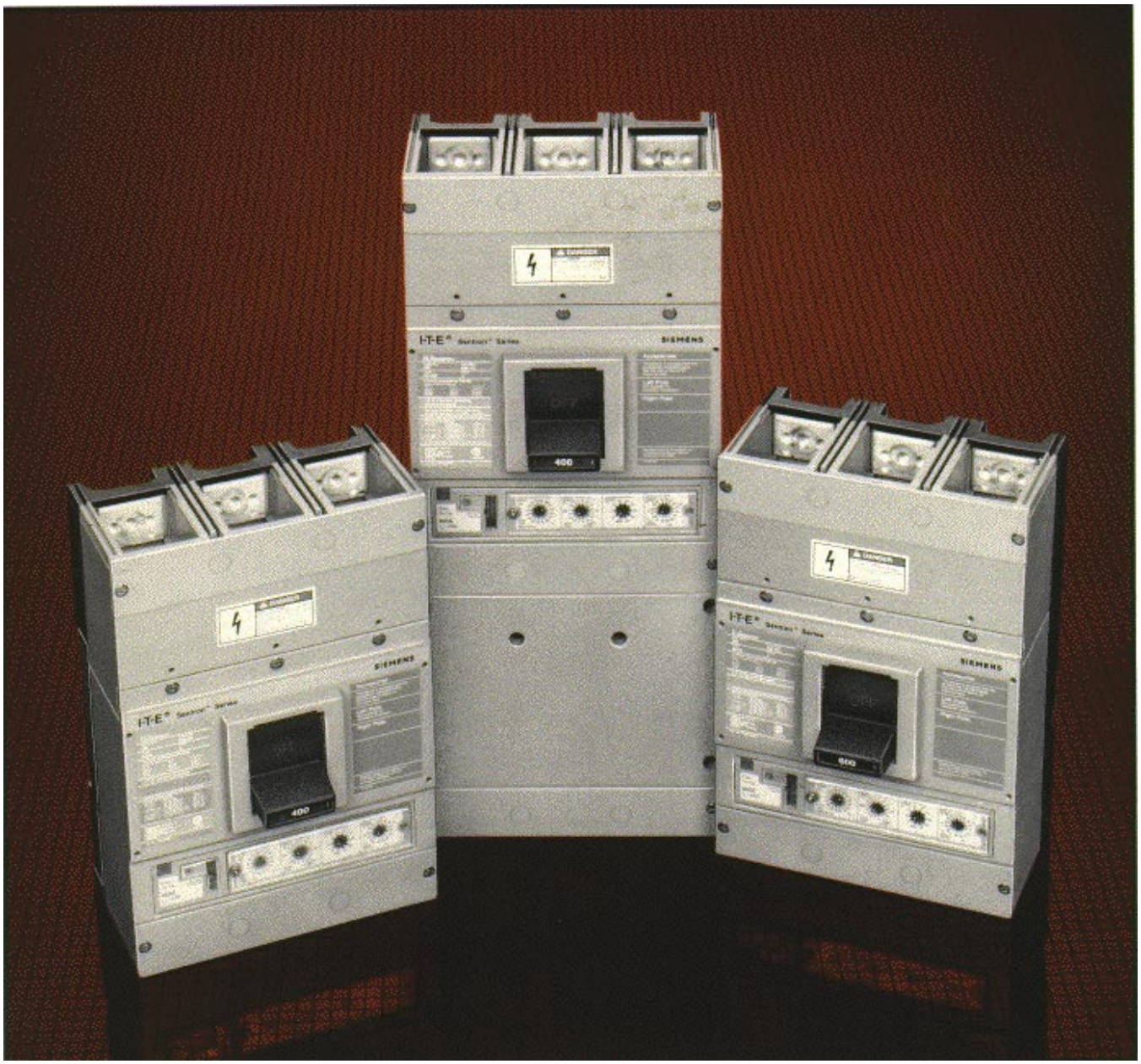
SIEMENS

I-T-E® Molded Case Circuit Breakers

Sensitrip®
JD & LD-Frame
Information and
Instruction Guide



Bulletin SIB 2.7-7A

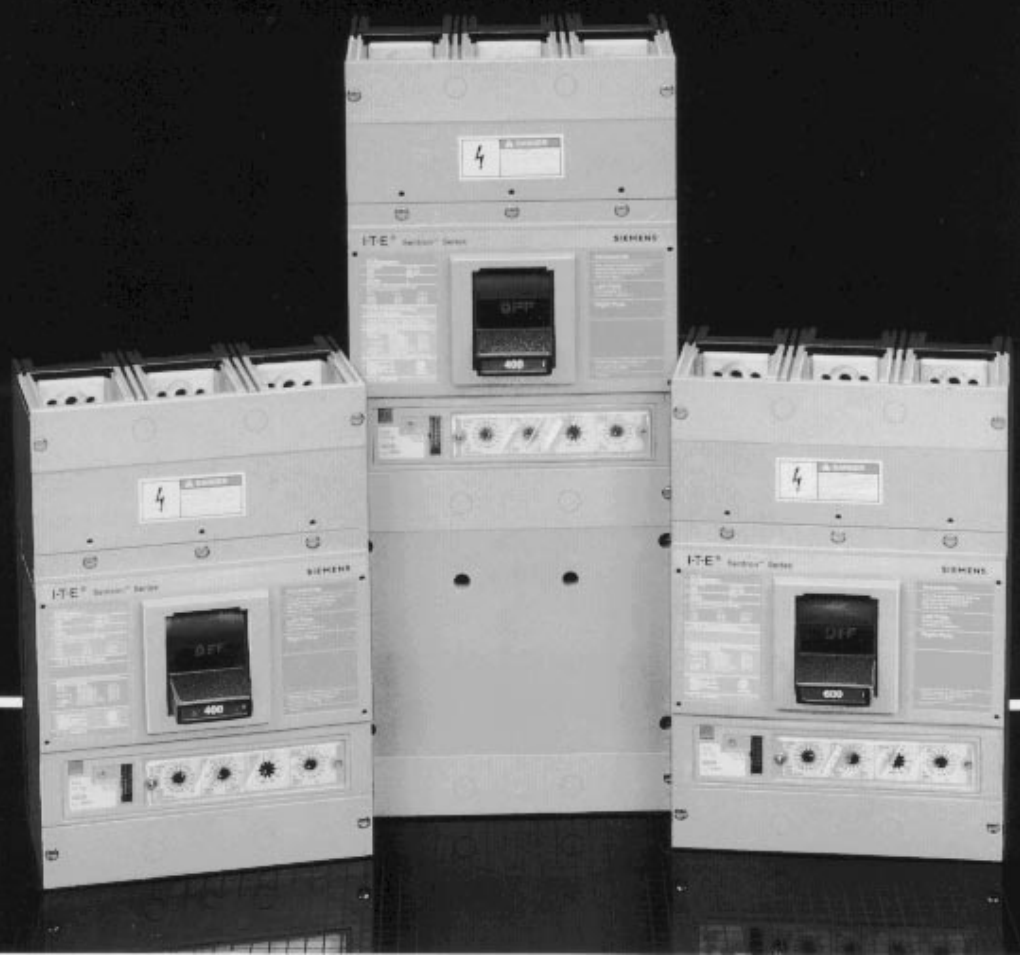
⚠ DANGER

Hazardous voltages are present inside the enclosures or panels in which the circuit breakers are installed. Serious injury, electrocution, 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® JD & LD-Frame Circuit Breakers
3-Pole, 200-600 Amperes

Types SJD6, SHJD6, SLD6, SHLD6, SCJD6, SCLD6
Digital Solid State Circuit Breakers

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IMPORTANT

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

NOTE

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

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

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

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

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. 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 back cover of this instruction guide.

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

⚠ DANGER

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

Information and Instructions

General Information

General

JD and LD-Frame Solid State Sensitrip style breakers of the Sentron family are for use in individual enclosures, switchboards, and power distribution panel boards. They are available both as 80% and 100% rated devices and in three interruption ranges as shown in the table below.

Symetrical RMS Amperes UL Interruption Ratings				
Interruption Rating	**Type**	**240V AC**	**480V AC**	**600V AC**
Standard	SJD6-SLD6	65kA	35kA	25kA
High Rating	SHJD6-SHLD6	100kA	65kA	35kA
Current Limiting	SCJD6-SCLD6	200kA	150kA	100kA

SCJD6 and SCLD6 type circuit breakers are designed to meet the requirement of current limiting as outlined in the National Electric Code, article 240-11 and UL 489 standards. SCJD6 and SCLD6 type circuit breakers are fuseless and therefore eliminate the requirement of locating and replacing blown fuses should a high current fault occur. The common trip feature of the circuit breaker is completely retained so that all poles of the circuit breaker open when caused to trip due to an overcurrent condition.

Pressure wire connectors, suitable for use with aluminum or copper wire are available for all JD and LD-Frame circuit breakers. Rear connection studs or plug-in connector assemblies are also available. The latter mounting arrangement permits the removal of the circuit breaker from its leads without physically coming in contact with either line or load terminals. UL listed special features such as a shunt trip, auxiliary and alarm switches and undervoltage trip devices are available for internal mounting. The installation and/or removal of these devices is to be accomplished by qualified personnel only.

The chart below illustrates the functions available in all Sentron Solid State Sensitrip circuit breakers.

Adjustments	**Breaker Suffix Letters**			
	No Suffix	**G**	**NT**	**NGT**
Long Time Adj. Current Setting	✓	✓	✓	✓
Adj. Long Time Delay	✓	✓	✓	✓
Adj. Instantaneous Setting	✓	✓	✓	✓
Adj. Short Time Pick Up			✓	✓
Adj. Short Time Delay			✓	✓
Adj. Short Time I^2t Pick Up			✓	✓
Adj. Ground Fault Pick Up		✓		✓
Adj. Ground Fault Delay		✓		✓

NOTES: "G" suffix in catalog number denotes circuit breaker for 3 phase, 3 wire circuits. For 3 phase, 4 wire, order correct 4th wire (neutral) transformer as separate and additional item.

For 100% rated breakers, an "H" is added at the end of the normal catalog number

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 circuit 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. 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 will assume an intermediate position between ON and OFF, thus displaying a clear indication of tripping.

