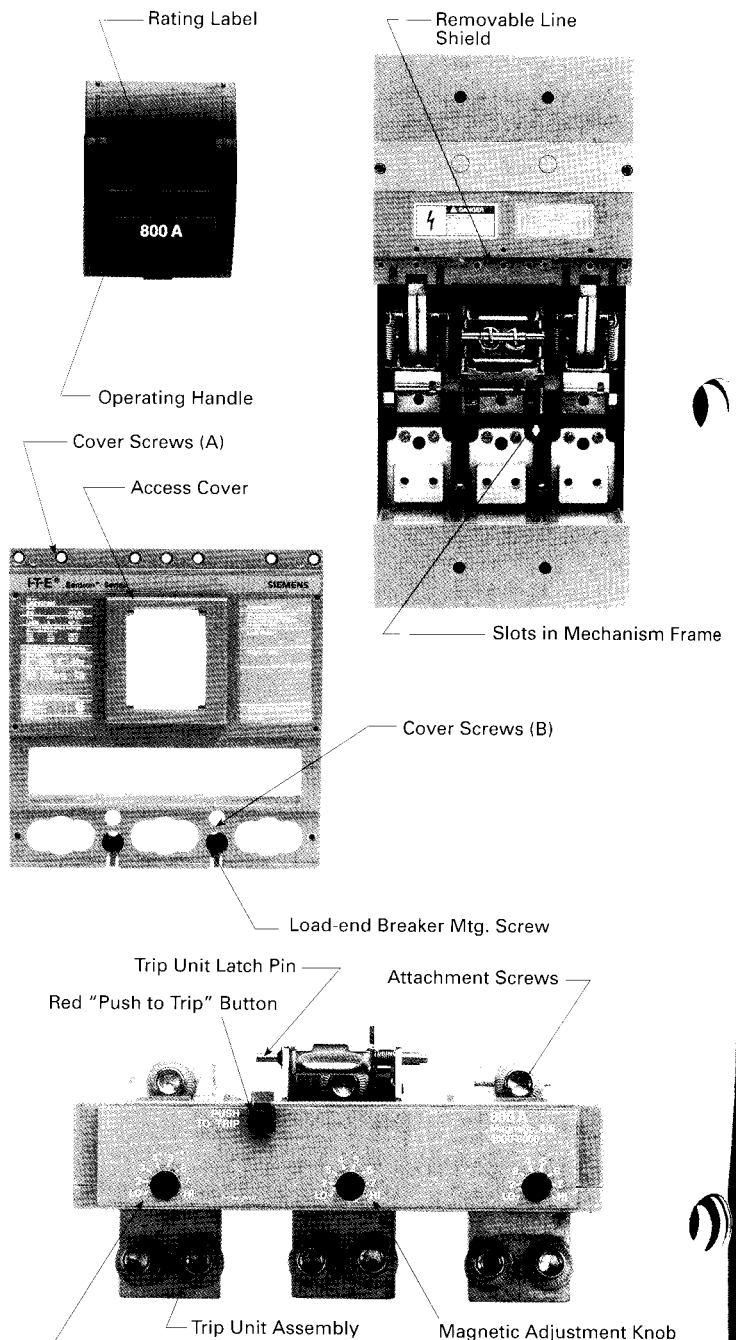
1. Breaker must be completely disconnected and removed from any electrical equipment before trip unit is installed.
2. Remove circuit breaker line shield (load end), cover screws (A and B) and access cover.
3. Remove operating handle.
4. Lower trip unit assembly into base. Make sure trip unit latch pin engages slots in mechanism frame.
5. Tighten trip unit attachment screws supplied with trip unit. There are 9 screws on 3 pole units and 7 screws on 2 pole units. (Recommended torque – 140 in-lbs.).
6. Apply rating label, supplied with trip unit, to recessed area on top of operating handle. **NOTE: Make sure rating label agrees with amperage rating of trip unit installed.**
7. Replace operating handle and shield. Operating handle must be installed with word "ON" toward trip unit. **NOTE: Make sure operating handle is seated squarely on metal handle arm.**
8. Replace access cover and cover attachment screws. (Recommended torque (A) 18-20 in-lbs. (B) 30-32 in-lbs.) **NOTE: Line shields must be in place prior to putting device into service.**
9. Move operating handle to extreme "OFF" position (reset). Circuit breaker is now ready for use.

To Replace Trip Unit In Breaker Frame:

1. Breaker must be completely disconnected and removed from any electrical equipment before trip unit is installed.
2. Circuit breaker must be in the "Tripped" position before removing access cover. To trip the breaker simply depress the red "Push-To-Trip" button.
3. Remove circuit breaker line shield (load end), cover screws (A and B) and access cover.

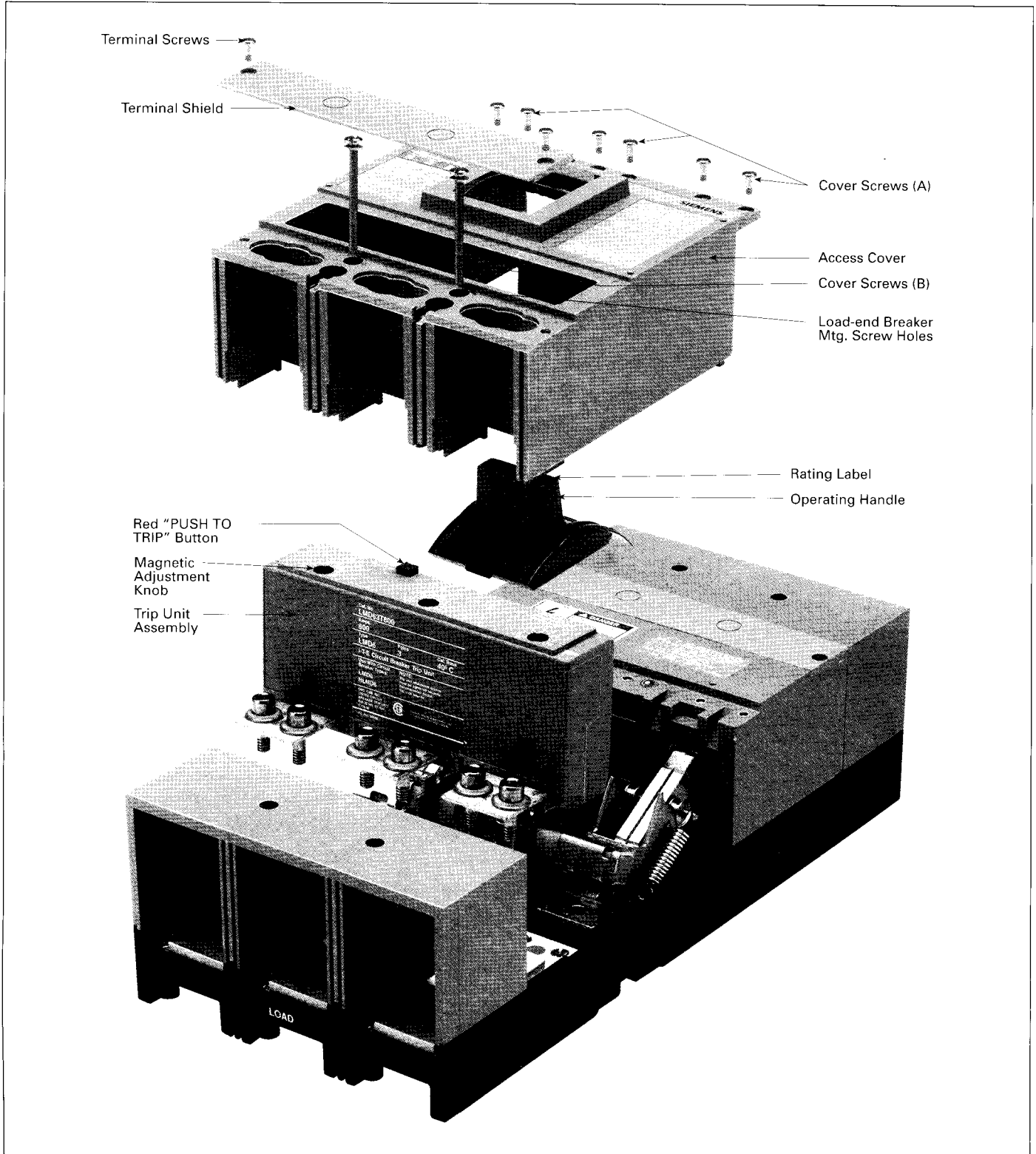
6

4. Remove operating handle.
5. Back-out all trip unit attachment screws. **NOTE: Attachment screws will remain captive to trip unit assembly.**
6. Lift trip unit assembly from circuit breaker.
7. Add new trip unit as outlined under steps 4 to 9 of "To Add Trip Unit to Breaker Frame" instructions.



NOTE: On 2-pole trip units, instantaneous trip values are approximately 15% higher when used on DC.

Trip Unit Installation



Exploded Assembly View

Pressure Wire Connectors



⚠ DANGER

Hazardous Voltage.
Will cause death or severe injury.

Turn power off supplying switchboard or panel before installing.



Safety Instructions

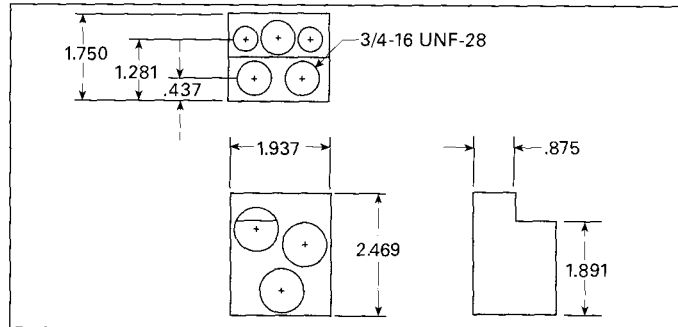
General

Each connector kit contains a solderless connector and associated hardware for making one line or load connection.

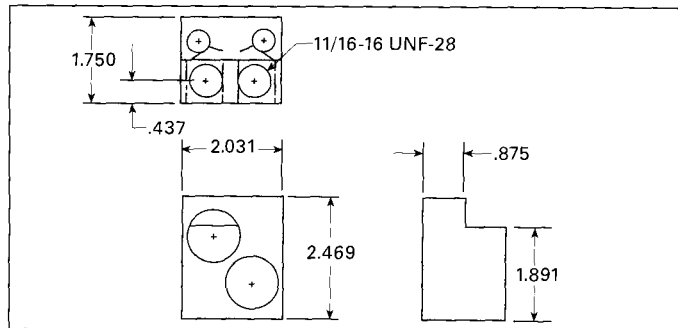
Installation

NOTE: Trip unit must be installed in circuit breaker prior to mounting load end connector.




- Tighten mounting screws to securely attach connector. See table for torque values.
- Tighten set screws securely to prevent overheating of conductor and connector. See table for torque values.



TA3K500 Terminal Connector

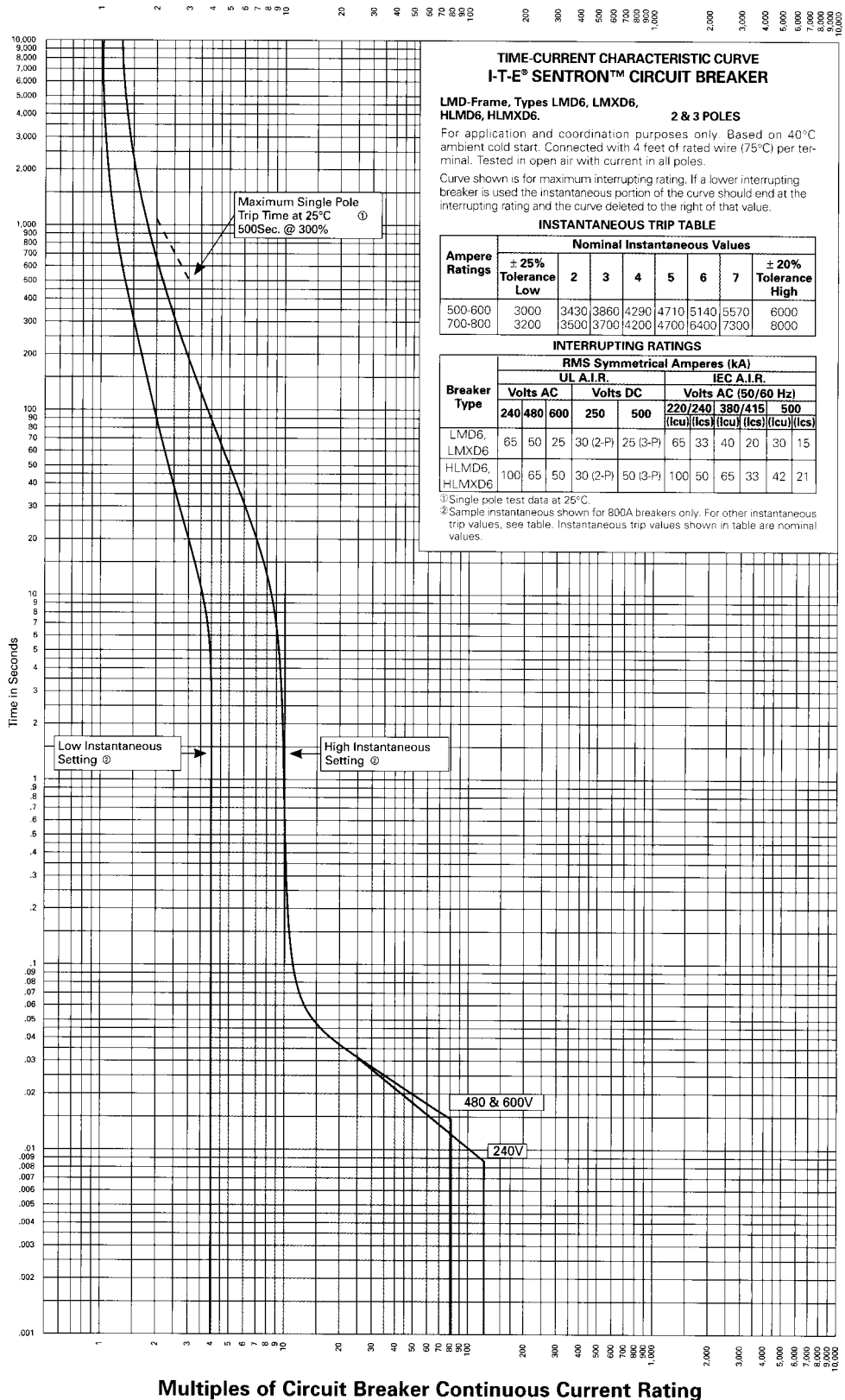


TA2N750 Terminal Connector

Connector Catalog Numbers	Circuit Breaker Ampere Rating	Connector Wire Range	Set Screw Torque	For Use With Type(s)
 TA2K500	500-600	(1-2) #1 AWG-500 kcmil (Cu/Al)	375 in-lbs.	LMD6, LMXD6, HLMD6, HLMXD6
 TA3K500	500-800	(1-3) #1 AWG-500 kcmil (Cu/Al)	375 in-lbs.	LMD6, LMXD6, HLMD6, HLMXD6
 TA2N750	500-800	(2) 600-750 kcmil (Cu/Al)	375 in-lbs.	LMD6, LMXD6, HLMD6, HLMXD6

LMD-Frame Time Current Curve

Types 800A LMD6, LMXD6, HLMD6, HLMXD6



Rear Connecting Studs

⚠ DANGER

Hazardous Voltage.
Will cause death or severe injury.

Turn power off supplying device before installing.

Safety Instructions

General Description

One complete rear stud assembly consists of the following:

- 1 - 1"-12 threaded stud
- 1 - Molded stand-off insulator
- 1 - Insulator bushing
- 1 - Insulator (required for metallic mounting panels only)
- 1 - "T" Connector
- 2 - Brass locknuts
- 1 - 3/8"-16 x 1-1/4" mounting bolt
- 1 - 3/8"-serrated cone lockwasher

NOTE: These instructions outline the recommended installation procedure. The term circuit breaker used in these instructions also includes molded case switches, and motor circuit interrupters.

1. Turn off power supplying device before installing kit.

Mounting Preparation (Figure 1)

2. Drilling locations are shown in Figure 1. The 5/8" wide cutout between holes is required when mounting the breaker with stud assemblies to a metallic panel.

Breaker Preparation (Figure 2)

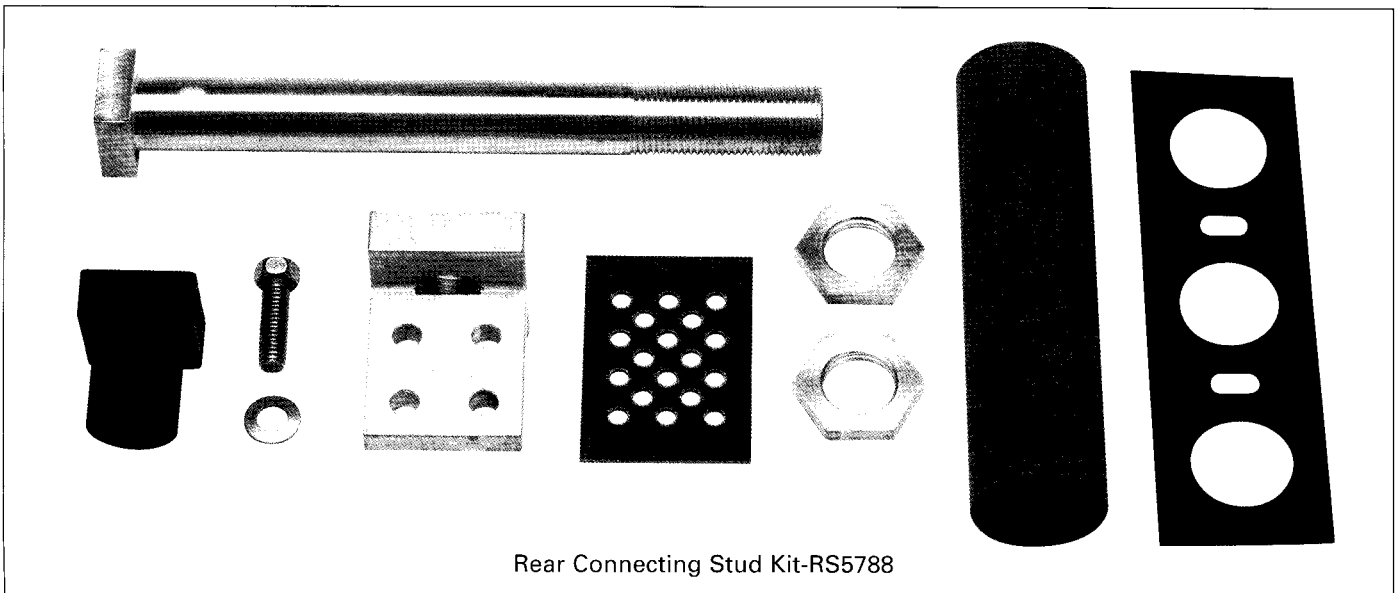
3. Remove terminal covers from line and load ends of breaker and remove wire connectors from breaker if present.
4. Attach rear stud assemblies (**1 and 2**) to circuit breaker for 3 pole devices (item **1** only for 2 pole devices). Attach with 3/8"-16 x 1-1/4" hex head bolt (**3**) and the 3/8" serrated cone lockwasher (**4**). Tighten finger-tight only.