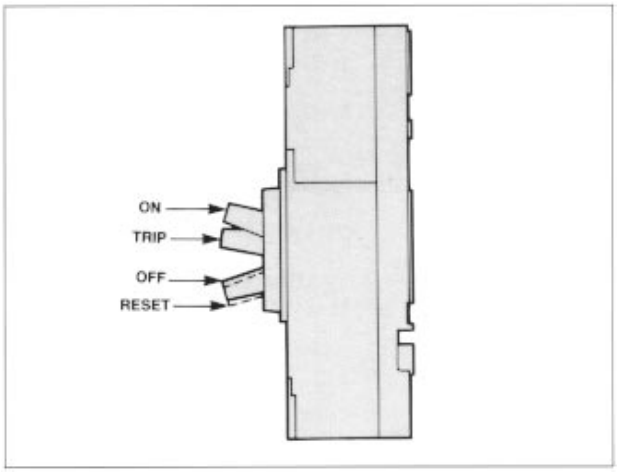
NOTE: The lockable cover shield prevents unauthorized access to trip unit. See photo on page 53.

Manual Operation

Manual operation of the circuit breaker is controlled by the circuit breaker handle and the PUSH-TO-TRIP button. The circuit breaker handle has three indicating positions, two of which are molded into the handle to indicate ON and OFF. The third position indicates a TRIP position and is between the ON and OFF positions.

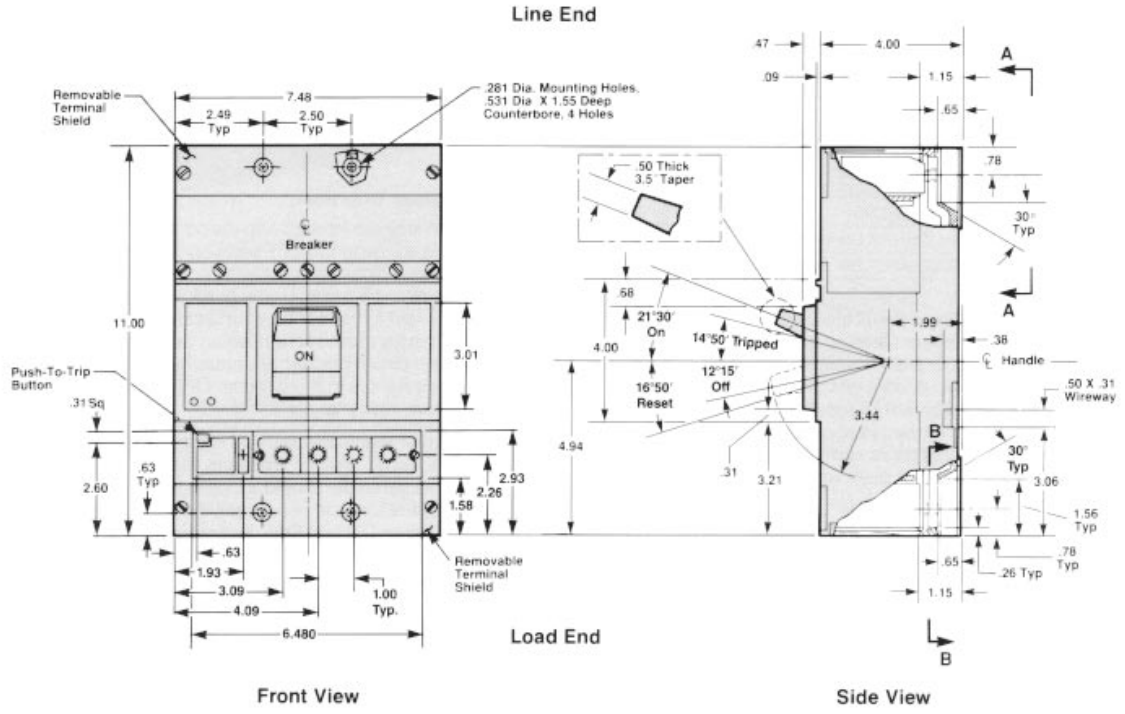
A. Circuit Breaker Reset After tripping, the circuit breaker is reset by moving the circuit breaker handle to the reset position and then moving the handle to the ON position.

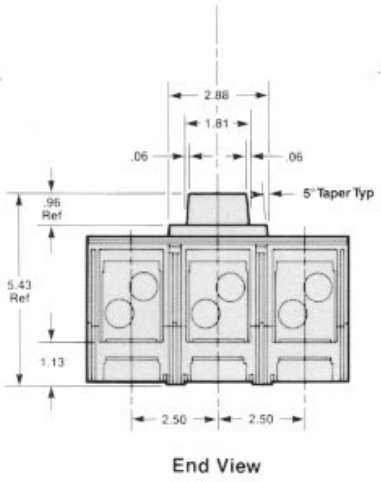
B. The PUSH-TO-TRIP Button PUSH-TO-TRIP button checks the tripping function and is used to manually exercise the operating mechanism.

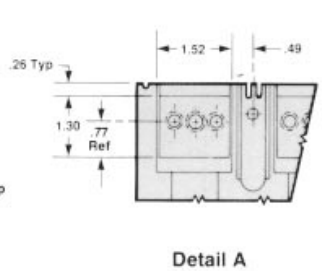


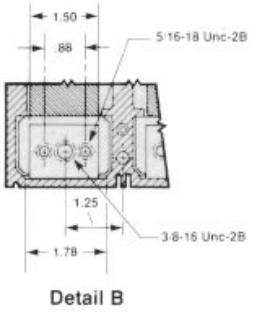
I-T-E JD and LD-Frame Outline Drawings[1] — 3-Pole

Types SJD6, SHJD6, SLD6. SHLD6









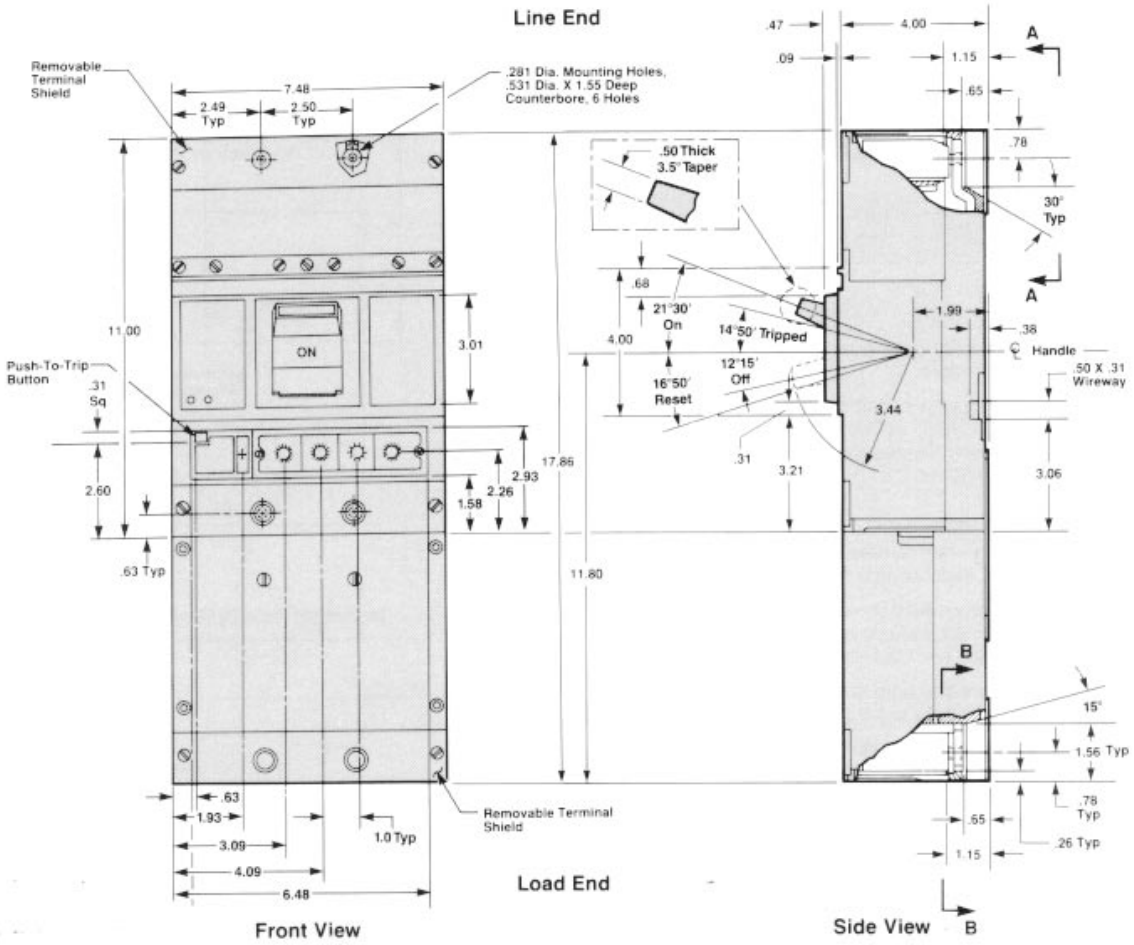
Handle Operating Forces

Operation	JD-Frame (lb.)	LD-Frame (lb.)
OFF to ON	44	44
ON to OFF	50	44
TRIPPED to RESET	60	60

①All drawing dimensions are shown in inches.

I-T-E JD and LD-Frame Outline Drawings[1] — 3-Pole

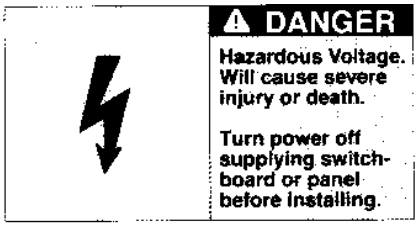
Types SCJD6, SCLD6



Handle Operating Forces

Operation	JD-Frame (lb.)	LD-Frame (lb.)
OFF to ON	44	44
ON to OFF	50	44
TRIPPED to RESET	60	60

①All drawing dimensions are shown in inches.



SAFETY INSTRUCTIONS

General

NOTE: This instruction page outlines the recommended installation procedure.

The JD and LD-Frame circuit breaker line includes types SJD6, SHJD6, SCJD6, SLD6, SHLD6 and SCLD6 circuit breaker types. These devices are rated for operating voltages up to 600VAC, 50/60 Hz.

Installation of Breaker

JD and LD circuit breaker devices are for use in individual enclosure, panelboards, switchboards or other approved equipment.

The installation procedure consists of inspecting, attaching required accessories, mounting the device and connecting and torquing the line and load wire connectors.

Mounting hardware and unmounted wire connectors (where required) are available as separate catalog items.

A. Turn off and lock out all power before installing or servicing.

B. Make sure that the device is suitable for the installation by comparing nameplate ratings with system requirements. Inspect the device for completeness and check for any damage before mounting.

C. Device must be in TRIPPED or OFF position prior to mounting.

D. To mount the device perform the following steps:

1. For individual enclosures, panelboards and switchboards manufactured by Siemens Energy & Automation, Inc., follow the instructions provided with this equipment.
2. For those applications where mounting is on a flat surface of the customers equipment, drill and tap mounting bolt holes according to the drilling plan in Figure 1. For handle escutcheon cut out plans refer to Figure 2.
3. If device contains internal accessories, make sure terminals can be connected when the circuit breaker is mounted.
4. Position device on mounting surface.
5. Install mounting screws and washers. Tighten hardware securely.
6. After mounting the device, line and load terminals and accessory terminals should be connected.
7. After the device is installed, check all mounting hardware for secureness. Check wire connectors for correct torque requirements. Torque values for line and load connectors are Provided on the device nameplate.

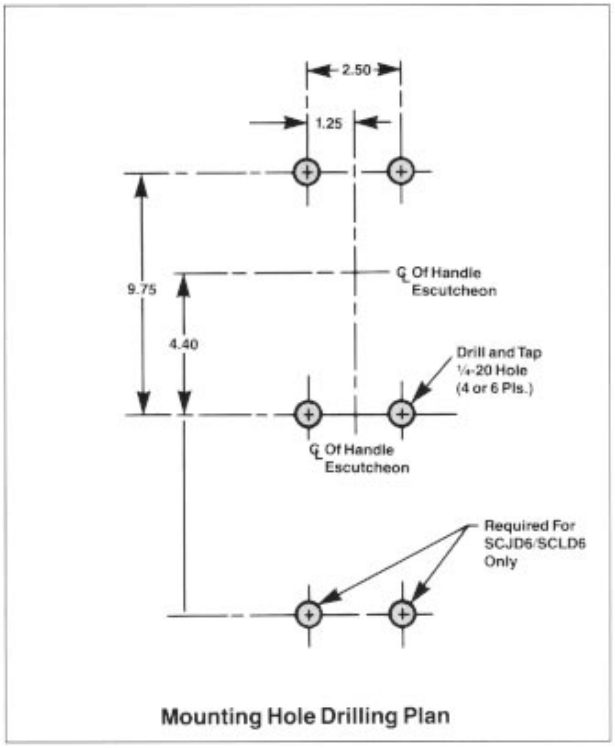


Figure 1

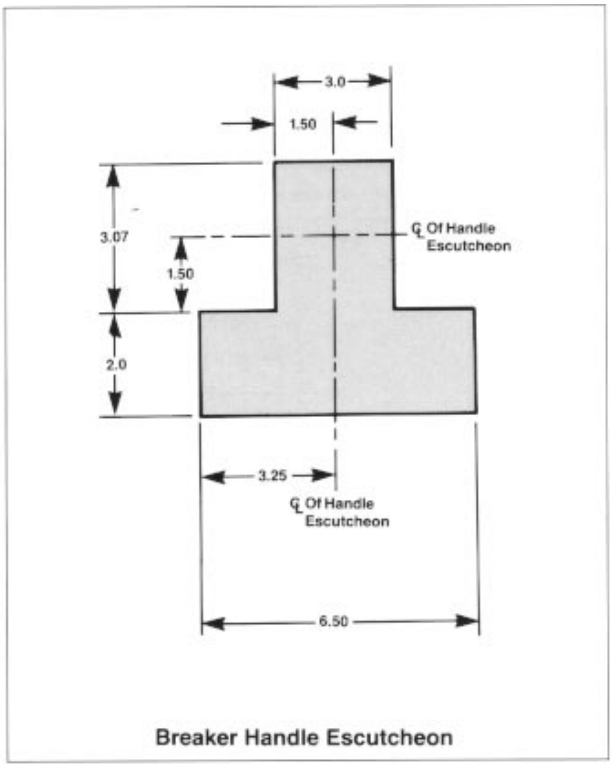
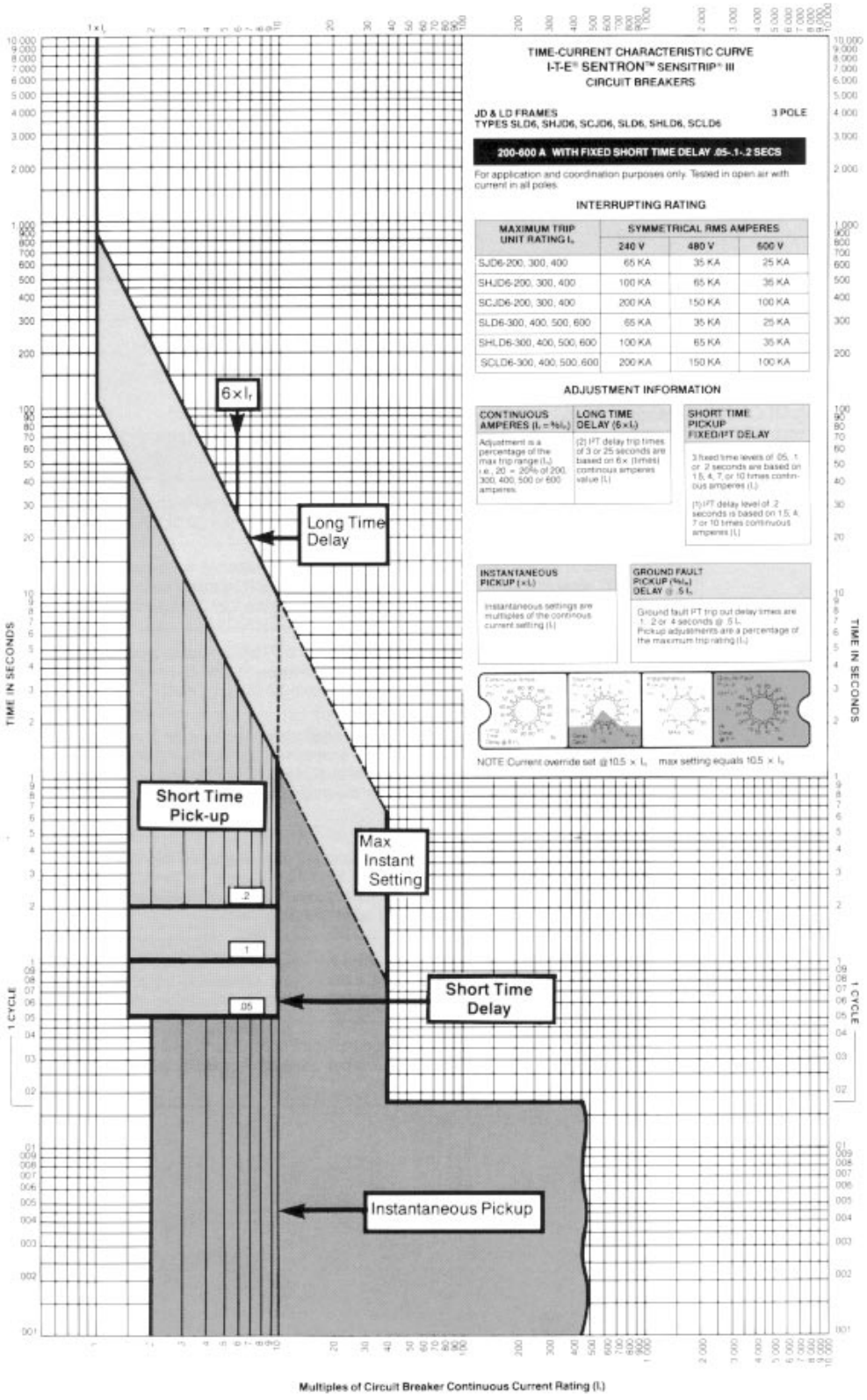


Figure 2

JD and LD-Frame Trip Adjustments



JD and LD-Frame Trip Adjustments

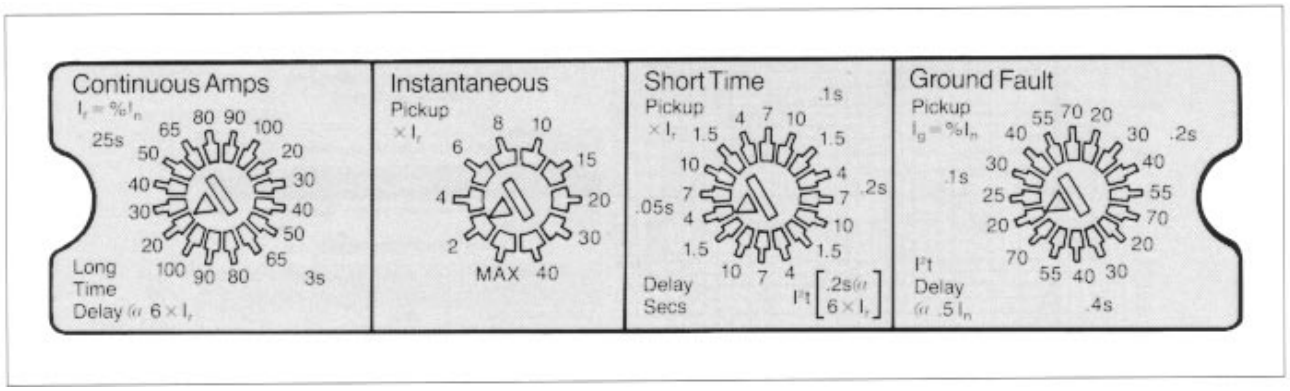
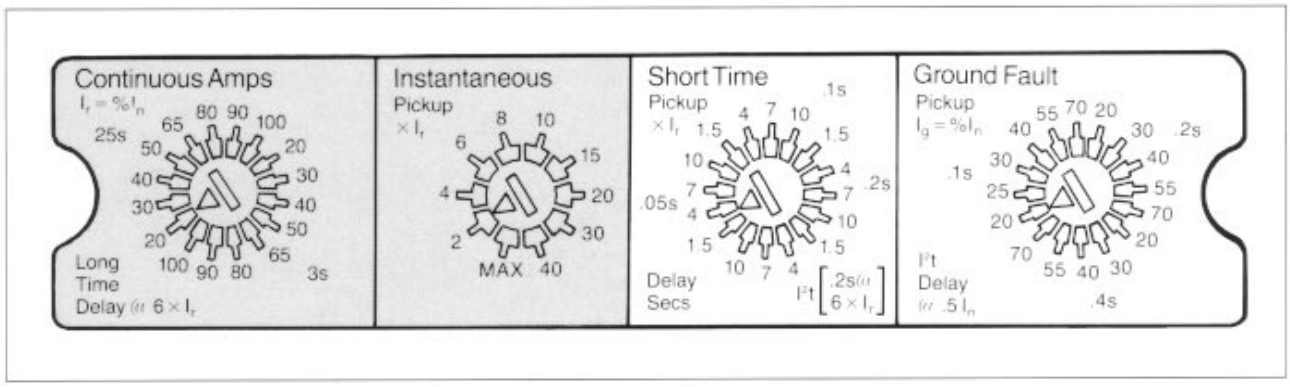