Circuit Breaker Type	Amps	Poles	Quantity Required Per Breaker
LMD6, HLMD6, LMXD6, HLMXD6	800	2	4 ea. Cat. No. RS5787
		3	4 ea. Cat. No. RS5787 and 2 ea. Cat. No. RS5788

5. Slide one stand-off insulator (**5**) onto each stud until the stand-off insulator fully covers the square end of the studs. Tighten bolt (**3**) to 150 in-lbs. NOTE: If using a metallic mounting panel, install insulator (**10**) over studs.

Final Assembly (Figure 3)

6. Install circuit breaker so that all studs extend through mounting panel and the stand-off insulators (**5**) are seated against the mounting panel.
7. Install insulator bushings (**6 and 7**) onto studs as shown and tighten them securely against the mounting panel using locknut (**8**).



Rear Connecting Stud Kit-RS5788

Rear Connecting Studs

- Thread the second locknut (8) and the "T" connector (9) over the studs as far as possible. Position "T" connector as desired by loosening (1 full turn max) and lock in place with the second locknut (2). Tighten locknut to 132 in-lbs.

Important User Note

Assemblies are designed with adequate 600 volt electrical clearance between components. User must maintain these clearances through spacing or proper insulation.

- Insert the end shields (11) into the slots provided at the line and load ends of the terminal covers as shown in Figure 2, one for each stud position. Replace terminal covers and shields.
- Affix the label "BREAKER IS EQUIPPED WITH REAR CONNECTING STUDS" (12), Pc. No. 60229 to breaker cover as shown in Figure 2.
- Make desired bus bar connections using 5/16" bolts and washers to "T" connectors. (See Figure 3 for hole pattern of "T" connector).

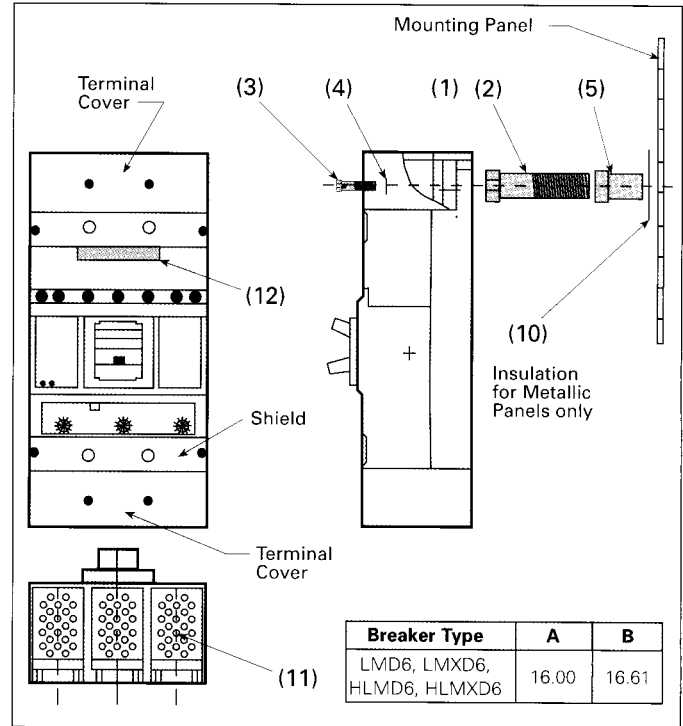


Figure 2

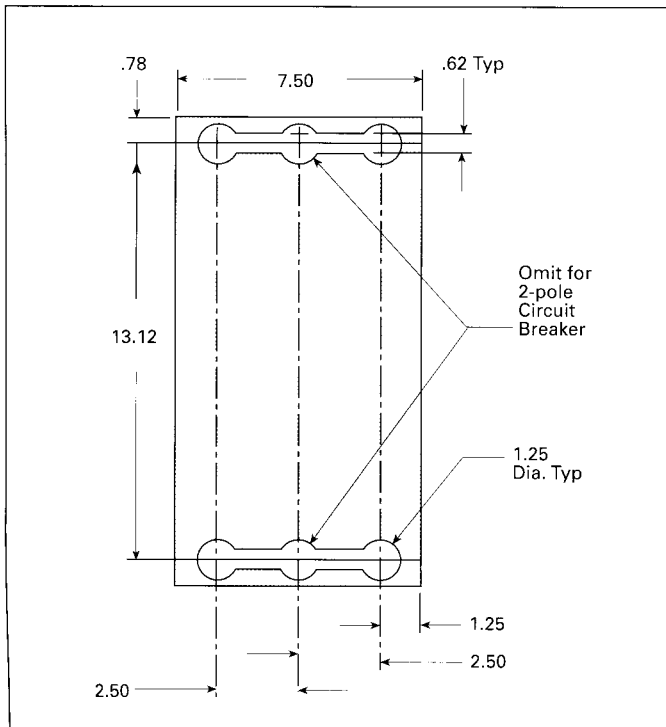


Figure 1

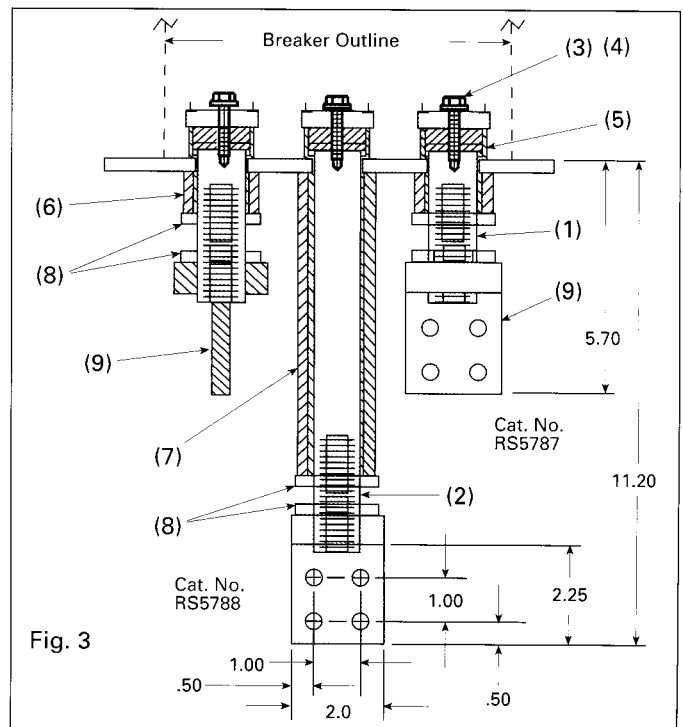



Figure 3

Walking Beam Type Interlock

Panel Mounted Circuit Breakers (MI5406)



⚠ DANGER

Hazardous Voltage.
Will cause death or severe injury.

Turn off and lock out all power supplying circuit breaker before installing.

⚠ Safety Instructions

NOTE: These instructions outline the recommended installation procedure.

The term circuit breaker, used in these instructions, includes motor circuit interrupters and molded case switches.

This device attaches to the mounting panel and circuit breakers as shown in Figure 1. Installation of the Mechanical Interlock prevents use of internal accessories in the right pole of the circuit breakers.

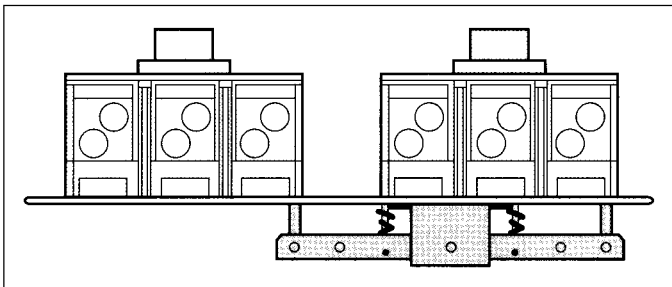


Figure 1

NOTE: See installation instructions provided with circuit breaker frame and trip unit for additional details.

Circuit Breaker Preparation (Figure 2)

1. Turn off and lock out all power supplying circuit breaker or frame before removing cover and while cover is removed.
2. Remove terminal cover and shield from load side of breaker frame.
3. Remove load cover from breaker frame. Three #8-32 x 3/8" screws and two #10-32 x 2-1/4" screws.

NOTE: Prior to lowering trip unit into place remove the socket head cap screw and the Belleville spring washer from the right pole of the trip unit. Discard the screw and washer.

4. Lower the trip unit into place as shown. The latch pin on the trip unit must seat into frame slots on both sides. The circuit breaker handle may be removed to ease assembly.
5. Secure trip unit to frame. Tighten the two 5/16-18 socket head cap screws on left and center poles to 140 in-lbs.

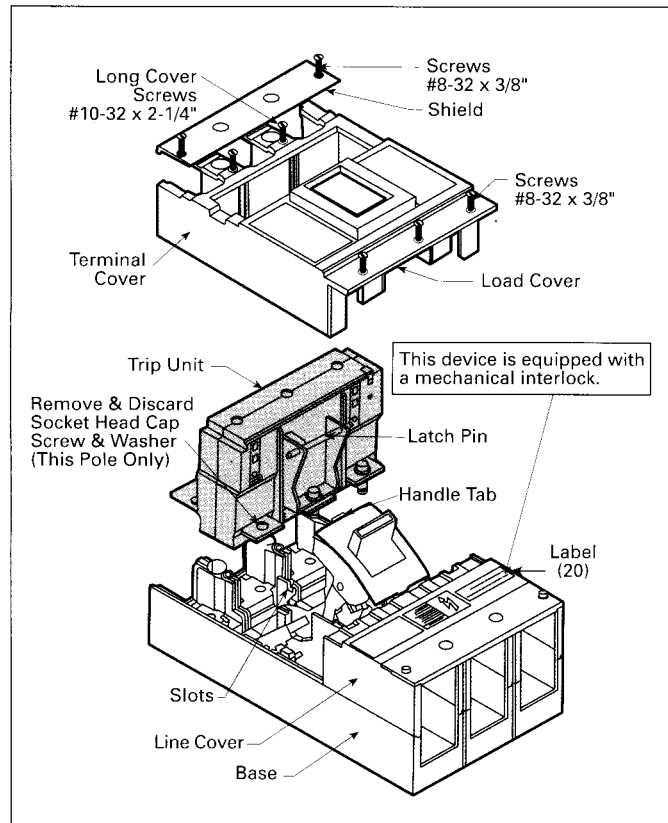
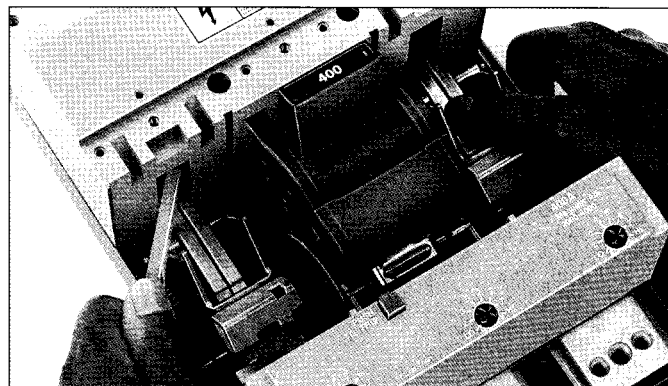


Figure 2

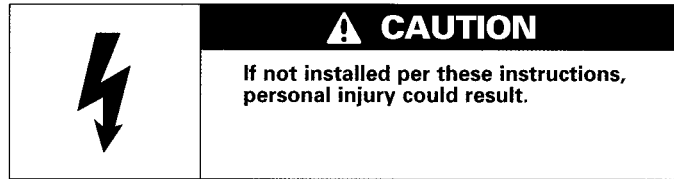


Restraining circuit breaker contacts by using safety block. (JD/LD frame used for illustration purposes only)

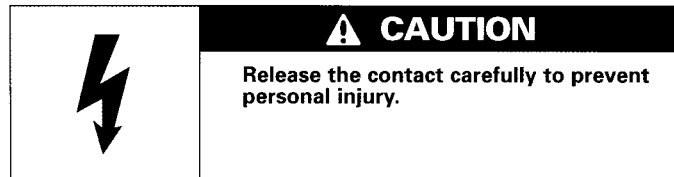
6. While pressing contacts downward to cause circuit breaker to close, insert safety block (1) into the line cover slot on the left pole as shown in Figure 3 to secure the contact in the CLOSED position. Slowly release the contacts and confirm that the contacts are held in the CLOSED position.

Walking Beam Type Interlock

Panel Mounted Circuit Breakers (MI5406)



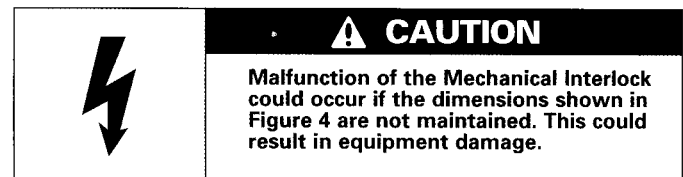
7. Attach the clamp assembly and plunger. See Figure 3.
 - a. Partially engage the captive socket head cap screw (1) into the support threads (2) as shown in clamp assembly detail.
 - b. Place front edge of clamp (4) over the right hand corner of the cam, pushing the clamp downward to align with the tie-bar. Rotate clamp assembly over the tie-bar. Slide clamp assembly approximately 1/2 inch to the left.
 - c. Insert the plunger (5), as shown in Figure 3, into the access hole in the base of the circuit breaker.
 - d. Slide the clamp assembly to the right while inserting the pin (6) into the plunger hole.
 - e. Secure the assembly in place using the cap screw (2). Tighten the screw to 140 in-lbs.
8. Press the contacts downward and carefully remove the safety block (1).



9. Replace the circuit breaker handle if removed. NOTE: Tab on handle must be toward load end. Replace the load cover and secure it in place using three #8-32 screws on the line side of the circuit breaker and two #10-32 screws on the load end. Tighten all cover screws to 25 in-lbs.

Prepare the Mounting Panel (Figure 4)

Mount the circuit breakers and the bracket on one single .135" thick (10 GA) steel panel. A crossbrace is recommended to prevent flexing of the mounting panel.



Attach Bracket and Circuit Breakers (Figure 5)

10. Attach the bracket (7) to the rear of the mounting panel using the two #10-32 x 1/2" flathead screws (8), lockwashers (9), and nut (10). Tighten the nuts to 32 in-lbs.
11. Add circuit breakers to the mounting panel. Carefully position circuit breaker over 1" dia. hole in panel to prevent damage to the protruding plunger. Use Cat. No. MSLMD mounting screw kit to fasten circuit breakers to the mounting panel. Tighten the 1/4"-20 mounting screws to 75 in-lbs. Replace the terminal covers and shields and tighten the screws to 25 in-lbs.

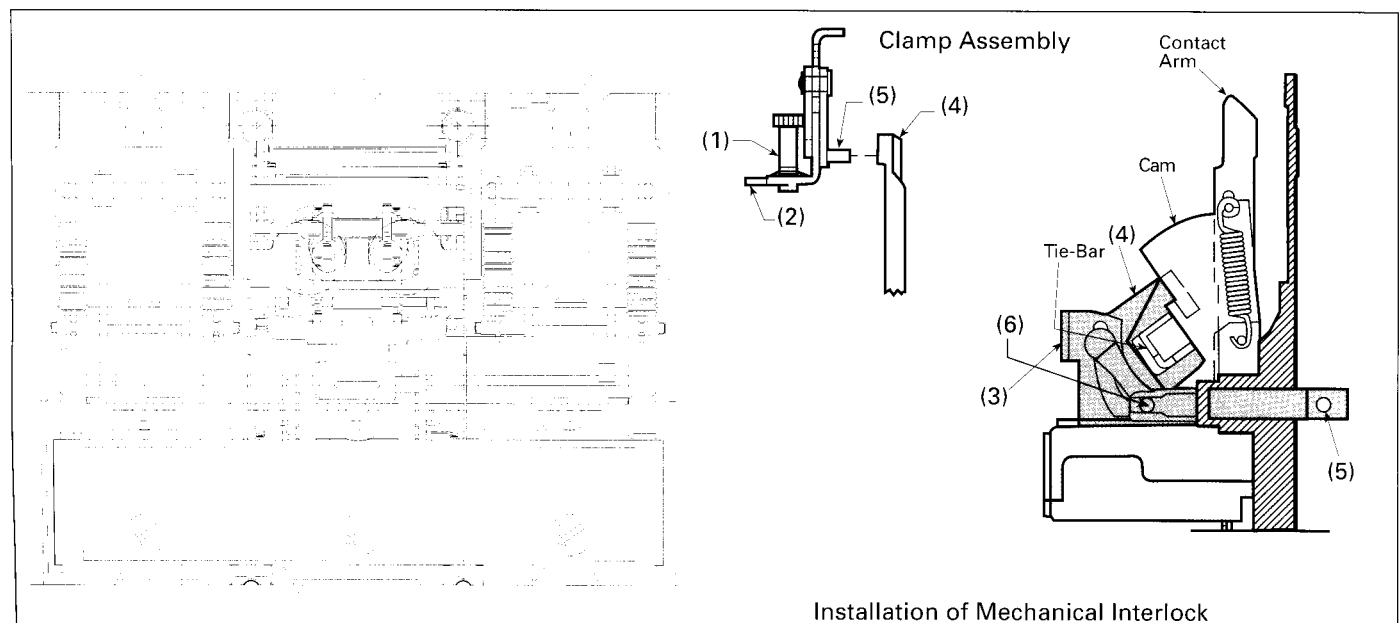
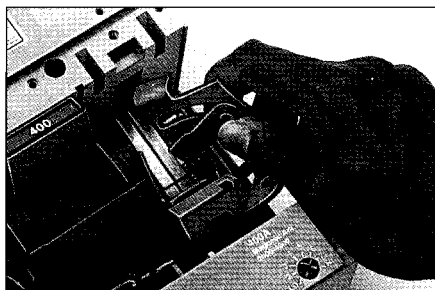


Figure 3

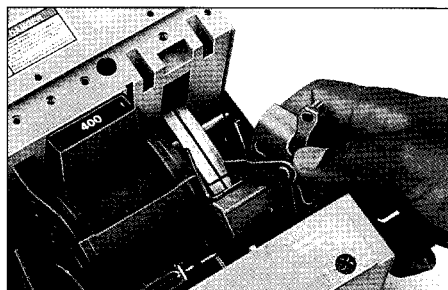
Installation of Mechanical Interlock

Walking Beam Type Interlock

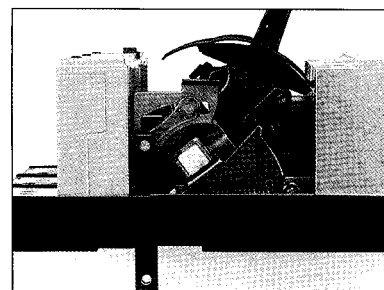
Panel Mounted Circuit Breakers (MI5406)



Position Clamp Assembly at an angle. (JD/LD frame used, for illustration purposes only)



Rotate Clamp Assembly over tie bar. (JD/LD frame used, for illustration purposes only)



Side view of installed Mechanical Interlock. (JD/LD frame used, for illustration purposes only)

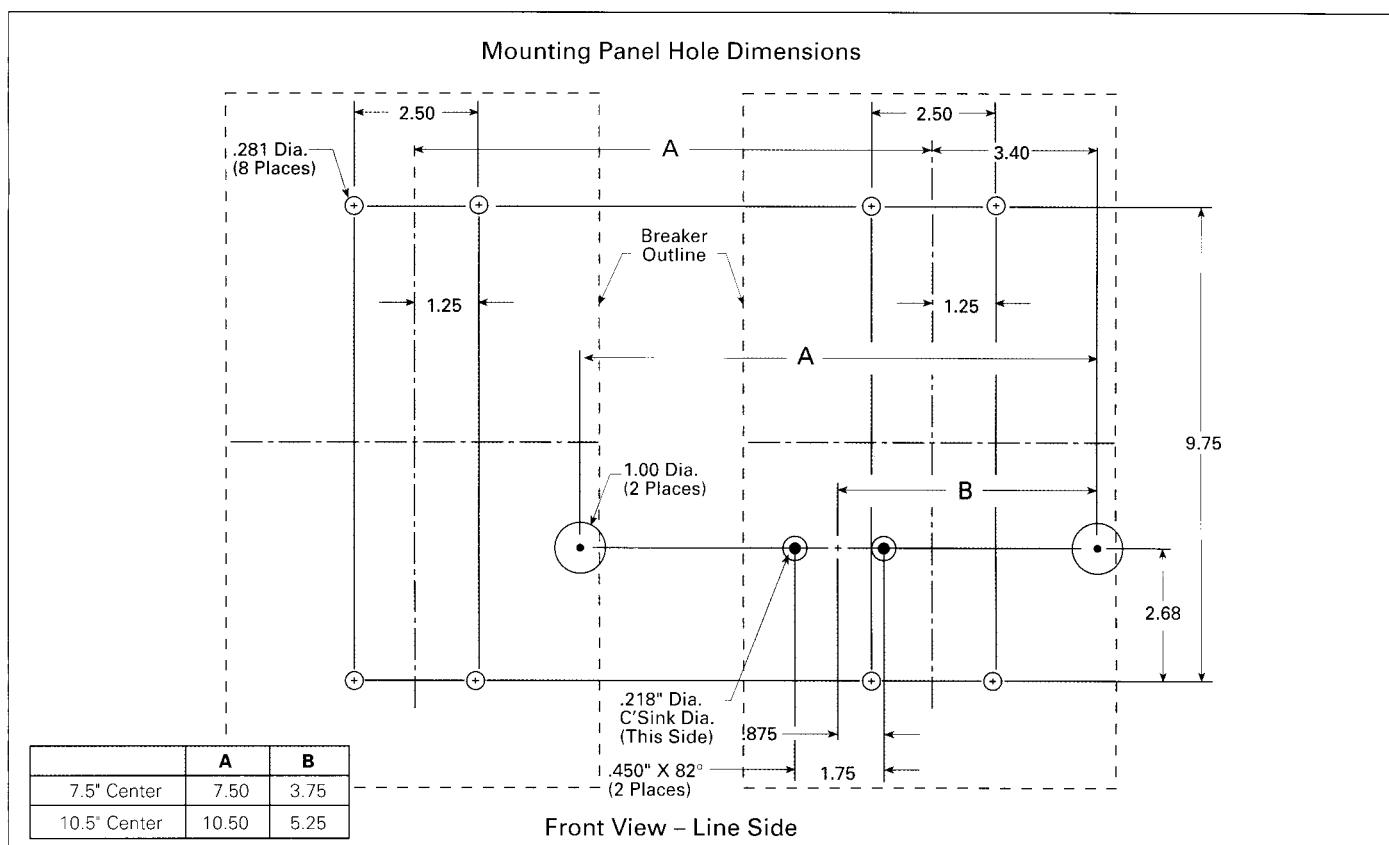


Figure 4

Walking Beam Type Interlock

Panel Mounted Circuit Breakers (MI5406)

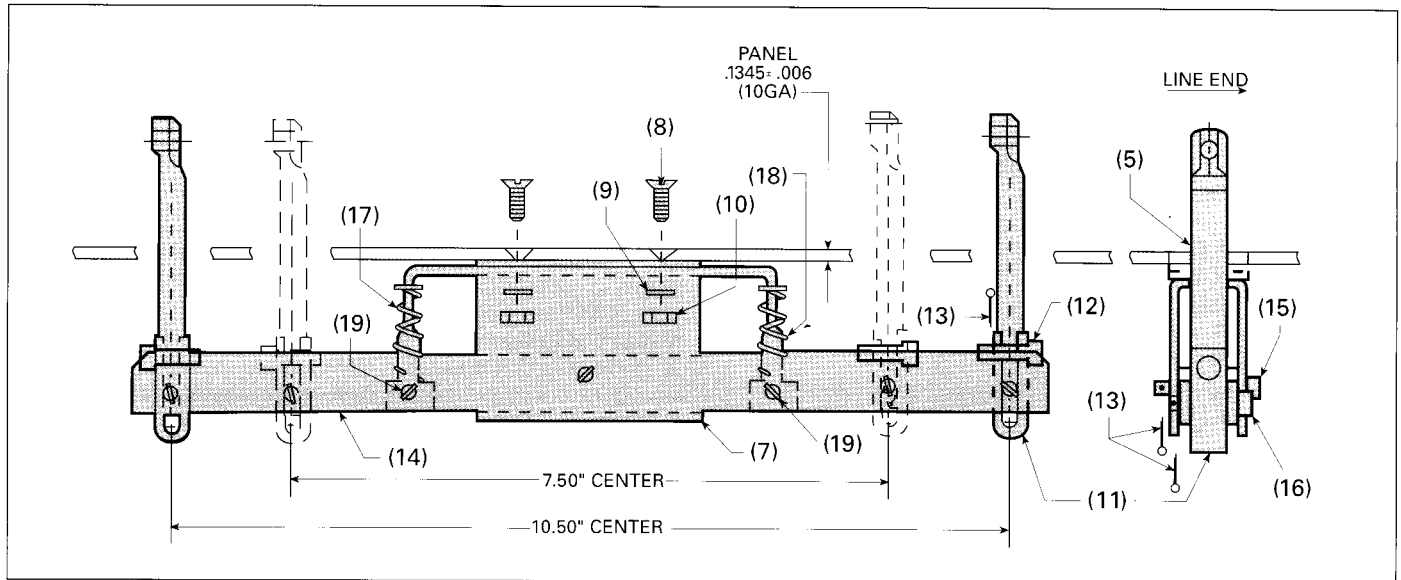


Figure 5

Rocker Arm Assembly (Figure 5)

12. Assemble plunger connectors (11) to end of plungers (5) and insert .188" dia. x .74" pins (12) through plunger connector (11) and plunger (5). Insert cotter pins (13) into hole of pins (12) and spread ends.
13. Attach rocker arms (14) to bracket (7) using .188" dia. x 1.38" pin (15) as shown. Insert cotter pin (13) into hole of pin (15) and spread ends.
14. Attach rocker arms (14) to plunger connectors (11) using .188" dia. x 1.09" pin (16) as shown in Fig. 5. Insert cotter pin (13) into hole of pin (16) and spread ends.
15. Attach springs (17) to bracket (7) and secure to rocker arms (14) using spring adapters (18) and 1/8" dia. x 1-1/2" cotter pin (19) and spread ends.
16. Peel off protective backing from adhesive labels (20) and attach labels to front of each circuit breaker as shown in Figure 2.

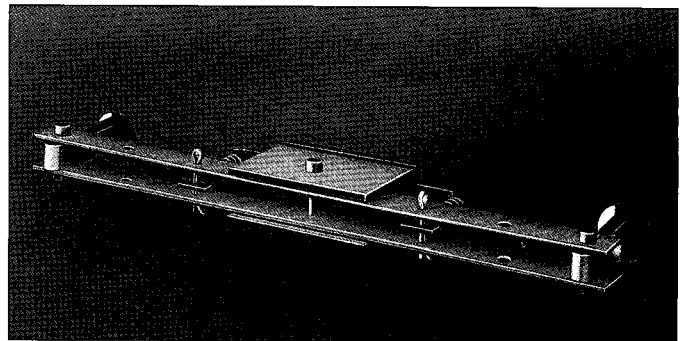
Check Operation

17. Check "ON-OFF" functions of each circuit breaker. Confirm that each circuit breaker cannot be turned "ON" if the other circuit breaker is "ON."

18. The interlock will prevent closing of one or both of the circuit breakers if they are simultaneously driven to the ON position. Check this function by manually synchronizing "TURN ON" of both circuit breaker handles.

NOTE: Avoid unnecessary simultaneous "TURN ON" operations. They cause high mechanical loading of the circuit breaker and interlock components.

If, after completing steps 17 and 18, both circuit breakers can be turned ON, check for flexing of the mounting panel.



Rocker Arm Assembly

Handle Locking Devices

Attaching Handle Blocking Device (J6HBL)

To Block Handle ON

Turn Breaker ON. Assemble blocking device to breaker by positioning over handle as shown, with handle opening of blocking device toward the line end. Insert tab **A** into slot **A1**. Push toward handle and downward in area shown (Figure 1) until tab **B** drops into slot **B1** (Figure 2).

To Block Handle OFF

Turn Breaker OFF. Reverse handle blocking device so that handle opening of blocking device is toward the load end. Insert tab **A** into slot **B1**. Push toward handle and downward in area shown until tab **B** seats in slot **A1** (Figure 3).

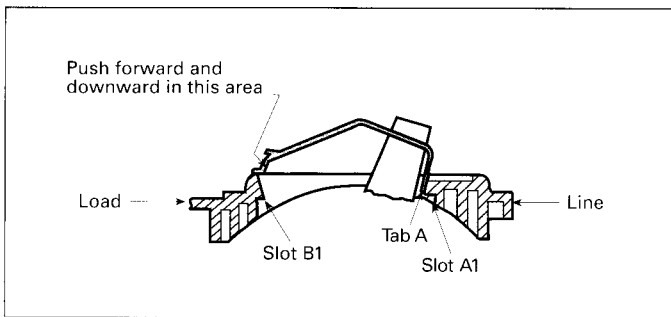


Figure 1

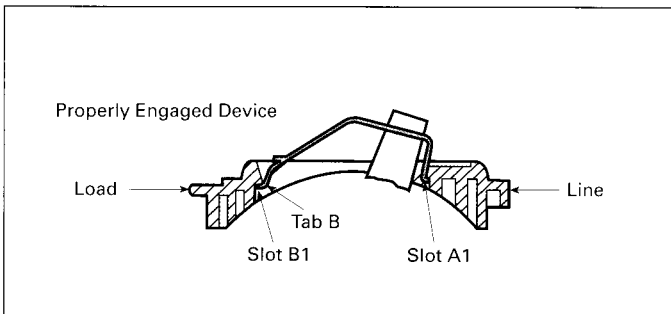


Figure 2

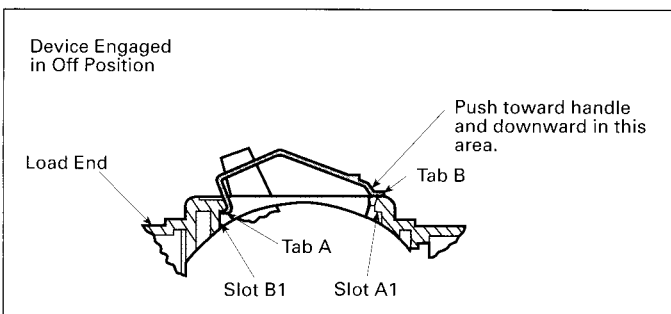


Figure 3

Attaching Padlocking Device (J6HPL)

With breaker in TRIPPED position, assemble padlocking device to breaker by positioning over handle as shown (Figure 1). Insert tab **A** into slot **A1**. Pivot tab **B** into slot **B1** until surface **D** is resting on surface **C** (Figure 4). Install #6-32 x .188" non-removable screws (2 places).

To Lock Handle OFF

To padlock handle in OFF position, move breaker handle to OFF and move slider to the right until .375" dia. holes line up, allowing padlock to be installed (Figure 2).

To Lock Handle ON

To padlock circuit breaker in ON position, enlarge 12" dia. hole of slider to .375" dia. before assembly to breaker. File away burrs after drilling. Assemble padlocking device to breaker as explained above, then turn breaker ON and install padlock.

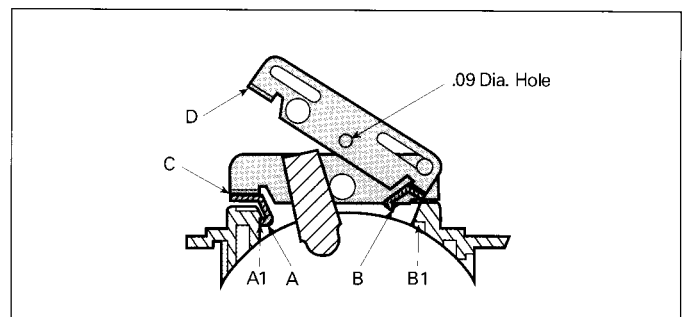


Figure 1

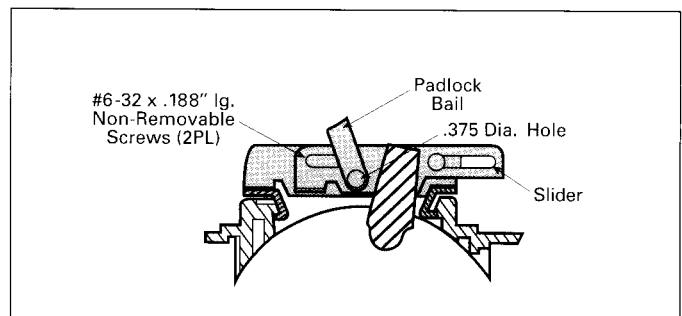



Figure 2

Internal Accessories



⚠ DANGER

Hazardous Voltage.
Will cause death or severe injury.

Turn power off supplying switchboard or panel before installing.



Safety Instructions

Circuit Breaker Preparation

- A. Depress trip button (Figure 1) to trip circuit breaker prior to removing cover. Before attaching accessory unit, circuit breaker must be in tripped position.
- B. Remove two terminal shield screws on load end cover (1), load end cover screws (5 or 9) (2) and, if breaker is mounted, also remove mounting screws (not shown). Remove load end cover only (3). Accessory units can be mounted in either right or left poles of the circuit breaker, except types with an "FP" prefix or an "S" suffix, which can only be mounted in the right pole.

Accessory Mounting Instructions

- A. Feed accessory leads down and through 5/16" x 1/2" elongated opening (4) to bring leads out of bottom of circuit breaker (Figure 3). NOTE: Leads must be brought out in the same order as they exit wire retainer of accessory case.
- B. Accessory is located in circuit breaker by groove (5), bottom side of accessory. Remove protective label from top of trip unit and guide actuator (9) into opening (10).

NOTE: On shunt trip, undervoltage trip and auxiliary switch accessories, transfer link is in top opening and it slides into top opening of trip unit. Transfer link is in bottom opening of Bell Alarm switch and it slides into bottom opening of the trip unit.