Figure 1

Breaker Functions
I_n=Nominal Rating of Circuit Breaker

Function	Performance
Continuous Ampere (Ir)	Varies the level of current the circuit breaker will carry without tripping. Completely adjustable from 20 to 100% of breaker's continuous ampere rating. (I, = % of In)
Long-Time Delay	Referred to as the overload" position, this function controls the breaker's "pause-in-tripping" time to allow low level, temporary inrush currents such as those encountered when starting a motor to pass without tripping. Adjustable settings from 3 or 25 seconds at 6 x Ir are possible.
Short-Time Pickup	Controls the amount of high current the breaker will remain closed against for short periods of time, allowing better coordination. Adjustable between 1.5 to 10 times the continuous ampere setting of the circuit breaker (i.e., adjustable from 1.5 to 10 times 1r).
Short-Time Delay	Controls the amount of time (from .05 to .2 seconds in fixed time, or .2 seconds at 6 x Ir in the 12t ramp mode) a breaker will remain closed against high fault current. This function is used in concert with the Short-Time Pickup function to achieve selectivity and coordination. (A pre-determined override automatically preempts the setting at 10.5 times the maximum continuous ampere setting In.)
Instantaneous Pickup	Determines the level at which the circuit breaker trips without an intentional time delay The instantaneous pickup function is adjustable from 2 to 40 times the continuous ampere setting (Ir) of the breaker (Anytime an overlap exists between the instantaneous and short-time pickup settings the instantaneous automatically takes precedence.)
Ground Fault Pickup	Controls level of ground fault current which will cause circuit interruption to occur. Complies with National Electrical Code, Article 230, Section 95(a) for maximum trip point settings. Adjustable from 20 to 70 percent of the breaker's maximum continuous ampere setting (In)
Ground Fault Delay	Adds a predetermined time delay to the trip point once ground fault pickup level is reached. Inverse 12t ramp is standard which provides better tripping selectivity between the main and feeder or other downstream breakers.

JD and LD-Frame Trip Adjustments



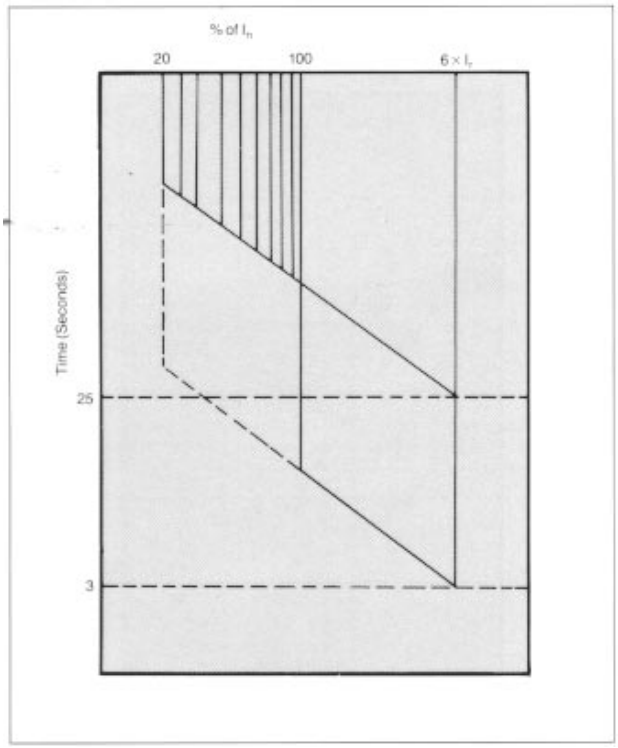
Continuous Current (I,) and Long Time Delay

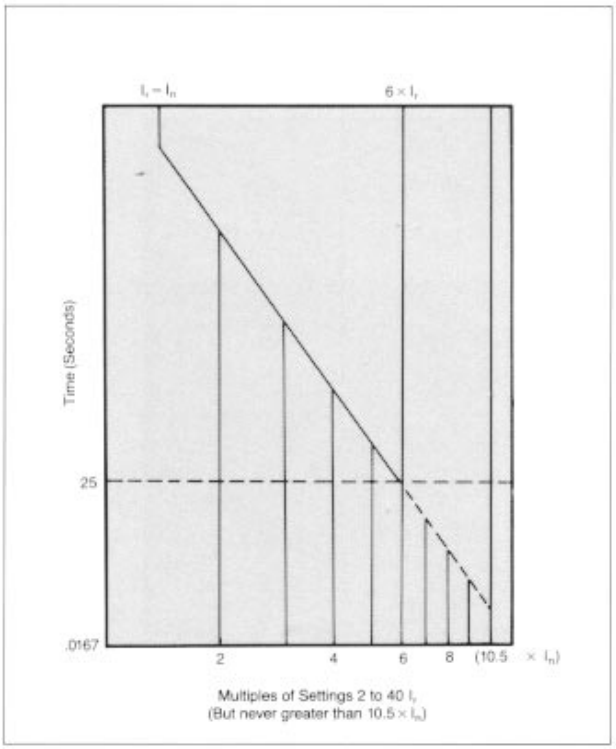
All models have a Continuous Current and Long Time Delay adjustment. This single knob adjusts the Continuous Current setting of the circuit breaker and sets the Long Time Delay. This setting (I,) is a percentage of the Maximum Continuous Current rating (In) Two long time delay bands are available. These are delay times of 3 seconds or 25 seconds at 6 times the Continuous Current Setting (Ir) These are selected by using the appropriate area of the setting.

Instantaneous Pickup

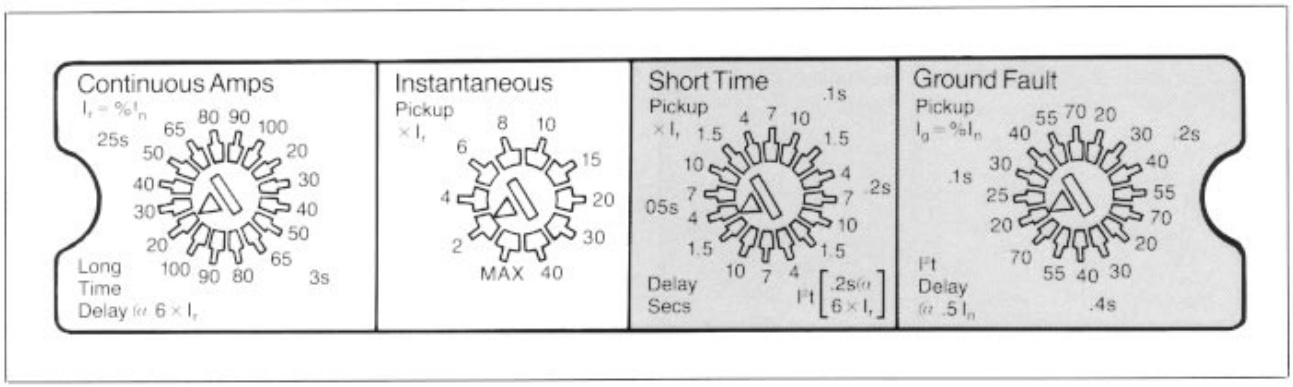
All models have an instantaneous Pickup adjustment. This adjustment sets the instantaneous Pickup of the circuit breaker. The settings are multiples of the Continuous Current Setting (I,).

These devices have a fixed instantaneous override of approximately 10.5 times the Maximum Continuous Current rating (In) of the circuit breaker. When set to “MAX” the Instantaneous Pickup defaults to the instantaneous override value.





JD and LD-Frame Trip Adjustments



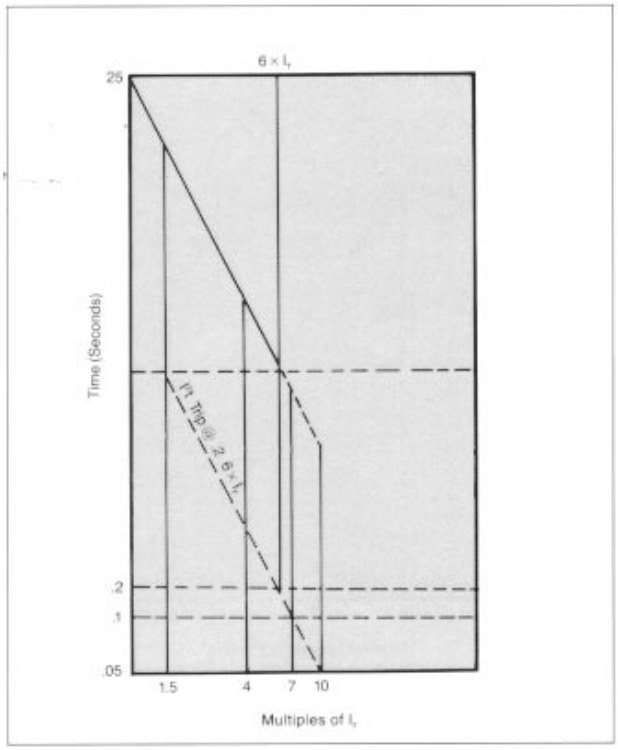
Short Time Pickup/Short Time Delay (Optional)