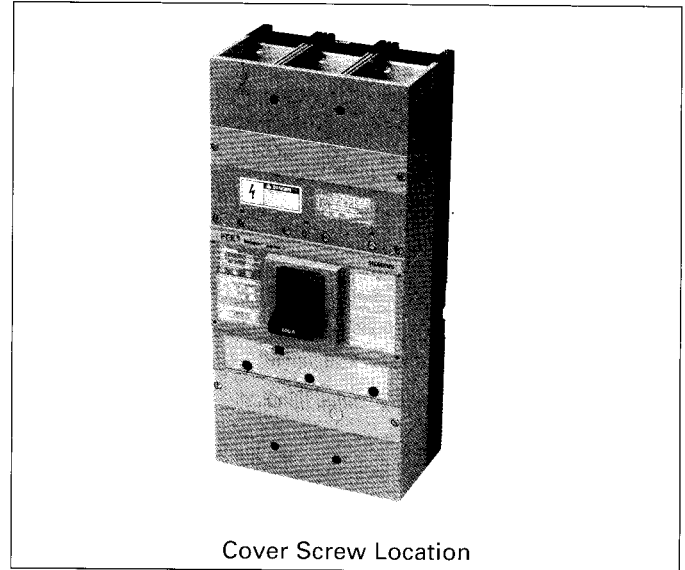


Figure 1

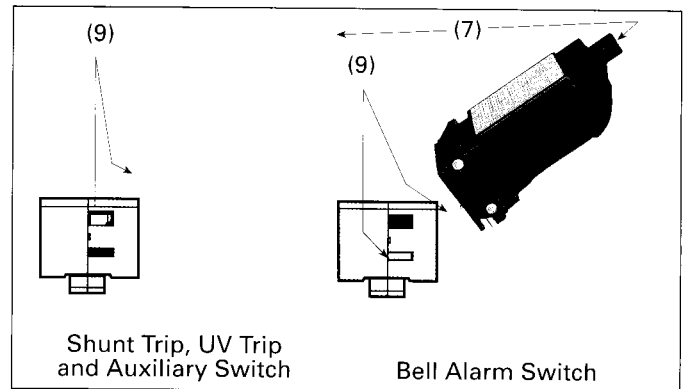


Figure 2

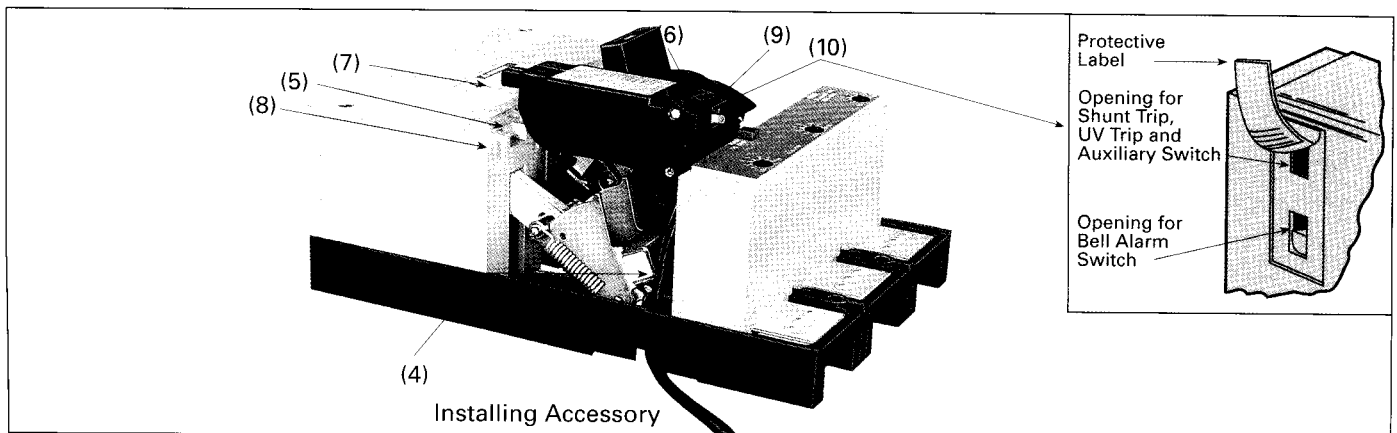


Figure 3. (Use of JD/LD Frame for illustration purposes to indicate location of accessory.)

Internal Accessories—Recommended Combinations

- C. Slide accessory down to reset on pad (6) trip unit. When accessory is installed correctly, front of accessory (7) will rest on pad (8) of line cover. Pull gently and evenly on accessory wire leads (2 to 6 wires) while lowering accessory into base. Make sure *all the slack* is removed from leads inside breaker.
- D. Replace load end cover (3) cover screws (2) and four mounting screws if mounted. Replace terminal shield with screws (1).
- E. Add two labels to circuit breaker. Attach identification label (11) to appropriate space in label on top of circuit breaker on right hand side. Attach accessory information label (12) on side of circuit breaker base (Figure 5).
- F. Refer to Electrical Check, page 19 and 20.

Maximum Installable Accessory Combinations ②

Shunt Trip①	Undervoltage Trip	Auxiliary Switch	Bell Alarm Switch
1	1	3	0
1	0	3	0
1	0	3	1
0	1	4	0
0	1	4	1
0	0	4	1
0	0	4	0

① Shunt trip units include a coil cleaning switch.

② When mechanical interlock M15413 is employed accessories are limited to left pole only.

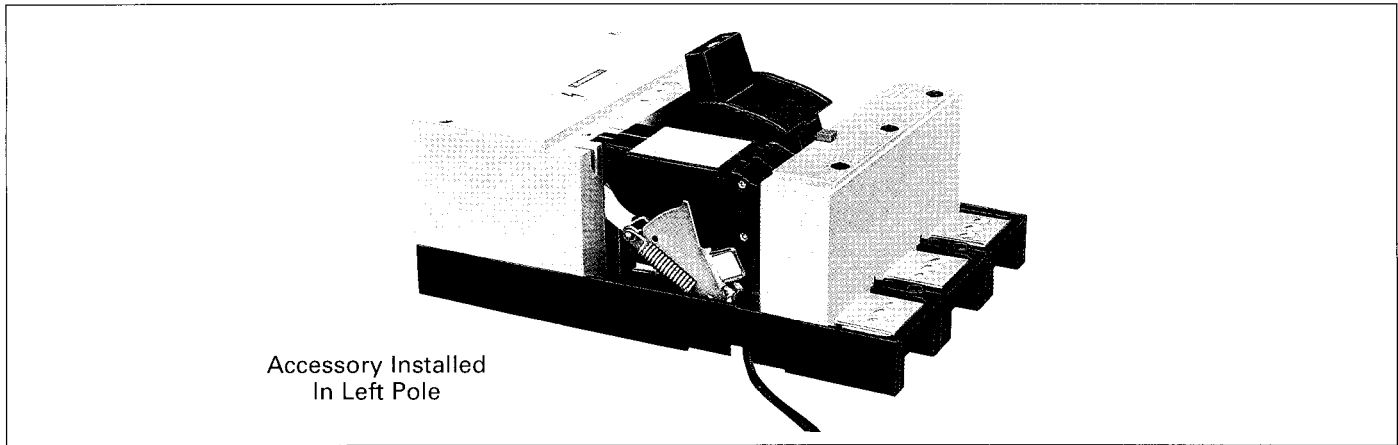


Figure 4. (Use of JD/LD Frame to illustrate location of accessory.)

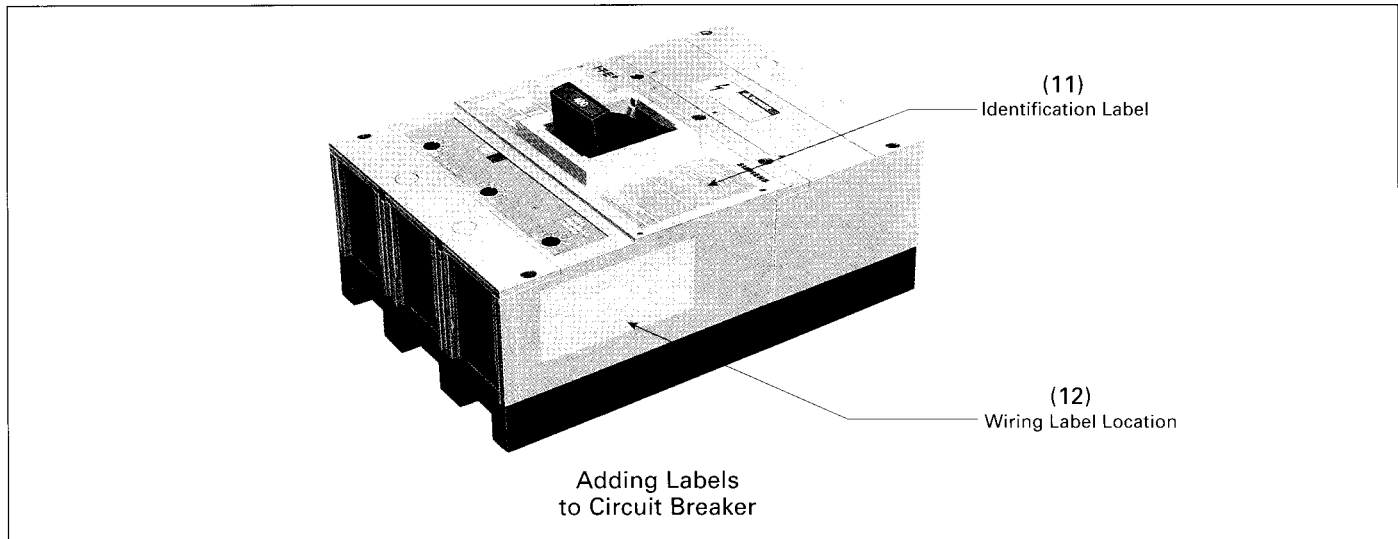


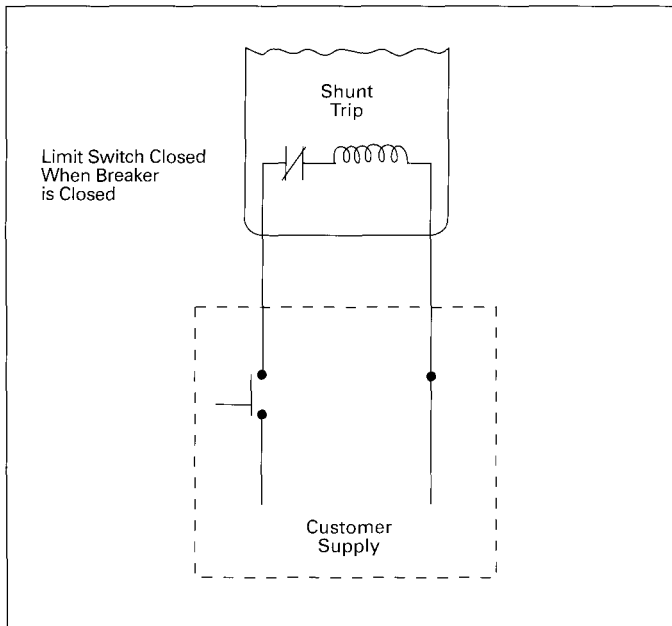
Figure 5. (Use of JD/LD Frame to illustrate location of accessory and wiring labels.)

Shunt Trip and Undervoltage Trip

Electrical Check

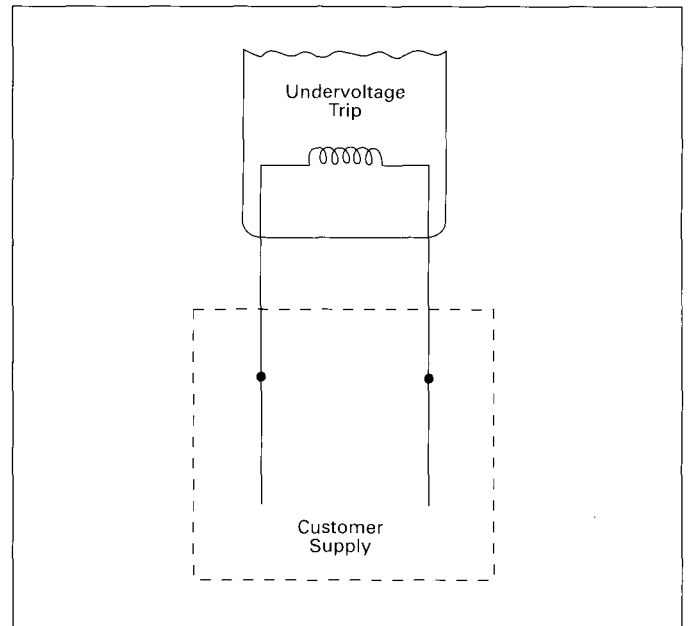
Shunt Trip

- Reset and turn circuit breaker ON.
- Attach test circuit to accessory leads. When the test voltage reaches 55 percent or more of the rated coil voltage, the circuit breaker should trip.
- With breaker TRIPPED or OFF, check to make sure coil circuit has opened.



Undervoltage Trip

- With breaker in TRIPPED position, connect test circuit to accessory leads. Energize undervoltage trip device at 85 percent of the marked rated voltage of the coil. Reset and turn breaker handle ON.
- Reduce voltage to 35 percent of rated coil voltage. Circuit breaker must trip.



Electrical Data For Shunt Trip

Coil Voltage	Inrush Current At Rated Voltage (Amperes)	Catalog Number
60 Cycles AC		
24	1.2	S17JLD6
48	0.8	S18JLD6
120	0.395	S01JLD6
208	0.265	S02JLD6
240	0.165	S03JLD6
277	0.190	S15JLD6
480	0.145	S04JLD6
600	0.080	S06JLD6
DC		
12	4.6	S16JLD6
24	2.2	S07JLD6
48	1.2	S09JLD6
125	0.5	S11JLD6
250	0.35	S13JLD6

Electrical Data For Undervoltage (UV) Trip^②

Coil Voltage	Sealed-In Current At Rated Voltage (Amperes)	Catalog Number	
		1 UV Trip Plus 1 Aux. Sw.	1 UV Trip Only
60 Cycles AC			
120	.03	U01JLD62A	U01JLD6
208	.018	U02JLD62A	U02JLD6
240	.016	U03JLD62A	U03JLD6
277	.013	U16JLD64A	U16JLD6
480	.008	U06JLD64A	U06JLD6
600 ^③	.008	N/A	U08JLD6
DC			
24	.11	U13JLD62A	U13JLD6
48	.06	U14JLD62A	U14JLD6
125	.027	U10JLD62A	U10JLD6
250 ^④	.02	U12JLD62A	U12JLD6

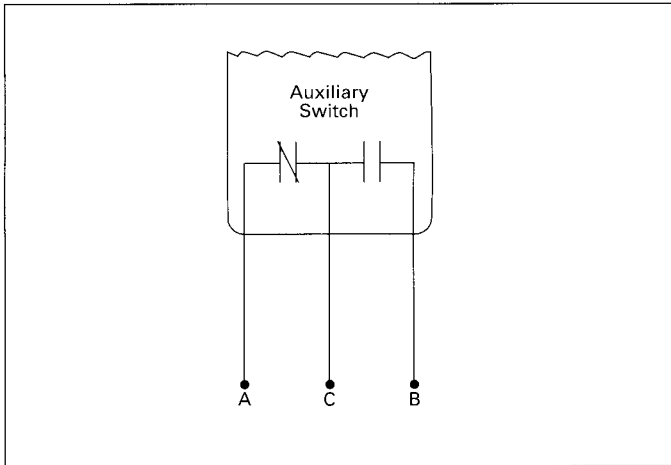
- ① Resistor to be mounted externally of circuit breaker and connected by installer.
- ② All auxiliary switch ratings are the same as auxiliary switch kit A01FD64.
- ③ Kit includes a 30k ohm, 25 watt resistor (Clarostat Cat. No. VP-25-K or equivalent).
- ④ Kit includes a 2.5k ohm, 25 watt resistor (Clarostat Cat. No. VP-25-K or equivalent).

Auxiliary Switch and Bell Alarm Switch

Electrical Check

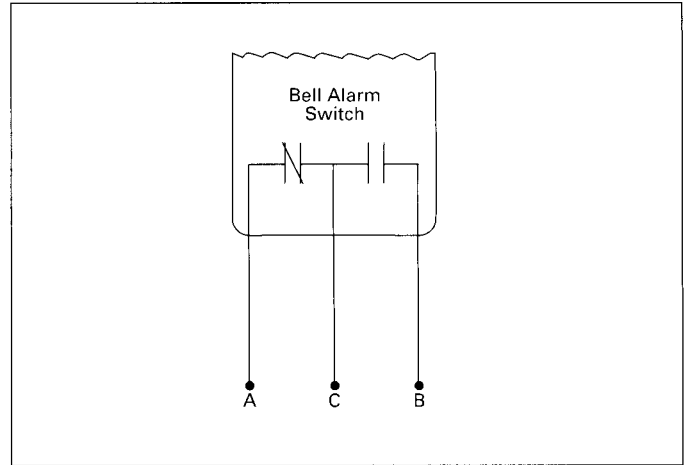
Auxiliary Switch Kits

Catalog Number	Number of Switches	Ampere Rating of Switch				
		Volts AC			Volts DC	
		120	240	480	125	250
A01JLD64	1	10	10	10	0.5	0.25
A02JLD64	2	10	10	10	0.5	0.25



Bell Alarm Switch Kits

Catalog Number	Number of Auxiliary Switches	Ampere Rating of Switch				
		Volts AC			Volts DC	
		120	240	480	125	250
B01JLD64	0	10	10	10	.5	.25
A01JLD64B	1	10	10	10	.5	.25
A02JLD64B	2	10	10	10	.5	.25



Switch Identification (All With Three Leads)

Wire Markings	Wire Color	Switch Terminals or Contacts
C or C1	White	C - Common terminal
A or A1	Black	NO - Contact open when breaker is open, closed when breaker is closed.
B or B1	Red	NC - Contact closed when breaker is open, open when breaker is closed.

Accessory units that employ a combination will have the same wiring colors or identifiers. A double auxiliary switch combination will use wiring markings A-A1, B-B1 and C-C1.

Auxiliary Switch ①

- Use a buzzer or light indicator attached to switch leads A and C. With breaker in ON position, a light or buzzing noise should be observed.
- Move handle to OFF position. Indicator light or buzzer should turn off.
- Attach test to leads B and C. Light or buzzer should turn on.
- Repeat Steps A through C using leads A1, B1 and C1.
- Move handle to ON position. Indicator light or buzzer should turn off.

① Should the indicator not function properly during "check" procedure, check for incorrect installation or wiring.

Bell Alarm Identification (All With Three Leads)


Wire Markings	Wire Color	Switch Terminals or Contacts
C	White	C - Common terminal
A	Yellow	NC - Normally closed contact (Closed when circuit breaker is tripped.)
B	Brown	NO - Normally open contact (Open when circuit breaker is tripped.)

Bell Alarm Switch ①

- Use a buzzer or light indicator attached to switch leads A and C. With breaker in ON position, trip breaker by depressing red trip button. Indicator light or buzzer should operate.
- Reset breaker to OFF. Indicator light or buzzer should turn off.
- Move breaker handle to ON. Indicator light or buzzer should remain off.

Rotary Handle Enclosure Mechanism

Type 1, 12

	⚠ DANGER
	Hazardous Voltage. Will cause death or severe injury. Turn power off supplying switchboard or panel before installing.

Safety Instructions

Standard Depth (CRHOLMSD) Variable Depth (CRHOLMVD)

General Information

When properly installed, the rotary handle operator provides single point latching of the enclosure door. For maximum protection against unauthorized entry into the enclosure, additional latching means should be provided. The handle can be padlocked in the OFF position with up to three 5/16" padlocks. The breaker operator can also be padlocked in the OFF position.