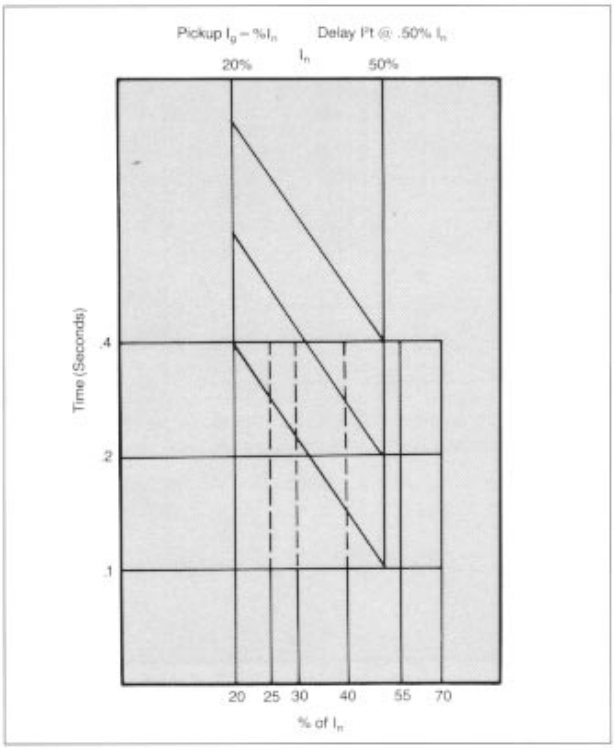
Circuit breakers with the letters “NT” in the catalog number have an adjustment to set both the Short Time Pickup and the Short Time Delay. This single knob sets both pickup and delay at the same time.

Four delays are available. These are fixed delays of 0.05, 0.1, or 0.2 seconds or an 1^2t delay slope at 0.2 seconds at 6 times the Continuous Current Setting (I_r) The delay is selected by using the appropriate area of the setting knob. The pickup settings are multiples of the Continuous Current Setting (I_r) of the circuit breaker.

Ground Fault Pickup (I_g) (Optional)

Circuit breakers with the letter “G” included in the catalog number have integral equipment ground fault protection. These circuit breakers have an adjustment to set the Ground Fault Pickup current (I_g) as a percentage of the Maximum Continuous Current rating (I_n) The pickup has a built in time delay. Three time delays are available of 0.1, 0.2, or 0.4 seconds. These are selected by using the appropriate area of the setting. Below 50% Maximum Continuous Current rating (I_n) the pickup delay has an 1^2t slope.





JD and LD-Frame Trip Adjustments

The ground fault option has two modes of operation. The modes are set by a switch on the side of the trip unit with the settings identified as GROUND RETURN and RESIDUAL. See Figure 1 for switch location.

Residual Setting (Outgoing Circuit Method)

This is the standard position to which the breaker is set when shipped from the factory. With the switch in this position the circuit breaker may be used on 3 phase 3 wire or, with the addition of an external neutral sensing transformer, on 3 phase 4 wire systems. See Neutral Sensing Transformer section pages 45 and 46 for more information.

Ground Return Setting (Ground Return Method)

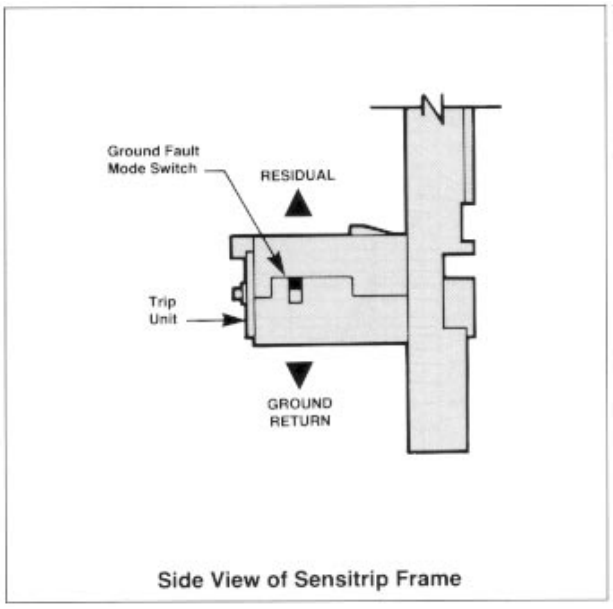
This setting may only be used for service disconnects or separately derived systems. With the switch in this position the circuit breaker may be used on 3 phase 3 wire and 3 phase 4 wire systems. An external sensing transformer which is installed on the main bonding jumper is required for this method. See Neutral Sensing Transformer section pages 45 and 46 for more information.

Neutral Sensing Transformer

An external transformer is required for circuit breakers equipped with ground fault protection when operating in the RESIDUAL mode on 3 phase 4 wire systems and when operating in the GROUND RETURN mode on any system. The sensors listed below must be used for these applications. The sensor catalog number must be matched to the circuit breaker Maximum Continuous Current rating (In) as shown in Table 1. Please note that sensors used with other breaker types cannot be used with the SJD/SLD circuit breakers. Installation instructions are included with the sensors.

Table 1

Transformer Catalog No.	Circuit Breaker Rating	Transformer Color
NO2SJD200	Amps	GREEN
NO3SJD300	Amps	GREEN
NO4SJD400	Amps	GREEN
NO5SLD500	Amps	GREEN
NO6SLD600	Amps	GREEN



Side View of Sensitrip Frame

Electronic Testing

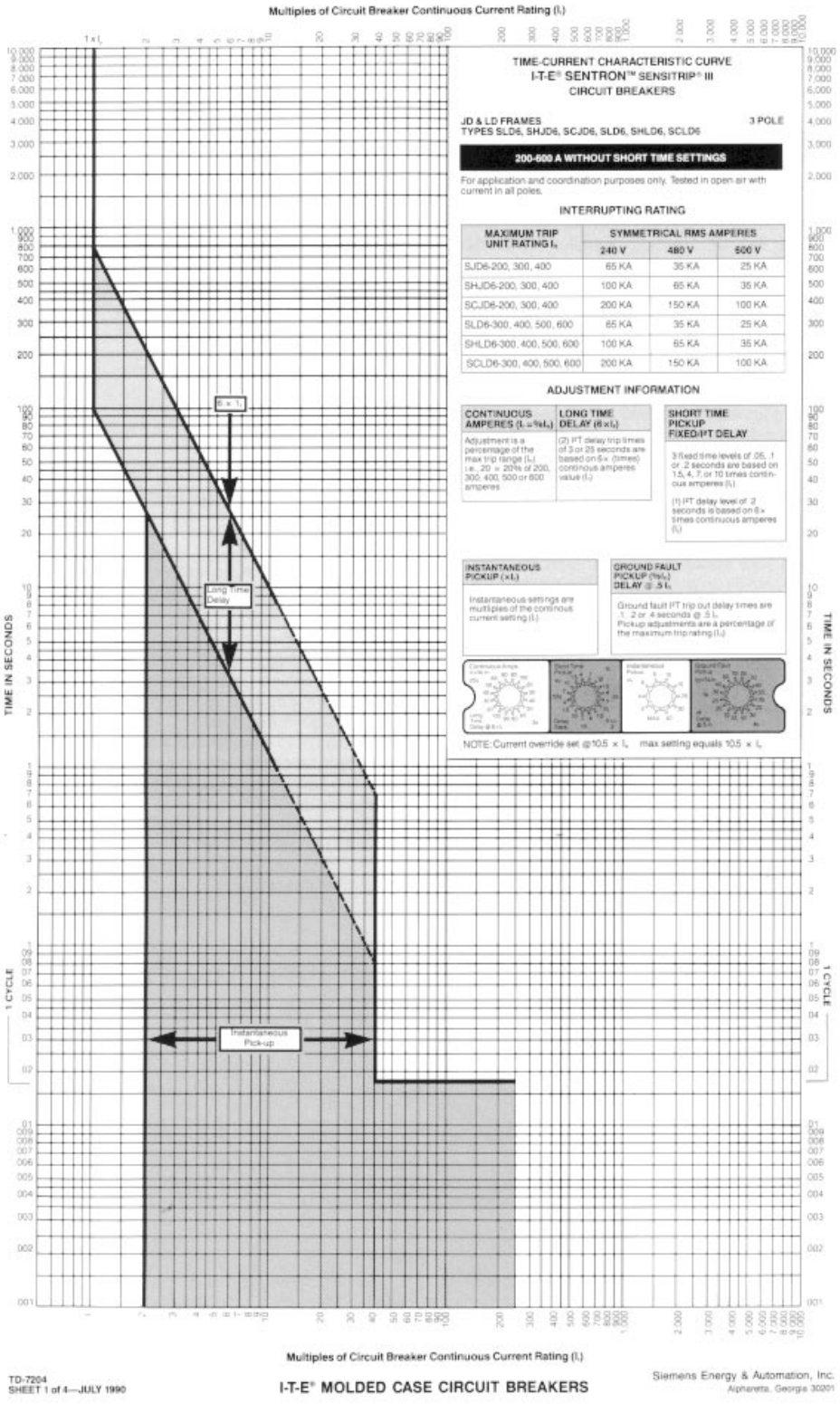
Sensitrip III solid state molded case circuit breakers may be tested for electronic functionality by the use of TS-31 test set.

Maintenance

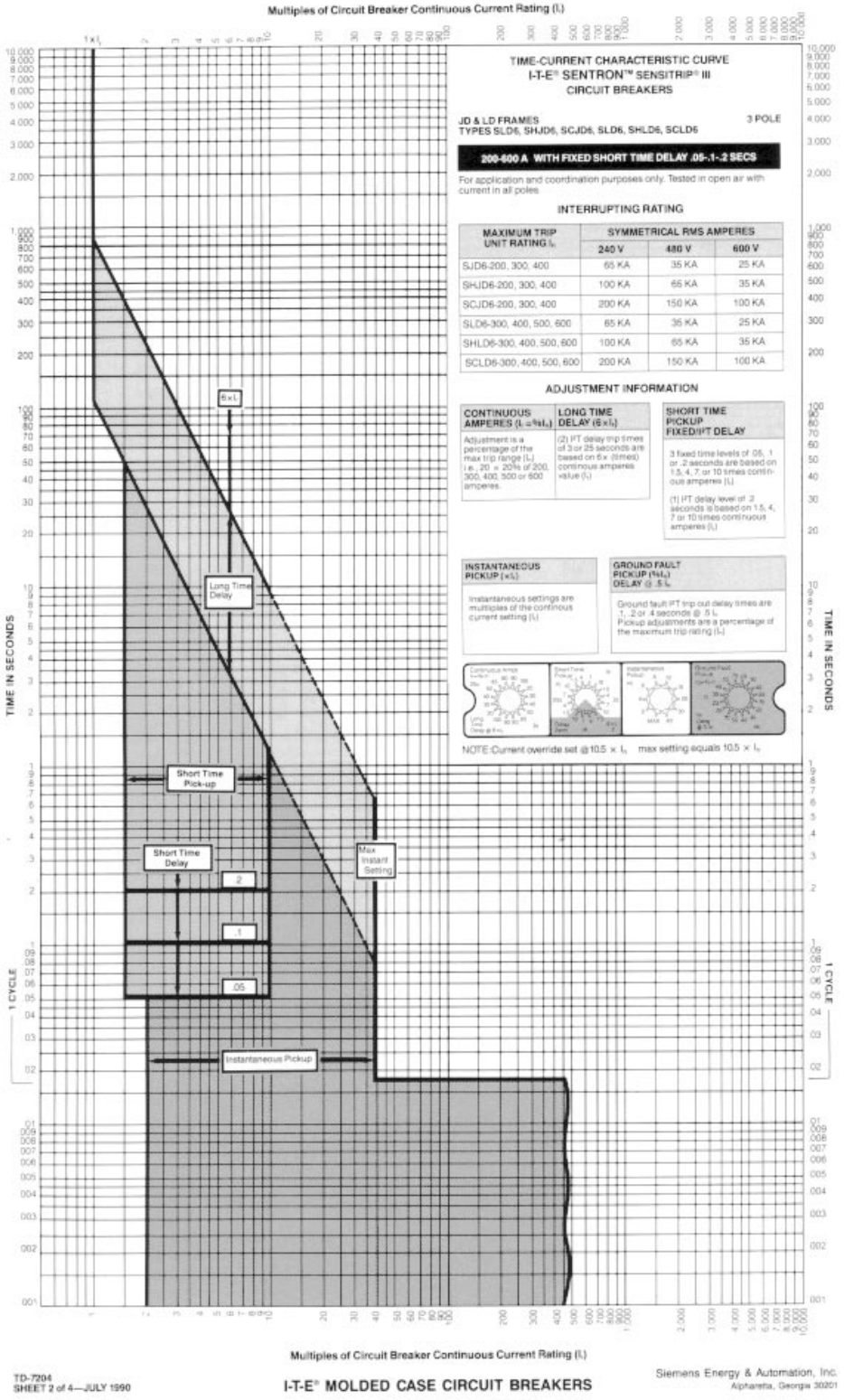
JD and LD frame circuit breakers are designed to provide years of maintenance free service. Experience has shown that properly applied molded case circuit breakers normally do not require maintenance. However, some industrial users may choose to establish an inspection and maintenance procedure to be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

NOTE: Do not spray or allow any petroleum based chemicals, solvents or paints to contact the molded parts or nameplates.