Drilling of Enclosure

A. Catalog number RHOSSD standard depth shafts are used for minimum depth enclosures. Refer to minimum dimension **K** in Figure 2.

Catalog Number RHOSVD variable depth shafts are used for all other enclosure depths. Shafts are cut to length **L** as shown in Figure 3.

B. Drill and tap circuit breaker mounting holes in breaker mounting surface **(1)** and handle mounting holes in enclosure door **(2)** as shown in Figure 1.

Installation of Breaker and Breaker Operator (RHOLMBO)

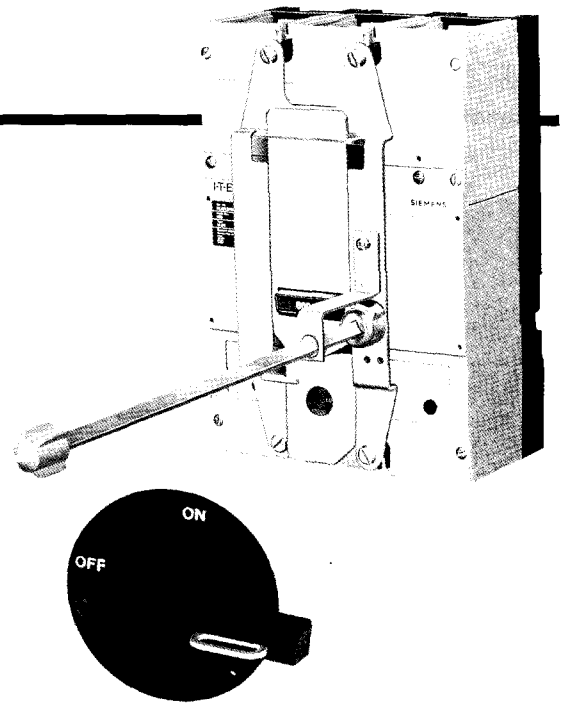
A. Remove the two terminal shields **(3)** from the circuit breaker and punch or drill out the two .53" dia. knockouts.

NOTE: Cut slots in terminal shields as shown to allow access to terminal lugs after installation of breaker operator without prior removal of mechanism.

Caution: Replace the terminal shields.

B. Mount circuit breaker to enclosure panel using the four breaker mounting screws **(4)** as shown. Tighten to 75 in-lbs.

C. Insert spacers **(5)** into the four circuit breaker mounting holes and attach the breaker operator **(6)** using the four 1/4-20 x 1-3/4" mounting screws **(7)** and 1/4" lockwashers **(8)** as shown. Tighten to 75 in-lbs.



Installation of Shaft (RHOSSD, RHOSVD)

A. Shaft length for Variable Depth Operators $L = K - 4.44$ " as shown in Figure 4. Attach the shaft **(9)** to the operating arm **(10)** of the breaker operator and tighten the set screw to 70 in-lb. min.

NOTE: The proper orientation of the "wings" (11) (shown in OFF position) at the end of the shaft when the breaker is in the OFF position, as shown in Figure 4.

NOTE: It is recommended that the shaft support bracket (12) be installed if the enclosure depth exceeds 10". Attach as shown in Figure 3. Tighten screw to 45 in-lbs.

**NOTE: RHOSSD Shaft is 2.93" Long
RHOSVD Shaft is 13.25" Long**

Installation of Handle (CRHOH)

A. Per Figure 5, attach the handle **(10)** and gasket **(11)** to the enclosure door **(12)** and secure with four bolts, flatwashers, lockwashers and nuts supplied **(14)**. Tighten nuts to 75 in-lbs.

B. When the enclosure door is closed, check if the handle interlocks with the shaft in all handle positions except RESET/OPEN. To open the enclosure door when the breaker is in the ON position rotate the screw slot on the handle plate counter-clockwise. This procedure will defeat the interlock.

C. To lock handle in OFF position, pull the lockplate **(15)** from the handle and insert up to three 5/16" padlocks.

NOTE: For Type 4 and 4X applications use handle catalog number RHOH4 and appropriate illustrations and instructions supplied with kit.

Installation Diagrams

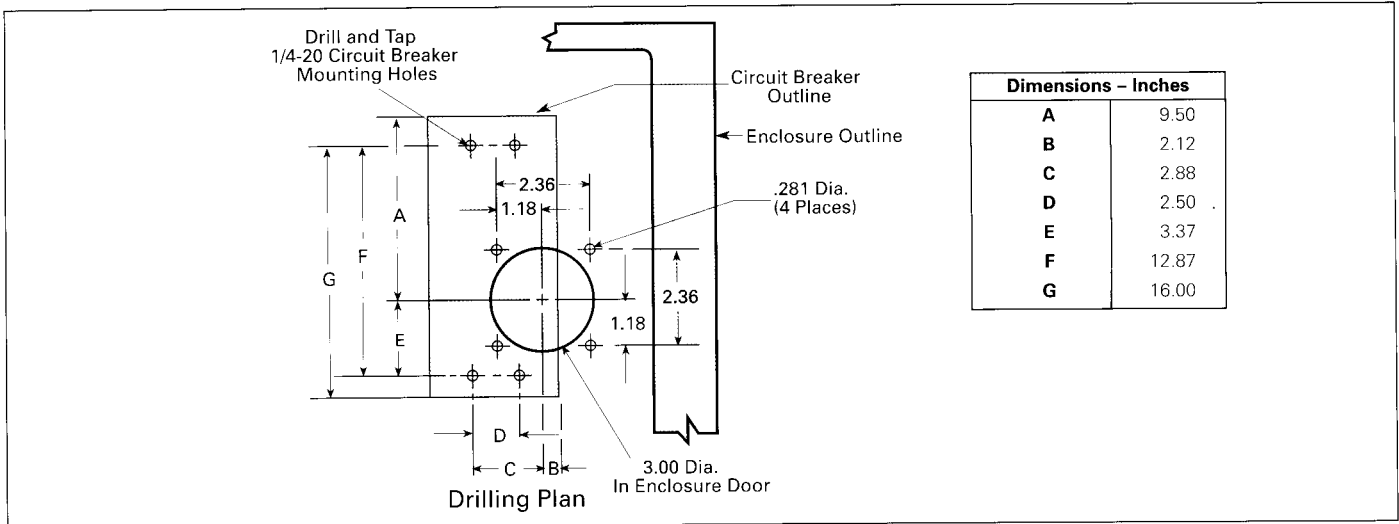


Figure 1

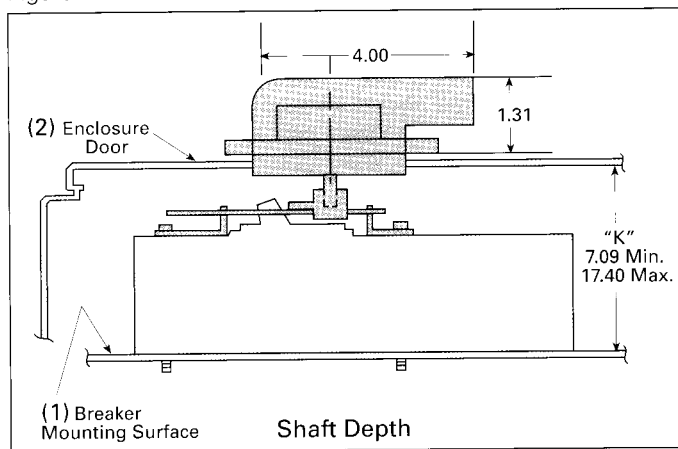


Figure 2

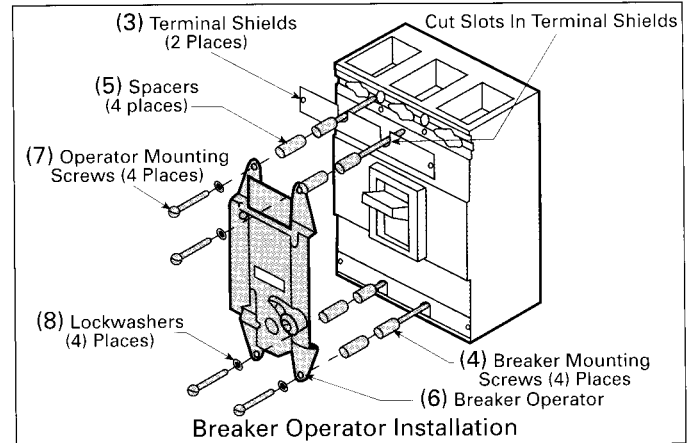


Figure 3

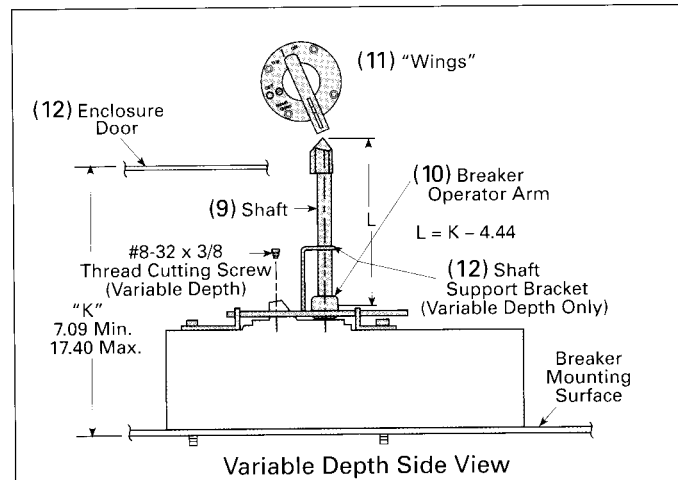


Figure 4

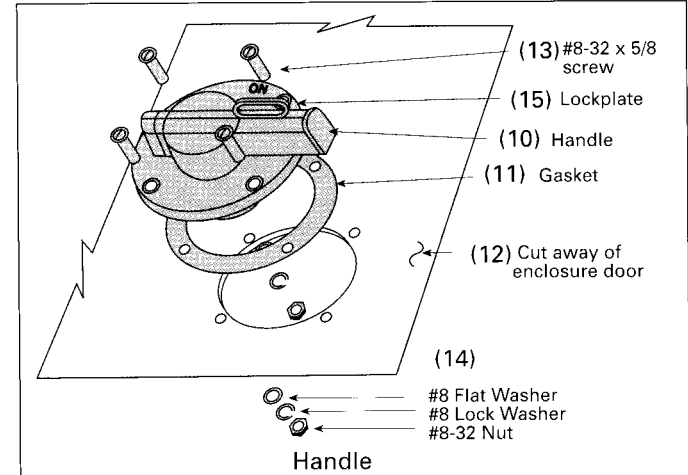


Figure 5

TELEMAND® Electric Motor Operator

⚠ DANGER

Hazardous Voltage.
Will cause death or severe injury.

Turn power off supplying switchboard or panel before installing.

Safety Instructions

General

The motor operated mechanism is designed to open, close and reset a circuit breaker or switch by remote control. The customer must supply the circuit breaker or switch, normally ON and OFF momentary type push-buttons, external wiring, a control power source, and all control logic. Consult the wiring diagram (Figure 3, page 25) for a typical control connection.

The motor operator is hinged to the left or right dependent on catalog number designation. The "L" suffix means the motor operator is hinged to the left. A motor operator hinged to the right uses no suffix.

NOTE: For automatic reset operation a separate auxiliary contact must be provided by the customer. See page 24 for more details.

Operator Selection

Motor Operator ^①	Frame	For Use With I-T-E Circuit Breakers and Switch Types
MOLMD6120 MOLMD6120L	LMD	LMD6, LMXD6, HLMD6, HLMXD6

^① All motor operator types are compatible to all circuit breaker types

Installation

- A. Turn off and lock out all power supplying circuit breaker and motor operator before installing or servicing.
- B. Attach the circuit breaker to its mounting surface using the mounting hardware **(1)** supplied with the motor operator (Figure 2).
- C. Remove the four shield screws **(2)** and two lug shields **(3)** (Figure 1).
- D. Replace the shields with those provided with the motor operator and discard the shields which were removed.
- E. Open the motor operator cover and attach the motor operator to the circuit breaker using the spacers **(4)** and screws **(5)** provided (Figure 2).

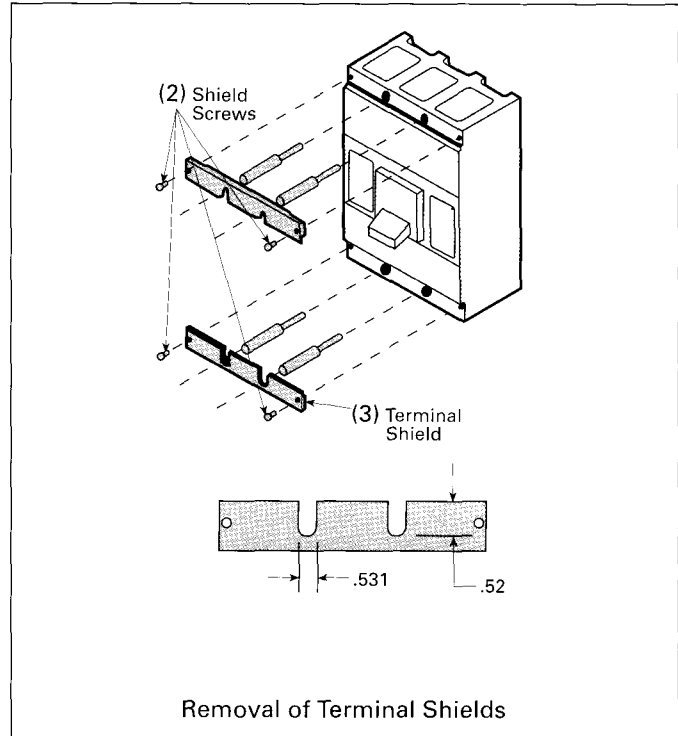


Figure 1

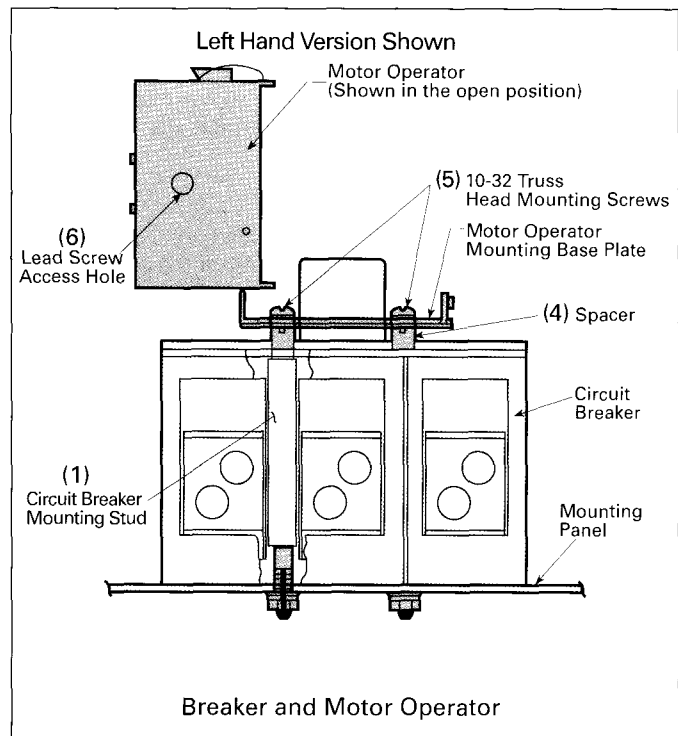


Figure 2

TELEMAND® Electric Motor Operator

- F. With the circuit breaker handle in the OFF position, align the motor operator mechanism rollers (indicator to be in OFF position) and the circuit breaker handle by rotating the lead screw (6) with a screwdriver. The lead screw access hole is at the bottom of the motor operator (Figure 2).
- G. Close and latch the mechanism cover.
- H. Complete the desired control connections and electrically test the motor operator system before reenergizing the breaker power terminals in accordance with the electrical operation.

Electrical Characteristics

Catalog Numbers	Volts AC	Amperes
MOLMD6120	120	10.0 Amperes Inrush
MOLMD6120L		6.0 Amperes Running

Electrical Operation

With the breaker and the operating mechanism in the OFF position, press the ON button to energize the motor. The action will close the breaker. When the breaker handle reaches the ON position, the motor circuit is disconnected by an internal limit switch.

With the breaker and the operating mechanism in the ON position, press the OFF button to energize the motor. The action will open the breaker. When the breaker handle reaches the OFF position, the motor circuit is disconnected by an internal limit switch.

When the circuit breaker trips automatically, there is no external indication that the breaker has tripped unless a separate Bell Alarm accessory (contact Siemens for appropriate catalog number) is provided to energize a customer furnished warning device. After the circuit breaker trips automatically, it is necessary to press the OFF button to move the breaker handle to the reset position.