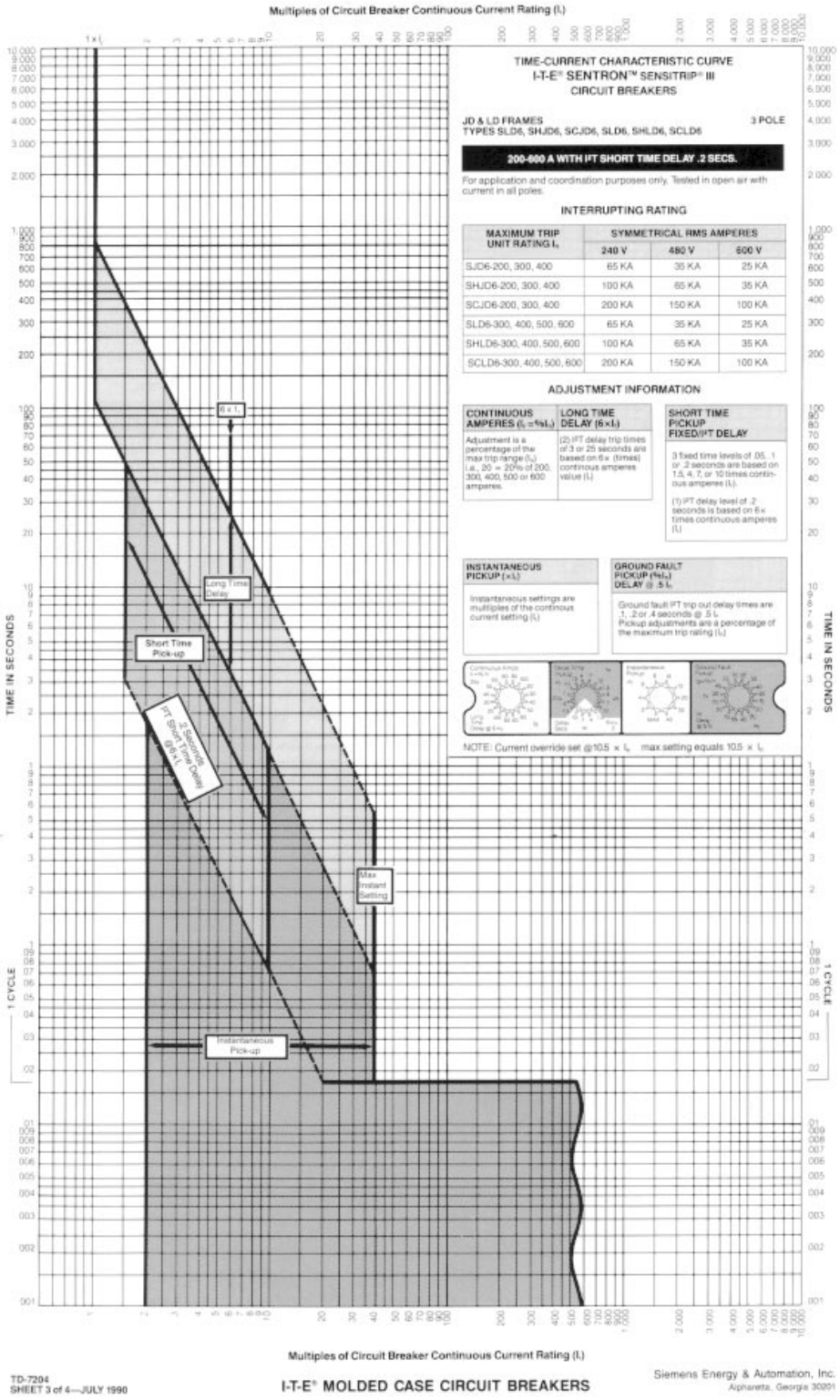
JD and LD-Frame Time Current Curves



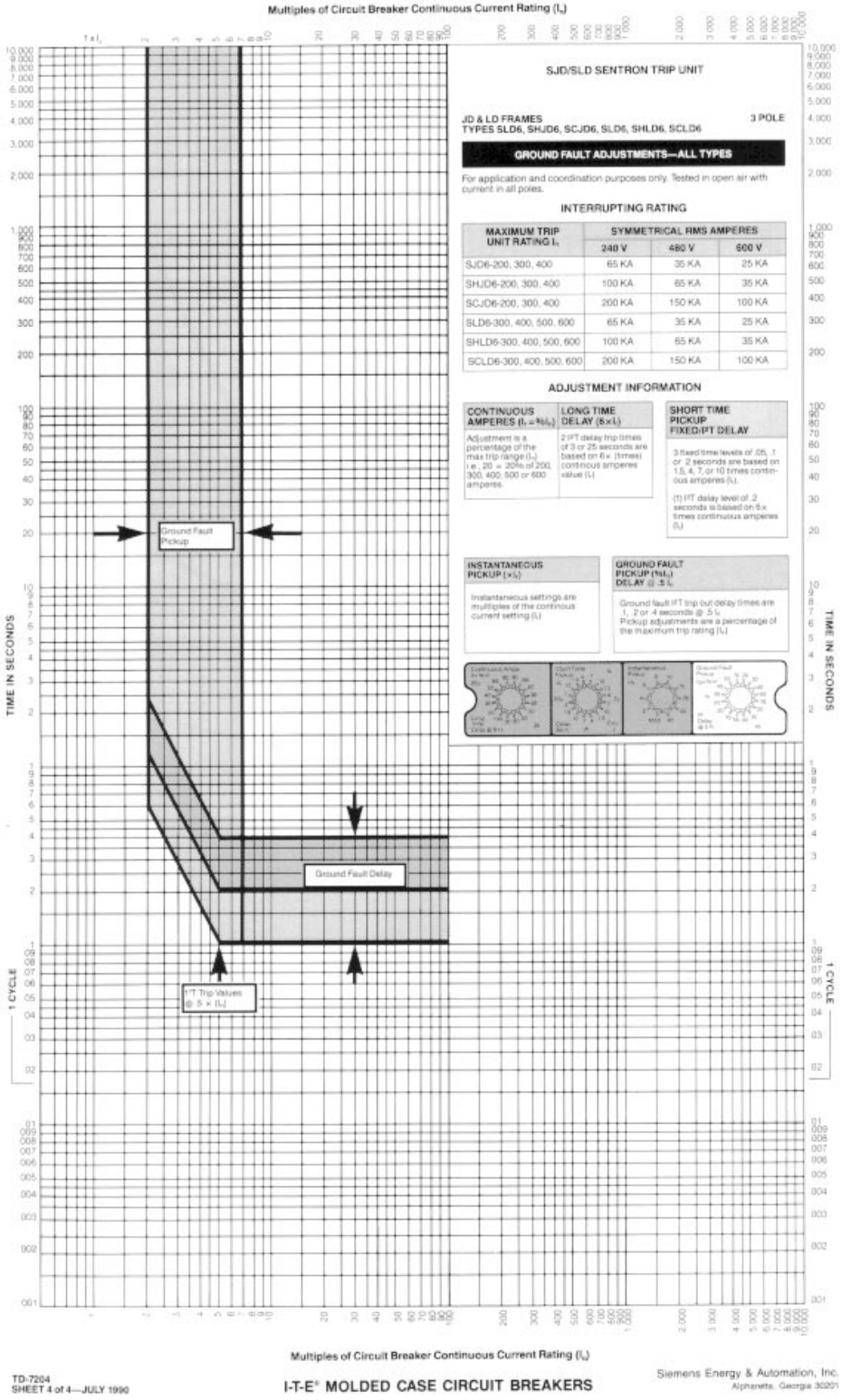
JD and LD-Frame Time Current Curves



JD and LD-Frame Time Current Curves

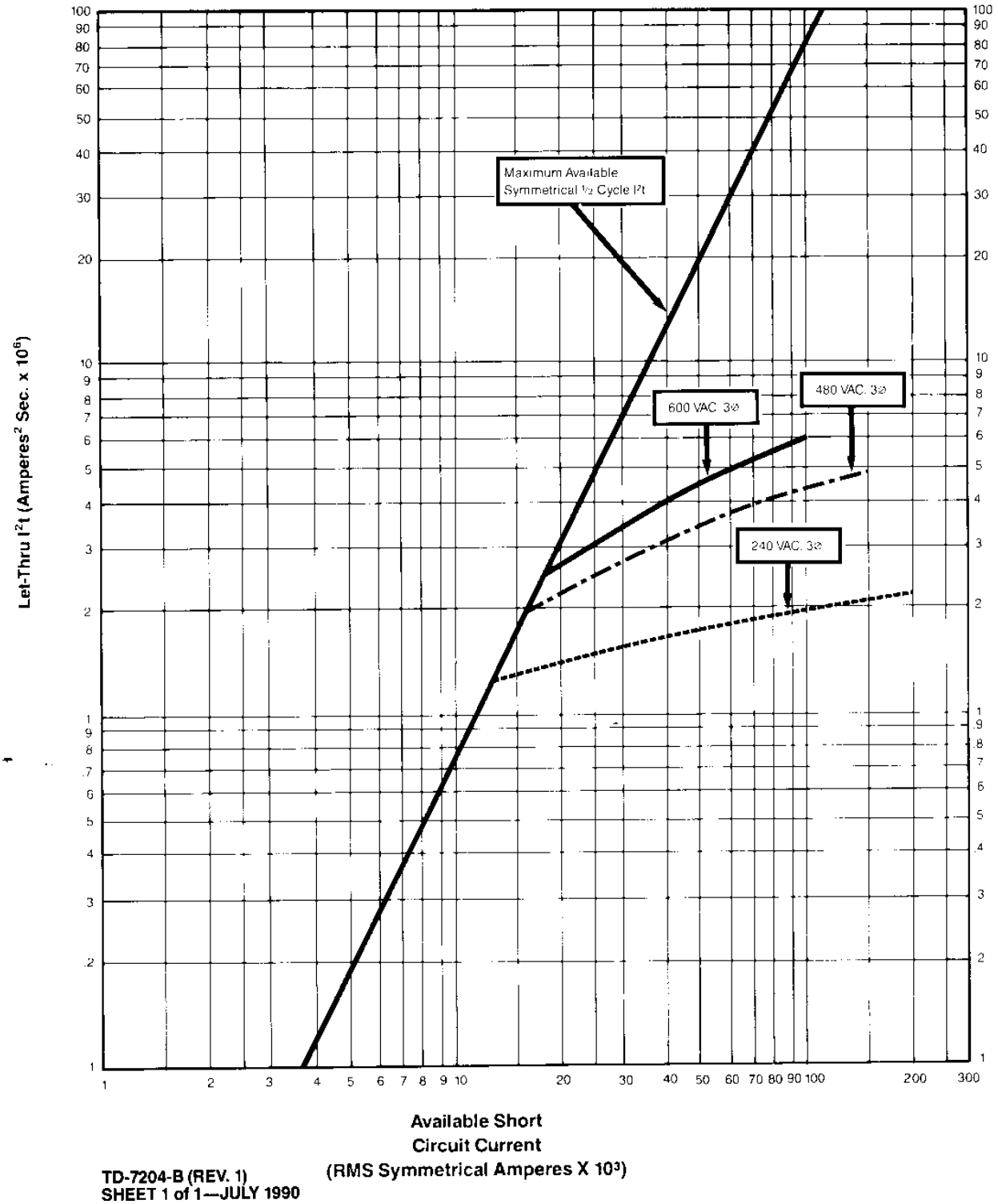


JD and LD-Frame Time Current Curves



JD and LD-Frame Let-Trhu I^2t Curve

Types SCJD6, SCLD6



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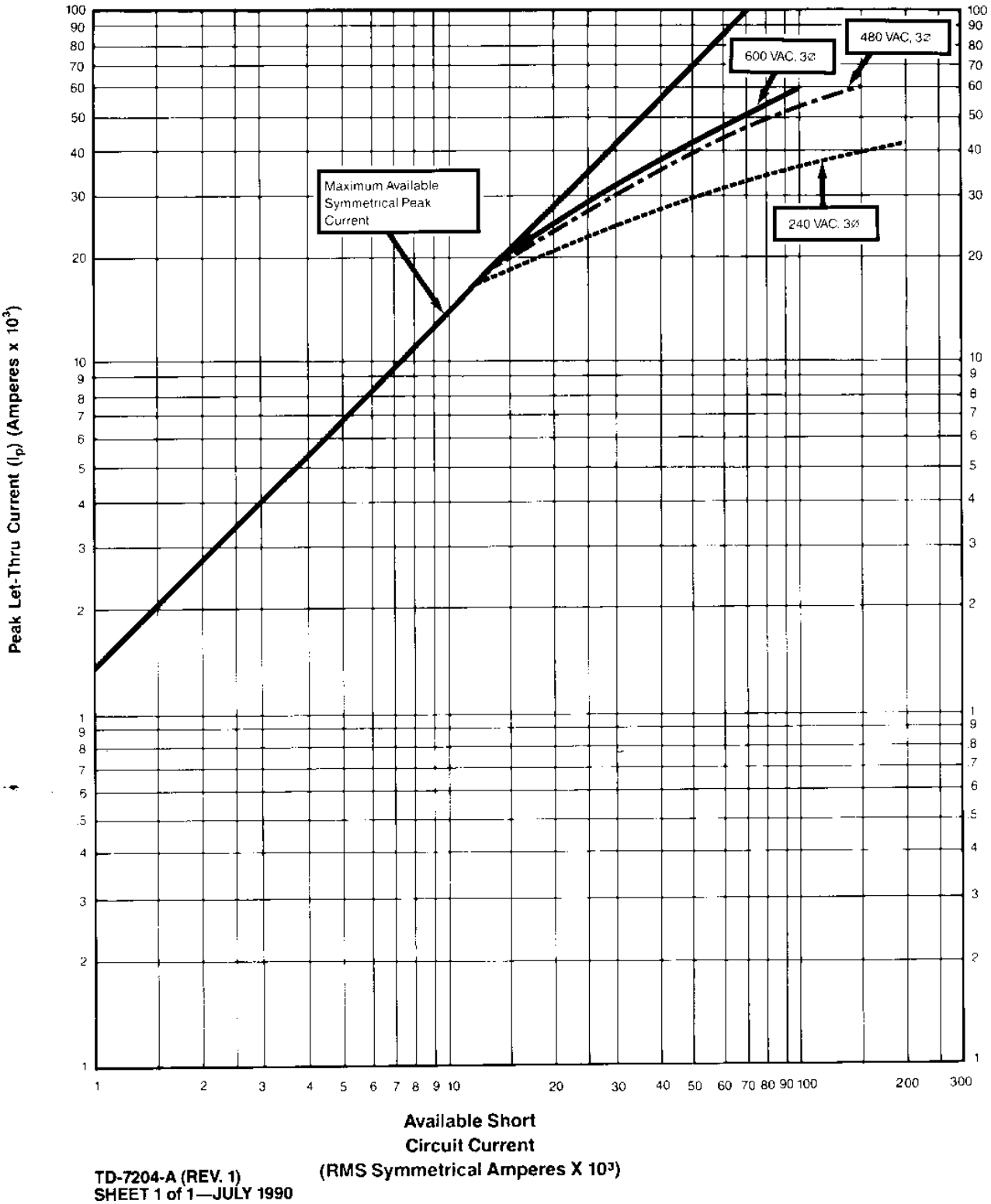
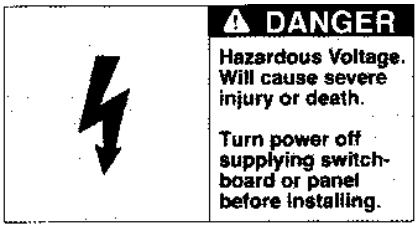
JD and LD-Frame Let-Trhu Current (I_p) Curve

Types SCJD6, SCLD6



I-T-E Rear Connecting Studs



SAFETY INSTRUCTIONS

General Description

One complete rear stud assembly requires the following:

1 1-12 threaded stud
1 Molded stand-off insulator
1 Insulator bushing
1 Insulator (req'd for metallic mtg. panels only
1 "T" connector
2 Brass locknuts
1 5/16-18 X 1 in. mtg. bolt
1 5/16 in. Belleville washer

Application Information

Ampere Rating (In)	Poles	Quantity per Breaker
200, 300 400	2	4 of RS-5774
	3	4 of RS-5774 plus 2 of RS-5773
500, 600	2	4 of RS-5784
	3	4 of RS-5784 plus 2 RS-5783

Mounting Preparation (Figure 1)

A. Drilling locations are shown in Figure 1. The 5/6 in. wide cutout between holes is required when mounting the breaker with stud assemblies to a metallic panel.

Breaker Preparation (Figure 2)

A. Remove wire connectors from breaker if present.

B. Attach long and short studs (1), (2) to circuit breaker for three pole devices, short studs (1) only for two pole devices. Attach with the 5/,6-18 X 1 in. hex head bolt and the 5/16 in. serrated cone lockwasher (4). Tighten finger tight only.

C. Slide one stand-off insulator (5) onto each stud until the stand-off insulator fully covers the square end of the studs. Tighten hex head bolt (3) to 132 in. lb. and install insulator (10) over studs only if using a metallic mounting panel.

Final Assembly (Figure 3)

A. Install circuit breaker so that all studs extend through mounting panel and the stand-off insulators (5) are seated against the mounting panel.