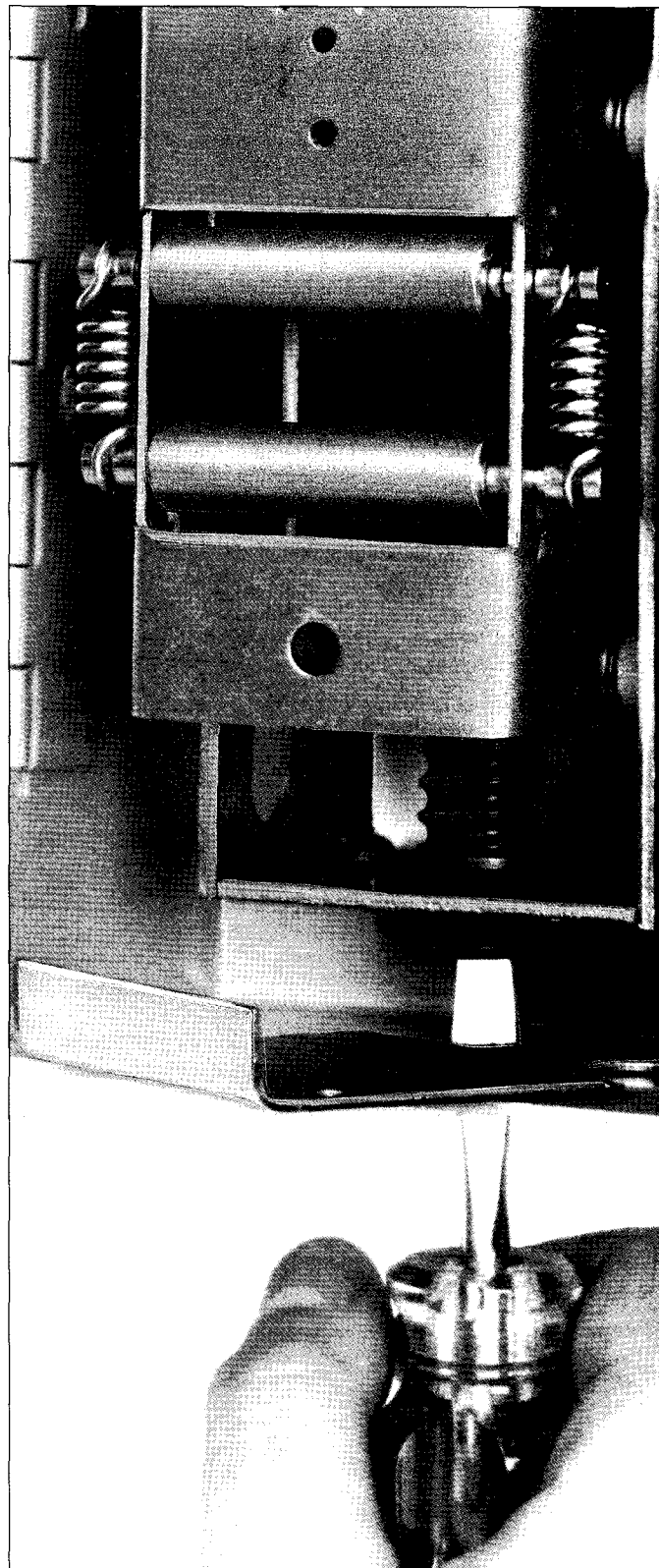
Automatic Reset

For automatic reset, an auxiliary switch (contact Siemens for appropriate catalog number) is used to return the breaker to the OFF/RESET position after it has been tripped. This auxiliary switch is mounted inside the breaker and wired in parallel with the OFF button. When the breaker trips, the auxiliary switch closes, energizing the motor circuit which moves the breaker to the OFF/RESET position.

After the motor operated mechanism has reset the breaker, the motor operator internal limit switch opens the circuit. To provide automatic reset, the ON push button must be a single pole, double throw device and it must be wired per Figure 3.

Manual Operation

Operate the two cover latches and swing the hinged motor operator cover away from the breaker to expose the breaker handle. To return to electrical operation, follow the installation instructions on page 23 deleting Steps B through E. After operation checks are complete, restore to normal operation.



Electric Motor Operator Installation Diagrams

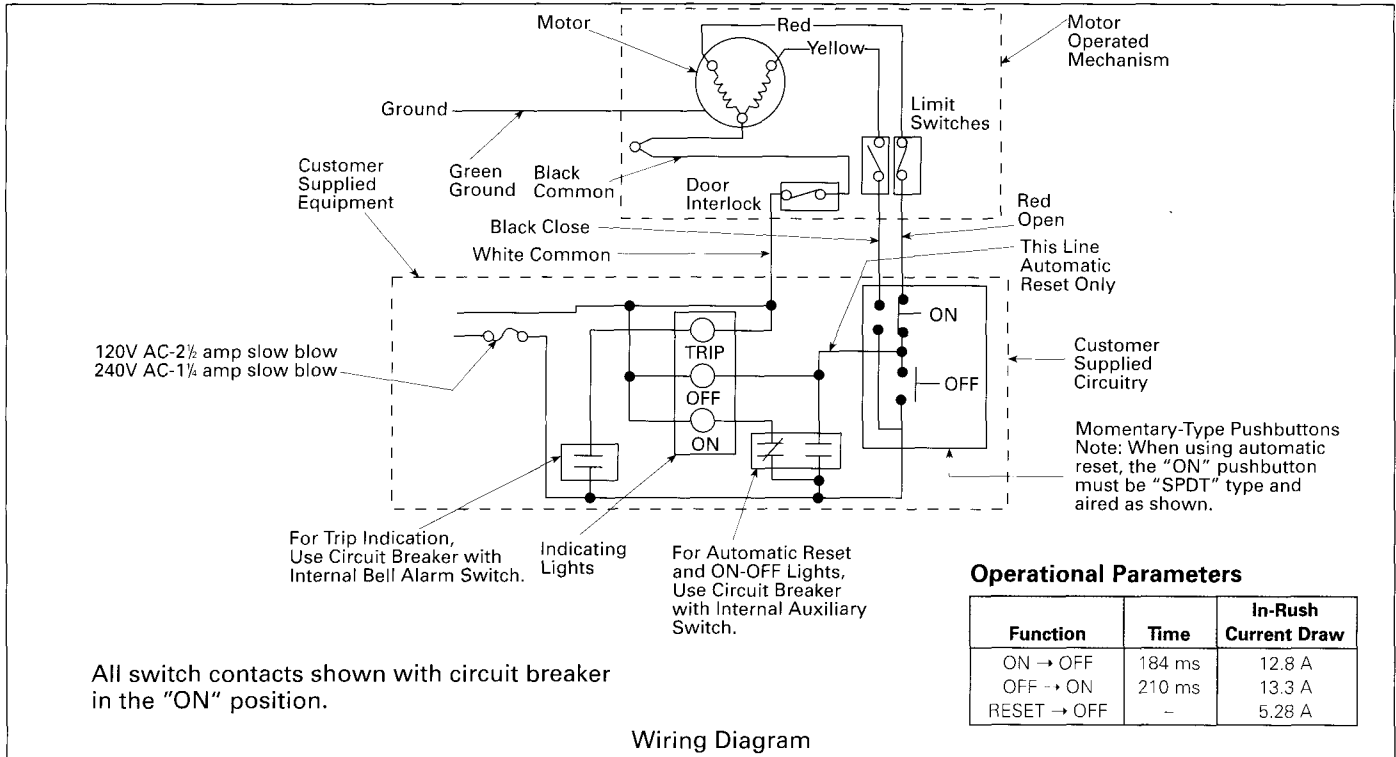


Figure 3

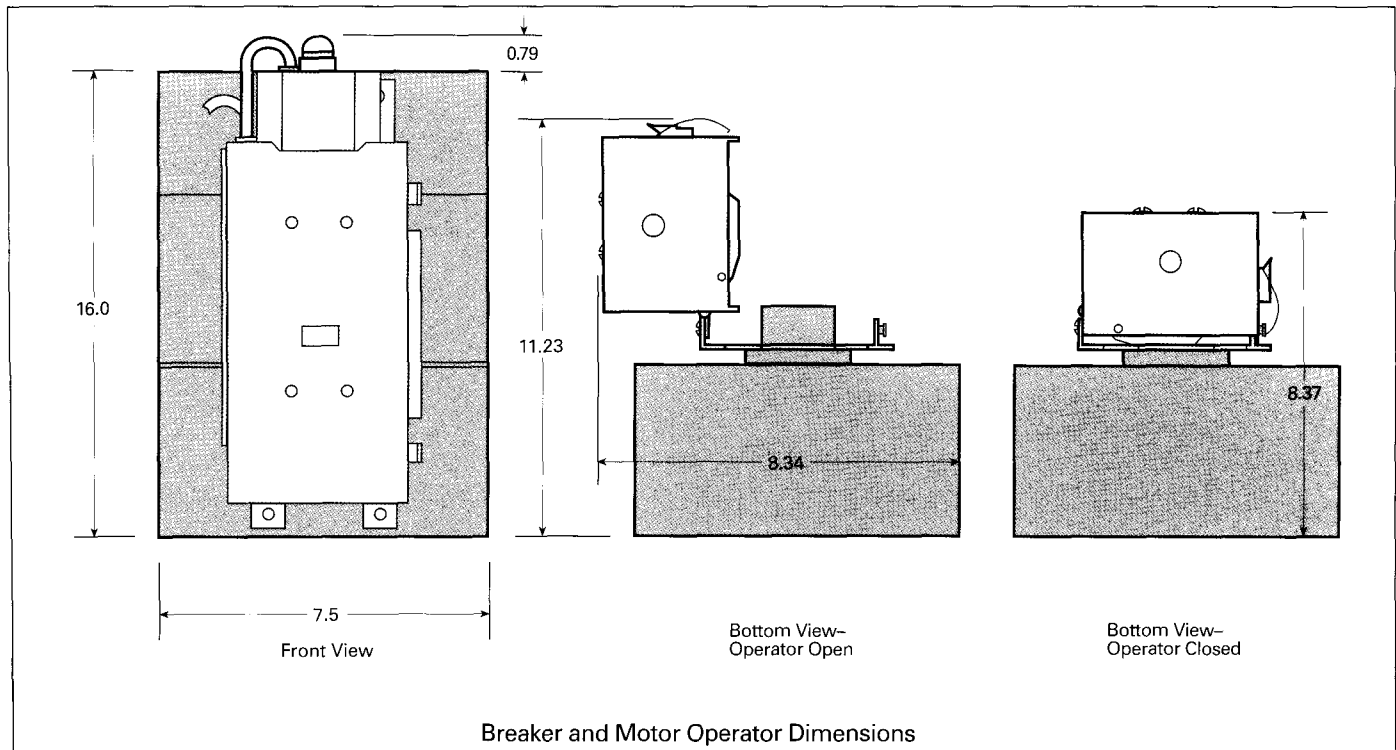



Figure 4

Max-Flex™ Flange-Mount Handle Operator

Types 1, 3, 3R, 4, 4X, 12

	⚠ DANGER
	Hazardous Voltage. Will cause death or severe injury.
	Turn power off supplying switchboard or panel before installing.

Safety Instructions

General Information

Description

The I-T-E Max-Flex™ Flange-Mount Handle Operator is a flexible cable control device used for the remote switching of a circuit breaker within an enclosure. The flexible cable is connected directly to the breaker switch handle at one end and a factory installed switch handle operator at the other end. The remote operator handle, located on the enclosure flange, is used to perform mechanical open/close switching operations. This is accomplished through the cable's sliding center race enclosed within the cable.

Function

The advanced design concept of the Max-Flex Handle Operator provides for greater flexibility when locating a circuit breaker within an enclosure. The circuit breaker can be mounted almost anywhere, at any angle and on almost any convenient

surface. The same flexibility applies when locating the switch handle operator on the flange section of the enclosure.

Application

The Max-Flex Operator is designed to work with I-T-E brand circuit breakers having current ratings through 600A. The Max-Flex unit meets all the industrial criteria such as UL and Automotive Industry Standards.

Design

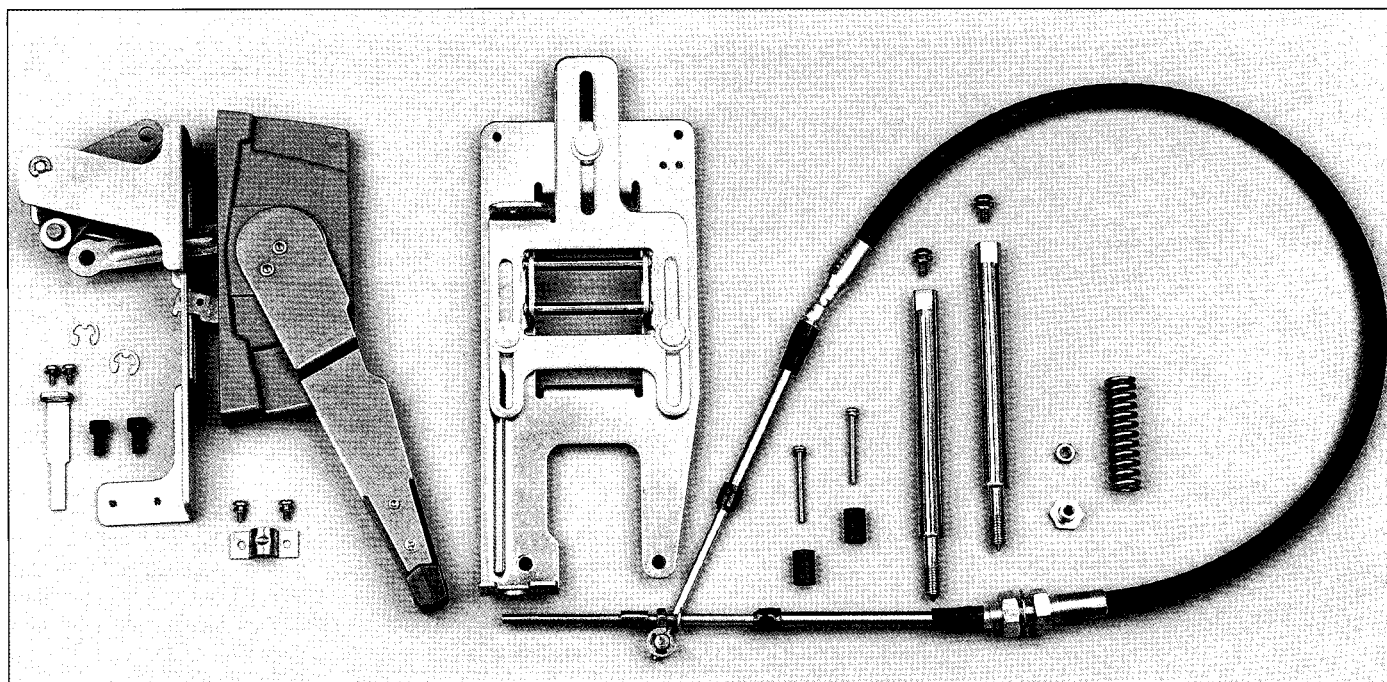
The new Max-Flex Handle Operator provides maximum flexibility in design and assembly of electrical equipment. Since there are no linkages to assemble, the Max-Flex system can save time during installation.

The cable design is flexible and rugged. It is similar to those cables used in aircraft control systems. The flexible cable comes in standard 3 or 4 foot lengths. However, specific lengths can be special ordered up to 20 feet.

Operation

When properly installed, the Max-Flex Handle Operator is used to perform remote switching operations from outside of the enclosure. Switching is accomplished by pushing the Max-Flex Handle Operator up for ON and down for OFF. The mechanical advantage gained with this device simplifies switching operations when compared with local switching at the breaker.

This unique design offers breaker trip indication as a standard feature. Interlocking provisions are included and described below. All switching functions are standard to accepted practices.



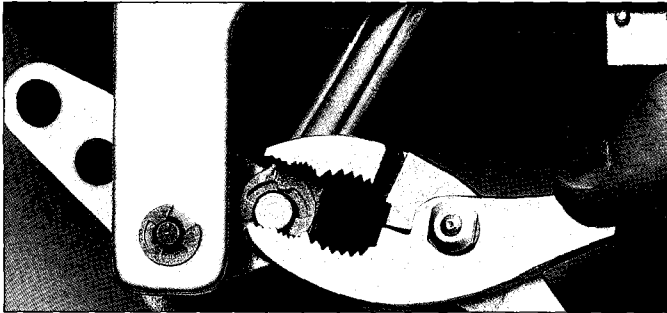
Unassembled Max-Flex™ Flange-Mount Handle Operator

Max-Flex™ Flange-Mount Handle Operator Installation

Types 1, 3, 3R, 4, 4X, 12

Mounting Max-Flex™ Handle Operator to Enclosure Frame Assembly

- Drill the mounting holes in the enclosure flange and file all burrs (Figures 1 and 2). Note the maximum and minimum drill hole distances in Figure 2.
- Push the rubber gasket (1) down in the groove of the handle assembly (2) (Figure 3).
- The handle and the interlock mechanism are supplied pre-assembled from the factory. NOTE: For ease of assembly, move the operating handle to the ON position (up toward the top of the enclosure). Mount the frame (4) and handle assembly (2) to the enclosure flange (5) with two #1/4-20 x 3/4" socket head cap screws and lockwashers. Tighten cap screws from within the enclosure (Figure 3).



Secure E-Ring Connection

- Rotate the bellcrank (6) clockwise to engage the return spring (7). Hold the bellcrank in position and place the plastic washer (8) and connecting link (9) onto the bellcrank pin (10). Using pliers, secure the connection with an E-ring (11) (Figure 3).
- Mount the interlock lever extension (12) to the interlock lever (3) using #8-32 x 3/8" machine screw and lockwasher. Screw mounts through the threaded lever extension into the lever (Figure 3).

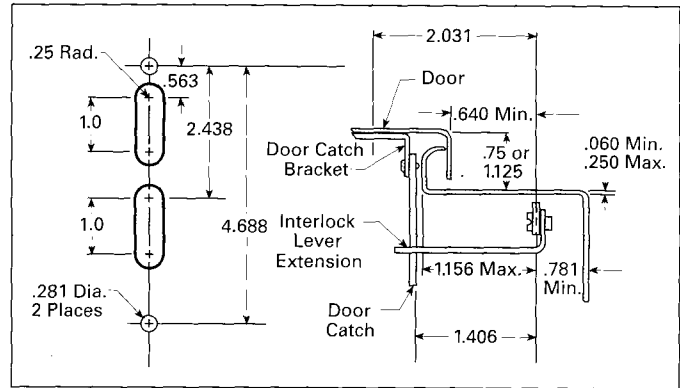
Operating Note: With the enclosure door open, the operating handle cannot be moved from the OFF to ON position without deliberately defeating the interlock mechanism. In the OFF position, the interlock can be defeated by pushing the interlock lever extension (12) downward while moving the handle to the ON position (Figure 2). With the enclosure door closed and the handle in the ON position, the interlock can be defeated by turning the defeater screw (13) on the operating handle counter-clockwise on left-hand side and clockwise on right-hand side. When the enclosure door is closed, the door latch mechanism now automatically defeats the interlock.

- Weld the door catch bracket (14) to the enclosure door. (Figures 2 and 4).

NOTE: Holes may be drilled in the door catch bracket using the projections as centers. User must provide the mounting hardware.

- Fasten the door catch (15) to the door catch bracket with two #8-32 x 5/16" pan head screws and external tooth lockwashers (Figure 2).

Installation Diagrams



Figures 1 and 2

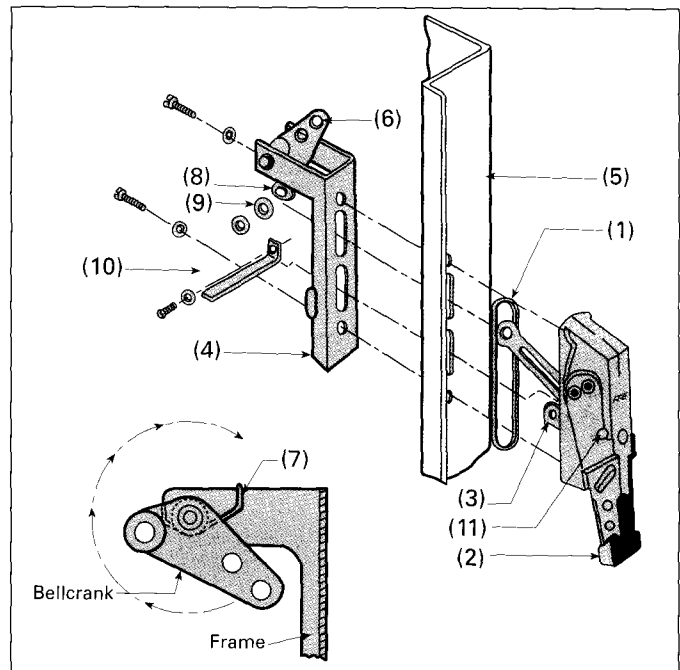


Figure 3

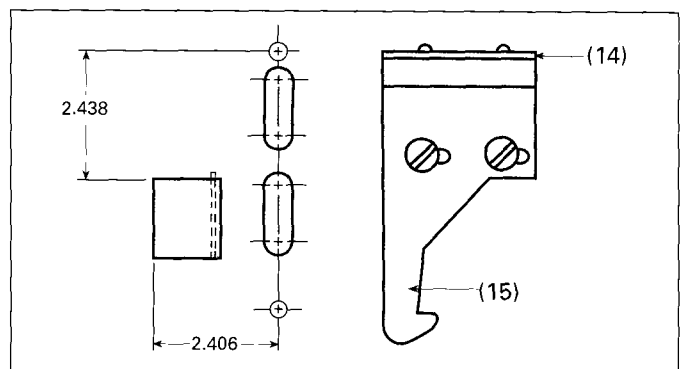


Figure 4

Max-Flex™ Flange-Mount Handle Operator Assembly Instructions

Types 1, 3, 3R, 4, 4X, 12

Adjusting Door Catch Mechanism

- Close the enclosure door and move the handle into the ON position. Adjust the door catch downward if the handle cannot be moved from the ON position.
- With the handle in the ON position, try to open the enclosure door without turning the defeater screw in the handle. If the door opens, readjust the door catch and repeat Steps A and B.

Mounting Breaker Operator

The circuit breaker can be mounted remotely from the handle within a range that is limited by the length of the operating cable (16) (Figure 7) and the depth of the enclosure. Table 2 and Figure 5 show the horizontal range **E** of the circuit breaker in 8 to 30" enclosures.

Table 1 – Circuit Breaker Mounting Dimensions

Breaker Type	A	B	C	D	Tap Size
LMD6, LMXD6, HLM6, HLMXD6	2.5	9.75	3.13	12.88	1/4-20

Table 2 – Maximum E Dimensions ①

Cable	Enclosure Depth (Inches)							
	8"	10"	12"	16"	18"	20"	24"	30"
FHOJCO36 (36")	10.7	10.5	10.0	7.9	6.1	3.2	–	–
FHOJCO48 (48")	22.7	22.6	22.3	21.3	20.5	19.6	16.9	9.9

① Maximum E dimension only if F = 4.6".

Table 3 – F Dimensions

Enclosure Depth	36" Cable		48" Cable	
	Min.	Max.	Min.	Max.
8	-4.2	15.5	-16.0	27.0
10	-5.2	15.0	-16.5	27.0
12	-6.0	14.7	-17.0	26.8
16	-4.5	14.2	-16.5	26.5
18	-3.4	12.8	-16.0	25.5
20	0.6	10.0	-15.5	24.5
24	–	–	-14.0	22.5
30	–	–	-8.7	17.4

NOTE: When installed, the cable bend radius should not be less than 3". This minimum wire bending requirement must be met to insure operating safety. The mounting procedure is as follows:

- Determine the desired circuit breaker mounting location using Tables 1, 2 and Figure 5.
- Drill and tap four mounting holes (17) in the enclosure back panel using dimensions **A** and **B** from Table 1.
- Remove the four terminal shield screws (18) and two terminal shields (19).
- Punch or drill out the two .531" dia. knockouts in the terminal shields. REPLACE THE SHIELDS.
- Fasten circuit breaker to prepared mounting surface using four breaker mounting screws (20).

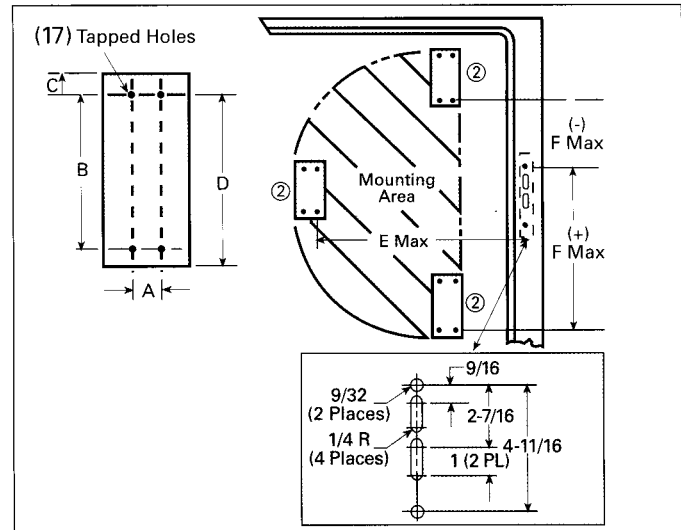


Figure 5

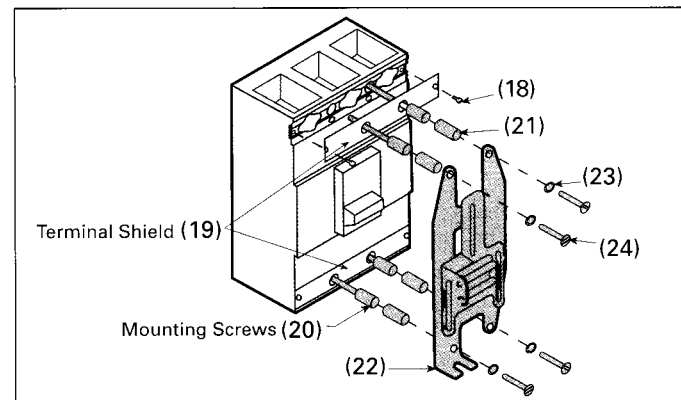


Figure 6

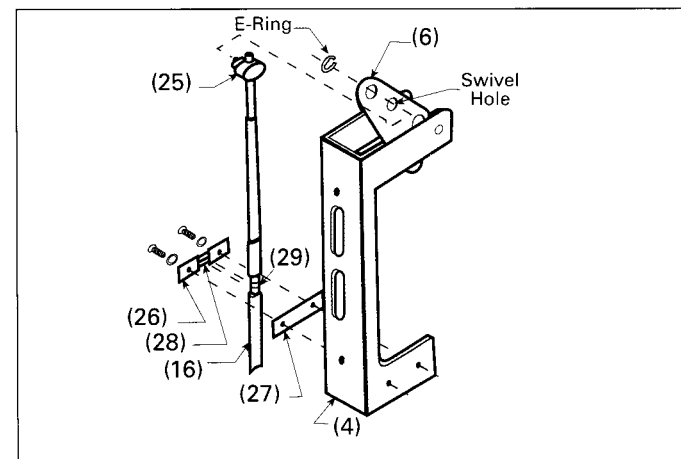


Figure 7

② Outlines represent breaker operator, not circuit breaker footprint.

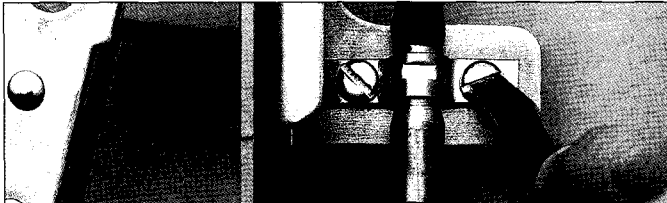
Max-Flex™ Flange-Mount Handle Operator Assembly Instructions

Types 1, 3, 3R, 4, 4X, 12

- F. Place the four spacers (21) into the breaker mounting holes.
- G. Fasten circuit breaker operating mechanism (22) onto circuit breaker with four lockwashers (23) and four 1/4-20 x 1-3/4" screws (24).

Securing Operating Cable to Frame Assembly

- A. To attach the operating cable (16) to the frame assembly (4), move the operating handle (2) to the ON position and attach the cable swivel (25) to the outer hole of the bell-crank (6). Secure the connection with an E Ring (Figure 7).



Tighten Detent Screws

- B. Secure the cable (16) to the frame assembly (4) by placing it between the cable retainer clip (26) and the shim (27), secure with two #10-32 x 3/8" screws and lockwashers. NOTE: Detent (28) in cable retainer must align with the groove (29) in the cable's metal fitting (Figure 7).

Securing Operating Cable to Circuit Breaker

NOTE: Before attaching the cable to the circuit breaker, installers must confirm that the power from the supply source has been de-energized.

- A. Move the circuit breaker handle to the ON position.
- B. Remove the soft plastic cap from the end of the threaded cable rod (30) and slide the rod through the hole in the sliding plate tab (31) of the circuit breaker operating mechanism (22) (Figure 8).
- C. Move the flange mount operating handle (2) to its maximum ON position and hold it in place.
- D. Place the cable mounting threads (30) into the slot on the fixed plate tab (32) so that the two mounting nuts (33) are on both sides of the tab. Adjust the two mounting nuts so that the #10-32 nut on the cable rod just touches the sliding plate tab (31). Tighten the mounting nuts (33) to secure the cable (Figure 8).
- E. Continue holding the operating handle in the ON position and place the spring (34) over the end of the rod. Screw on the spring adjuster (35) and tighten until it begins to compress the spring. Do not overtighten.

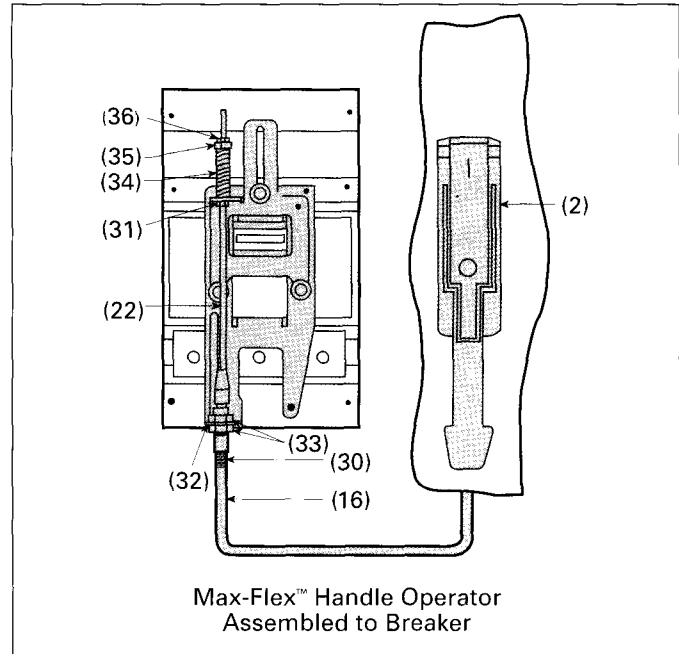
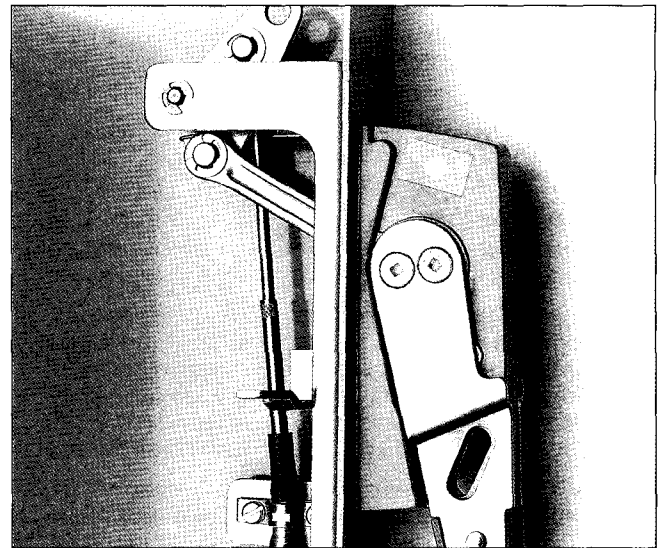


Figure 8



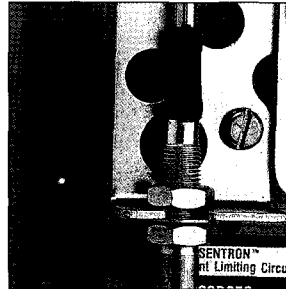
Side View of Max-Flex™ Handle Operator

Max-Flex™ Flange-Mount Handle Operator Assembly Instructions

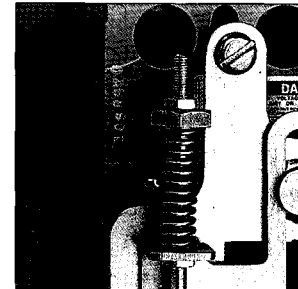
Types 1, 3, 3R, 4, 4X, 12

Making Cable Adjustments

- A. Check that circuit breaker turns OFF and ON by moving the operating handle **(2)** up for ON and down for OFF. If the breaker does not switch ON, loosen the cable mounting nuts **(29)** at the fixed plate tab **(28)**, hold the operating handle in the maximum ON position, and move the cable **(16)** toward the top of the breaker. Retighten the mounting nuts **(29)** to secure.
- B. Trip the circuit breaker by pressing the PUSH TO TRIP button on the front of the circuit breaker.
- C. Check that the circuit breaker resets by moving the operating handle **(2)** from ON to OFF and back to ON. If the breaker resets, tighten the spring adjuster **(31)** one additional turn. Attach the lockwasher and #10-32 locknut **(32)** to the end of the cable rod, and tighten the locknut.
- D. If the circuit breaker does not reset after Step B, tighten the spring adjuster **(35)** one turn and repeat Step B. Continue this procedure until the breaker does reset, then tighten the adjuster spring one additional turn. Secure with the lockwasher and locknut **(36)**.





Fixed Plate Adjustment



Spring Adjustment

Door Latch Mechanism (DKR2, DKR3, DKL2, DKL3)^①

	 DANGER
	<p>Hazardous Voltage. Will cause death or severe injury.</p> <p>Turn power off supplying switchboard or panel before installing.</p>

Safety Instructions

General Information

These door latch mechanisms are for use in standard or custom built enclosures. The door latch post assemblies and the door catch are supplied with the kits. *Users must supply their own 1/4" x 1/2" steel latch bar.* Enclosures with an overall height less than 40" require the two-point door latch mechanism. When the overall height is greater than 40", the three-point latch mechanism is used.

The door latch mechanism can be used with or without the type FHOH Flange Mount Handle Operator. These instructions apply when the door latch mechanism is mounted adjacent to and interlocks with the FHOH Handle Operator. The door handle can be padlocked to prevent unauthorized entry into the enclosure. Drawings in these installation instructions are oriented for right-hand flange installation. Left-hand flange installation drawings are mirror images of the right-hand versions. For left-hand flange installation, substitute "clock-wise" for "counterclockwise" and vice versa, whenever those words appear.

Installation of the Door Latch Mechanism

A. Drill mounting holes in the enclosure door observing the minimum dimensions shown in Figure 2. See FHOH Handle Operator instructions for flange drilling pattern.

NOTE: D and E dimensions are determined by the height of the enclosure.

Refer to Figure 1 for the following steps:

- B. Place gasket (1) on handle plate (2) and attach handle plate to enclosure door with two thin wall hex nuts (3). Tighten the nuts to 100 in-lb.
- C. Insert lockout screw (4) and handle (5) through holes in the handle plate.
- D. Install latch bar post assembly (6) (screw, sealing washer, flat washer, and special hex nut (7), if used).
- E. Attach top (8), bottom (9) and latch plate rollers (10) to latch bar with retaining pins and E-rings.

NOTE: Two-point latch does not have bottom roller.

- F. Fasten the top and bottom rollers to the enclosure door with locking type flange nuts. Tighten the nuts, then loosen them 1/8 turn to allow movement of the roller assemblies.
- G. Place bottom spring (11) over the bottom thin wall hex nut inside the enclosure door.

- H. Turn the handle 1/4 turn clockwise (looking from inside the enclosure door) and attach the latch plate roller to the handle shaft, while inserting the bent leg of the spring into the hole in the latch plate. Fasten with a locking-type flange nut. Tighten the nut, then loosen 1/8 turn to allow movement of the roller assemblies (Figure 1).

NOTE: Straight leg of spring must rest against pin (12) on handle plate. See inset on Figure 1.

- I. Place top spring (13) over top thin wall hex nut. Attach lockout plate (14) to lockout screw using locking type flange nut. Tighten flange nut. Insert bent leg of spring into hole in lockout plate as shown in Figure 1 detail.
- J. Attach the interlock defeater lever (15) to the latch bar (16) with two #10 lockwashers and #10-24 screws.

NOTE: The position of lever depends on enclosure depth (Figure 3).

- K. Weld or rivet the door catch (17) to the enclosure door. User must supply the mounting hardware.
- L. Attach the door latch label to the door handle on the enclosure door.

Adjusting the Mechanism

If using in conjunction with the FHOH or FHOH4 Handle Operator, perform the following steps:

- A. With the door in the open (unlatched) position, close the door, but do not turn the door handle. The lockout plate should latch the door partially closed.
- B. Turn the handle clockwise to stop. This will engage the rollers against the enclosure flange, securing the door fully closed.
- C. Check that the circuit breaker can be turned ON. If the breaker will not turn ON, adjust the interlock defeater lever downward to engage the lever on the handle operator.
- D. To open the door, insert a screwdriver into the handle screw and turn the screw and handle counterclockwise. The door will only open partially if the operating handle is in the ON position. If the door fully opens with the handle in the ON position, adjust the interlock defeater lever upward and repeat Steps C and D.

NOTE: To open the door when the handle is in the ON position, turn the latch defeater screw located on the side of the operating handle.

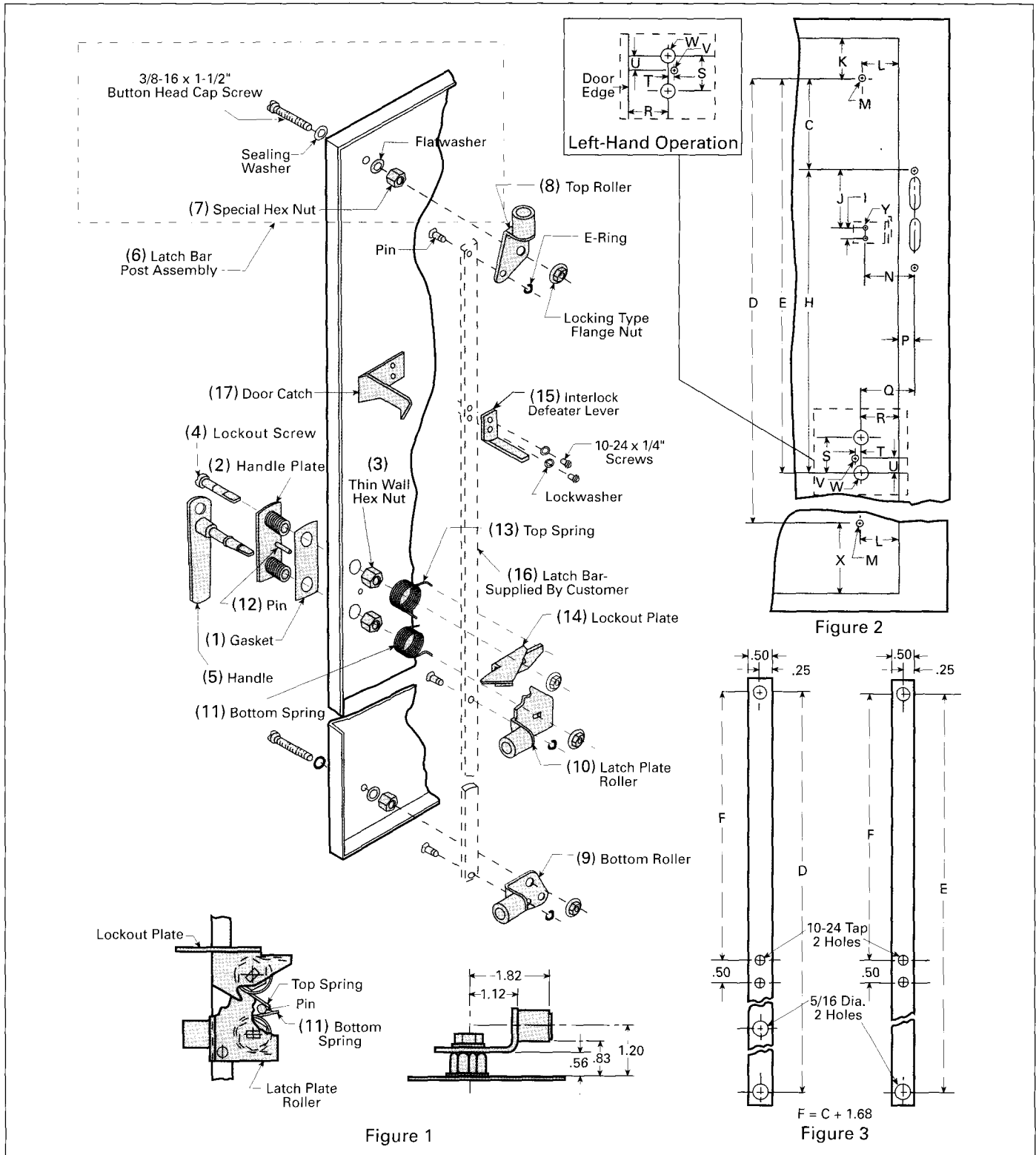
Minimum Dimensions (In Inches)

C	1.922	Q	2.594
H	9.375	R	1.875
I	.50	S	1.625
J	2.688	T	.250
K	1.859	U	.688
L	1.797	V	.281 Dia.
M	.391 Dia.	W	.703 Dia.
N	2.297	X	2.484
P	.719	Y	.219 Dia.

^① The last letter and number designate right- or left-hand, 2 or 3 point latches.

Operating Instructions

Installation Diagrams

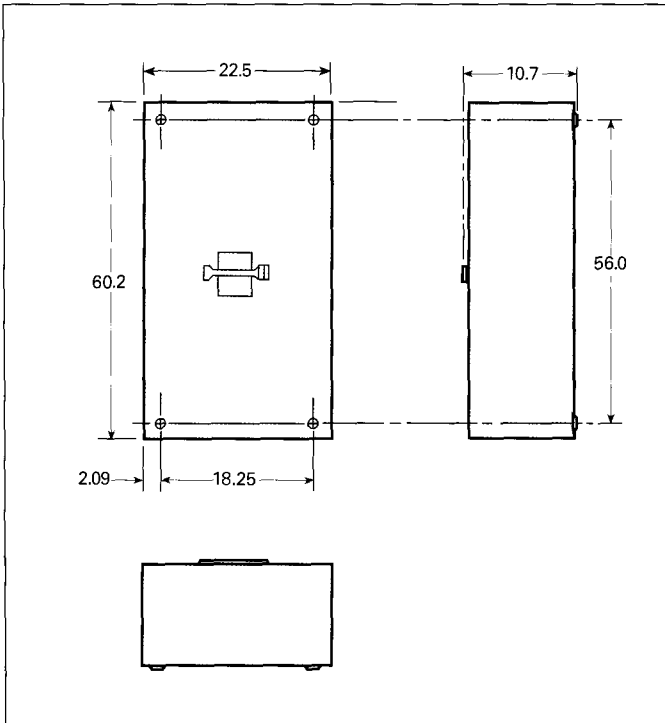


Enclosures

Types 1, 3R, 12

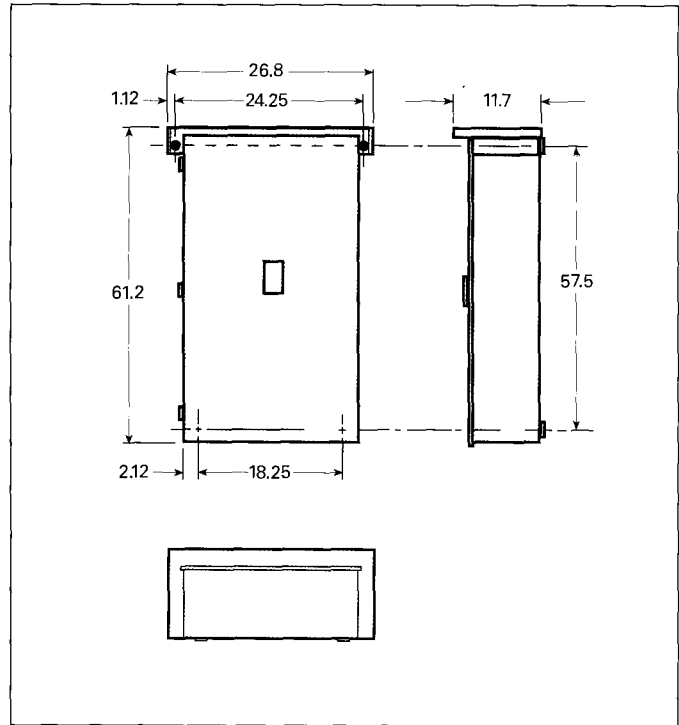
Type 1 – LMD1

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



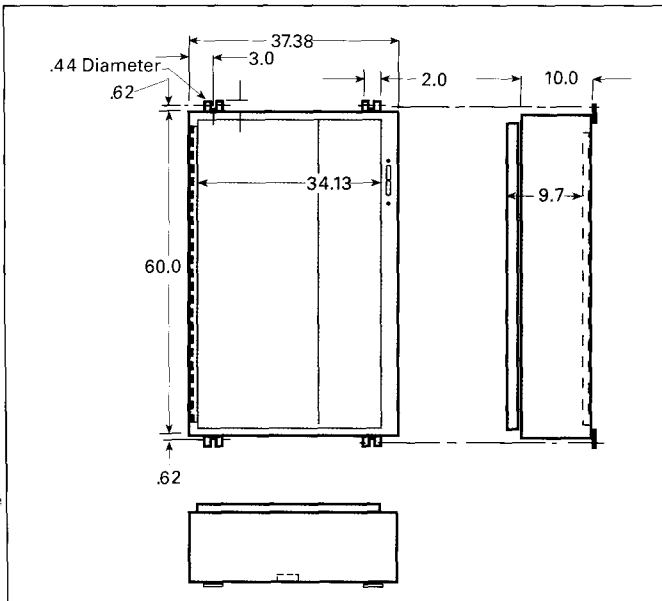
Type 3R – LMD3R

An outdoor, sheet-steel enclosure providing protection against driving rain, sleet or snow. Listed as service-entrance equipment.



Type 12 – LMD12

A special-industry, sheet-steel enclosure for indoor use in atmosphere containing particles of lint, dust, dirt, sawdust and other foreign matter.



Ordering Information

Circuit Breaker Catalog Numbers

LMXD6 Non-interchangeable Trip

Ampere Rating	Instantaneous Trip Range		Complete Breaker Assembled		UL Interrupting Ratings (kA) (RMS Symmetrical)					IEC 947-2 50/60 Hz.					
										220/240		380/415		500	
	Min.	Max.	2-Pole ^①	3-Pole	240Vac	480Vac	600Vac	250Vdc	500Vdc	Icu	Ics	Icu	Ics	Icu	Ics
500	3000	6000	LMXD62B500	LMXD63B500	65	50	25	30(2-P)	25(3-P)	65	33	40	20	30	15
600	3000	6000	LMXD62B600	LMXD63B600	65	50	25	30(2-P)	25(3-P)	65	33	40	20	30	15
700	3200	8000	LMXD62B700	LMXD63B700	65	50	25	30(2-P)	25(3-P)	65	33	40	20	30	15
800	3200	8000	LMXD62B800	LMXD63B800	65	50	25	30(2-P)	25(3-P)	65	33	40	20	30	15
800	Molded Case Switch^③		LMXD62S800A	LMXD63S800A	65	50	25	—	—	—	—	—	—	—	—

HLMXD6 Non-interchangeable Trip

500	3000	6000	HLMXD62B500	HLMXD63B500	100	65	50	30(2-P)	50(3-P)	100	50	65	33	42	21
600	3000	6000	HLMXD62B600	HLMXD63B600	100	65	50	30(2-P)	50(3-P)	100	50	65	33	42	21
700	3200	8000	HLMXD62B700	HLMXD63B700	100	65	50	30(2-P)	50(3-P)	100	50	65	33	42	21
800	3200	8000	HLMXD62B800	HLMXD63B800	100	65	50	30(2-P)	50(3-P)	100	50	65	33	42	21

LMD6 Interchangeable Trip

500	3000	6000	LMD62B500	LMD63B500	65	50	25	30(2-P)	25(3-P)	65	33	40	20	30	15
600	3000	6000	LMD62B600	LMD63B600	65	50	25	30(2-P)	25(3-P)	65	33	40	20	30	15
700	3200	8000	LMD62B700	LMD63B700	65	50	25	30(2-P)	25(3-P)	65	33	40	20	30	15
800	3200	8000	LMD62B800	LMD63B800	65	50	25	30(2-P)	25(3-P)	65	33	40	20	30	15

HLMD6 Interchangeable Trip

500	3000	6000	HLMD62B500	HLMD63B500	65	50	25	30(2-P)	25(3-P)	65	33	40	20	30	15
600	3000	6000	HLMD62B600	HLMD63B600	65	50	25	30(2-P)	25(3-P)	65	33	40	20	30	15
700	3200	8000	HLMD62B700	HLMD63B700	65	50	25	30(2-P)	25(3-P)	65	33	40	20	30	15
800	3200	8000	HLMD62B800	HLMD63B800	65	50	25	30(2-P)	25(3-P)	65	33	40	20	30	15

① 2-Pole available in 3-Pole construction only

② For 50°C application replace the letter "B" in catalog number with the letter "M" for ordering purposes
If 50°C trip unit is required, replace the letter "T" within the catalog number with the letter "W"

③ Molded case switch includes self-protecting element. May open the circuit over 8000 Amperes.

NOTE: Does not provide overload protection. Withstand rating applies when protected by properly sized fuse or circuit breaker.

All thermal/magnetic LMD frame circuit breakers meet or exceed Federal spec. W-C-375B/Gen. class 23a.

Ordering Information

Internal Accessory Combination

Shunt Trip

Control Voltage		1 Shunt Trip	1 Shunt Trip and 1 Auxiliary Switch
AC	DC	Catalog Number	Catalog Number
24		S17JLD6	S17JLD62A
48		S18JLD6	S18JLD62A
120		S01JLD6	S01JLD62A
208		S02JLD6	S02JLD62A
240		S03JLD6	S03JLD62A
277		S15JLD6	S15JLD64A
480		S04JLD6	S04JLD64A
600		S06JLD6	N/A
	24	S07JLD6	S07JLD62A
	48	S09JLD6	S09JLD62A
	125	S11JLD6	S11JLD62A
	250	S13JLD6	S13JLD62A

Undervoltage Trip

Control Voltage		1 Undervoltage Trip	1 Undervoltage Trip and 1 Auxiliary Switch
AC	DC	Catalog Number	Catalog Number
120		U01JLD6	U01JLD62A
208		U02JLD6	U02JLD62A
240		U03JLD6	U03JLD62A
277		U16JLD6	U16JLD64A
480		U06JLD6	U06JLD64A
600		U08JLD6	N/A
	24	U13JLD6	U13JLD62A
	48	U14JLD6	U14JLD62A
	125	U10JLD6	U10JLD62A
	250	U12JLD6	U12JLD62A

Auxiliary Switch

Control Voltage		1 Auxiliary Switch	2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number
120		A01JLD64	A02JLD64
208		A01JLD64	A02JLD64
240		A01JLD64	A02JLD64
277		A01JLD64	A02JLD64
480		A01JLD64	A02JLD64
	24	A01JLD64	A02JLD64
	48	A01JLD64	A02JLD64
	125	A01JLD64	A02JLD64
	250	A01JLD64	A02JLD64

Bell Alarm Switch

Control Voltage		1 Alarm Switch	1 Alarm Switch and 1 Auxiliary Switch	1 Alarm Switch and 2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number	Catalog Number
120		B01JLD64	A01JLD64B	A02JLD64B
208		B01JLD64	A01JLD64B	A02JLD64B
240		B01JLD64	A01JLD64B	A02JLD64B
277		B01JLD64	A01JLD64B	A02JLD64B
480		B01JLD64	A01JLD64B	A02JLD64B
	24	B01JLD64	A01JLD64B	A02JLD64B
	48	B01JLD64	A01JLD64B	A02JLD64B
	125	B01JLD64	A01JLD64B	A02JLD64B
	250	B01JLD64	A01JLD64B	A02JLD64B

Note: Accessory modules can mount in either left hand or right hand poles of all LMD-Frame circuit breakers.

Additional Accessories

Item	Catalog No.
Pressure Wire Connectors 1-2 pcs. #1 AWG-500kcmil (75C cu/al) 1-3 pcs. #1 AWG-500kcmil (75C cu/al) 1-2 pcs. 600-750kcmil (90C cu/al)	TA2K500 TA3K500 TA2N750
Handle Blocking Device	JD6HBL
Padlocking Device	JD6HPL
Rear Connecting Studs Long (11.20 ins.) Short (5.70 ins.)	RS5787 RS5788
Mechanical Interlock Panel mount	MI5406
Rotary Handle Operator Complete Mechanism Standard Depth Variable Depth Handle only Breaker operator Standard Depth Shaft Variable Depth Shaft	CRHOLMSD CRHOLMVD CRHOH① RHOJBO RHOSSD RHOSVD
Maxi-flex Flange Mount Handle Operator Complete Mechanism Handle only Breaker Operator Standard Cable (36 in.) Optional Cables 48 inches 60 Inches 72 Inches 184 inches	FHOLM036 FHOH② FHOLMBO FHOJC036 FHOJC048 FHOJC060 FHOJC072 FHOJC184
Door Latch Mechanisms Left Side 2 point latch 3 point latch Right Side 2 point latch 3 point latch	DKL2 DKL3 DKR2 DKR3
Motor Operator 120 Vac (Right Hinged) 120 Vac (Left Hinged)	MOLM6120 MOLM6120L
Mounting Screw Kit Enclosures Type 1 Type 3R Type 12 Neutral	MSLMD③ LMD1 LMD3R LMD12 W63623
Time Current Curves	TD-LMD.CDR

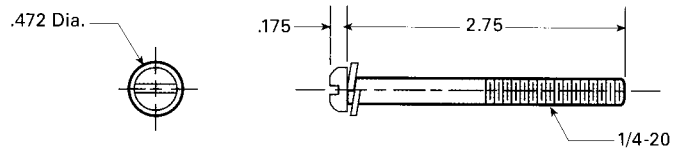
① For 4-4x applications order RHOH4

② For 4-4x applications order FHOH4

③ Consist of 4 screws and assorted washers and nuts

UL Listings and File Numbers

I-T-E Item	UL-489 File Number	CSA Report Number
Breakers	E10848	LR13077
Terminal Connectors	E23615 (SP)③	
Plug-In Connectors	E23615	
Rear Studs	E23615	
Handle Operators	E57501	
Motor Operators	E57501	
Internal Accessories	E69455	LR13077
Shunt Trip		
Undervoltage Trip		
Aux. Switch		
Bell Alarm Switch		
Mechanical Interlock		
Molded Case Switch	E68312	LR42022
Enclosures	E10848	
ETI Breakers	E10848	LR42022



Industry Specifications

National Fire Protection Assoc. (National Electrical Code®).

Federal Specification W-C-375B/GEN.

Underwriters Laboratories, Inc. (UL 489).

Canadian Standards Association (C22.2 No. 5).

NEMA AB-1 – 1986

Field Test Procedures NEMA AB-4 – 1991

Siemens Energy & Automation, Inc.
Power Distribution & Controls Division
3333 Old Milton Parkway
Alpharetta, GA 30005

For Nearest Sales Office
1-800-964-4114 or 800-241-4453
[www.sea.siemens.com/
sales/salesoffices.html](http://www.sea.siemens.com/sales/salesoffices.html)

For Product Information
www.sea.siemens.com/power/