B. Install insulator bushings (6 and 7) over studs where required and tighten them securely in place against the mounting panel with the locknut (8).

C. Thread the second locknut (8) and the "T" connector (9) over the studs as far as possible where required. Position "T" connector as desired by loosening (one full turn max.) and lock in place with the second locknut at 132 in. lb.

Important User Note

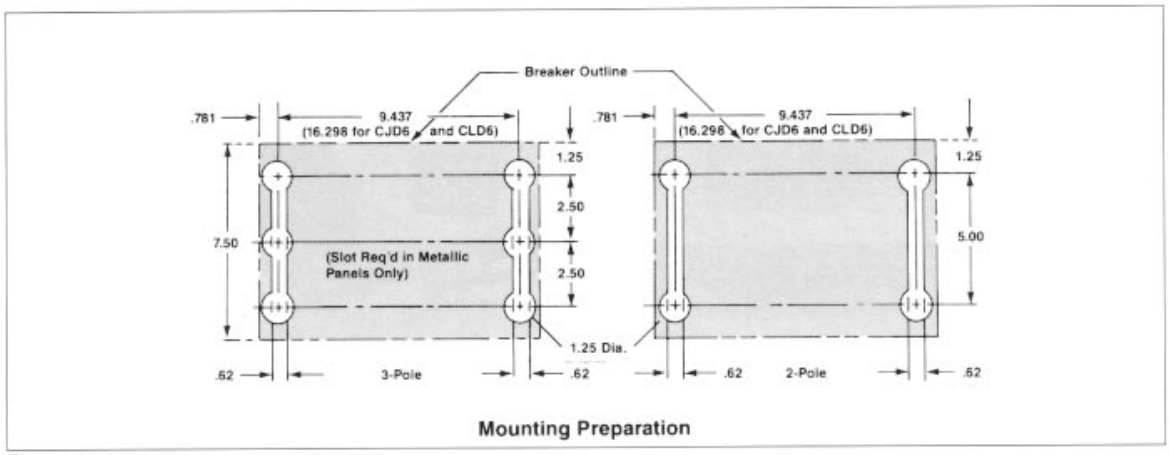
Assemblies are designed with adequate 600 volt electrical clearance between components. User installation must maintain these clearances through spacing or proper insulation.

A. Insert the upper end shields (11) into the slots provided at the line and load ends of the breaker (Figure 2), one for each stud position.

B. Affix the label Pc. No. 60229 to breaker cover (Figure 2).

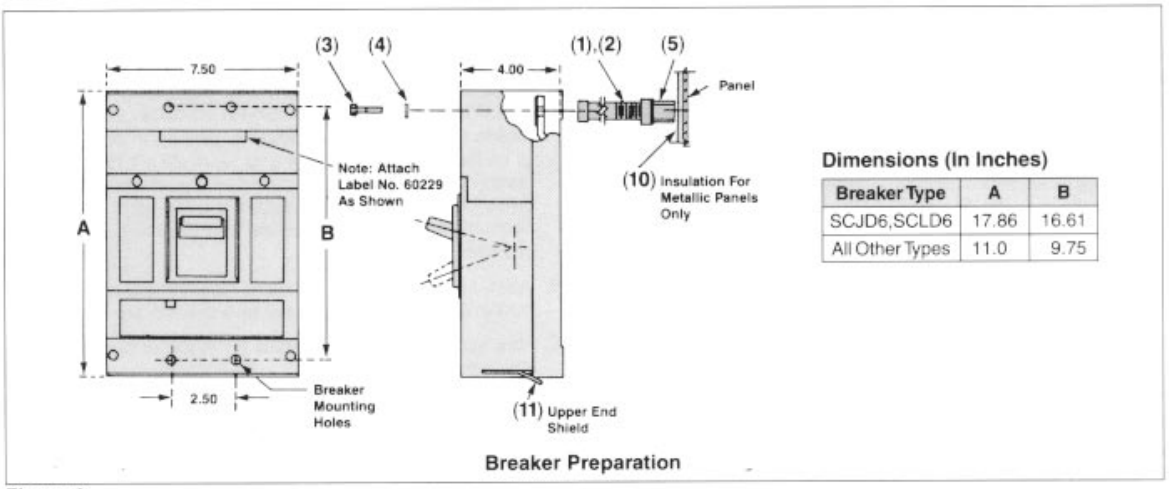
C. Make desired bus bar connections with 5/16 in. bolts and washers to "T" connectors. (See Figure 3 for hole pattern of "T" connector).

Installation, Diagrams



Mounting Preparation

Figure 1

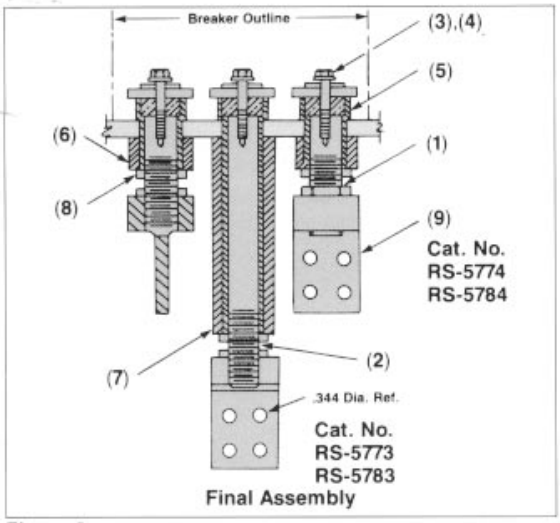


Dimensions (In Inches)

Breaker Type	A	B
SCJD6,SCLD6	17.86	16.61
All Other Types	11.0	9.75

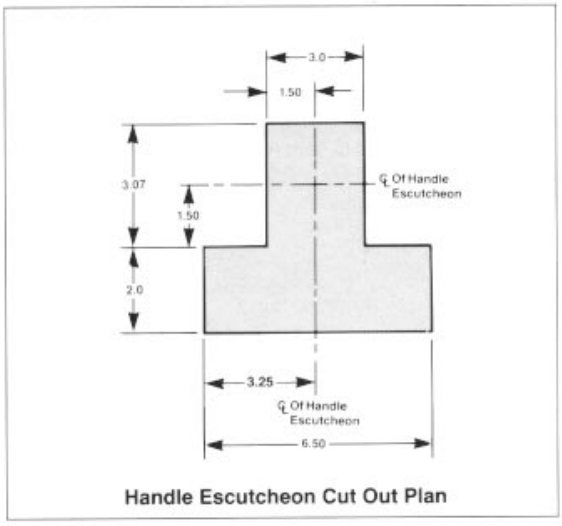
Breaker Preparation

Figure 2



Final Assembly

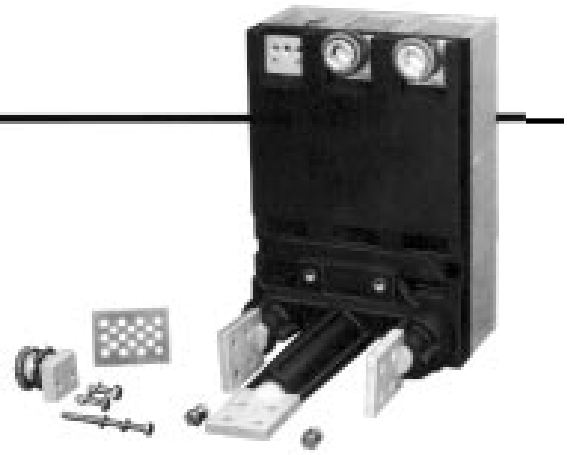
Figure 3

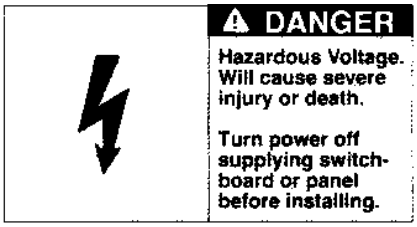


Handle Escutcheon Cut Out Plan

Figure 4

I-T-E Plug-In Adapters





SAFETY INSTRUCTIONS

General

A complete plug-in installation requires one line end adapter assembly (consisting of a mounting block, tulip connectors and associated hardware), one load end adapter assembly and one switchboard mounting plate. The switchboard mounting plate is optional and can be replaced by other mounting means to suit customer's requirements.

Application Information

Breaker Type	No. Of Poles	Line End Adapter Cat No.	Load End Adapter Cat No.	Switchboard Mtg Plate Cat. No.
SJD6,SHJD6	2	PC5777	PC5777	PL5796
	3	PC5778	PC5778	PL5796
SLD6,SHLD6	2	PC5660	PC5660	PL5796
	3	PC5661	PC5661	PL5796
SCJD6	2	PC5660	PC5660	PL5797
	3	PC5661	PC5661	PL5797
SCLD6	2	PC5660	PC5660	PL5797
	3	PC5661	PC5661	PL5797

Mounting Preparation (Figures 1 and 2)

A. If the switchboard mounting plate (PL5796, PL5297) (1) is to be used, provide drilling as shown in Figure 1.

B. If other mounting means are to be used, provide the cutouts and drilling required to mount the adapter blocks as shown in Figure 2.

Switchboard Mounting Plate, if used (Figure 3)

A. Place switchboard mounting plate (1) in position at location previously prepared in Step A above. Secure in place with 5/16 in Lockwashers (3) and 5/16 in. bolts (4) furnished.

Mounting Block (Figure 3)

A. Align mounting block (2) with cutouts in switchboard mounting plate (or customer's mounting means as previously prepared in Step B above) and secure in place with 5/16 in. lockwashers (3) and 5/16 in. bolts (4) furnished .

Breaker Preparation (Figure 4)

A . Remove pressure wire connectors from breaker if present. Place tulip clip assembly (5) on back of breaker in recess provided in base molding. Secure in place with 1/4 in. Belleville washers (6) and 1/4 in.-20 x 1 hex head bolts (7) furnished. Recommended tightening torque for these bolts is 5-6 ft. lb. to assure a good electrical connection. Repeat this procedure for the remaining tulip clip assemblies.

B. Insert line end shields (8) into slots provided at line and load end of breaker No lower end shields are required.

C. Affix accessory warning labels (9) to top of breaker as indicated in Figure 5.

Final Assembly (Figure 6)

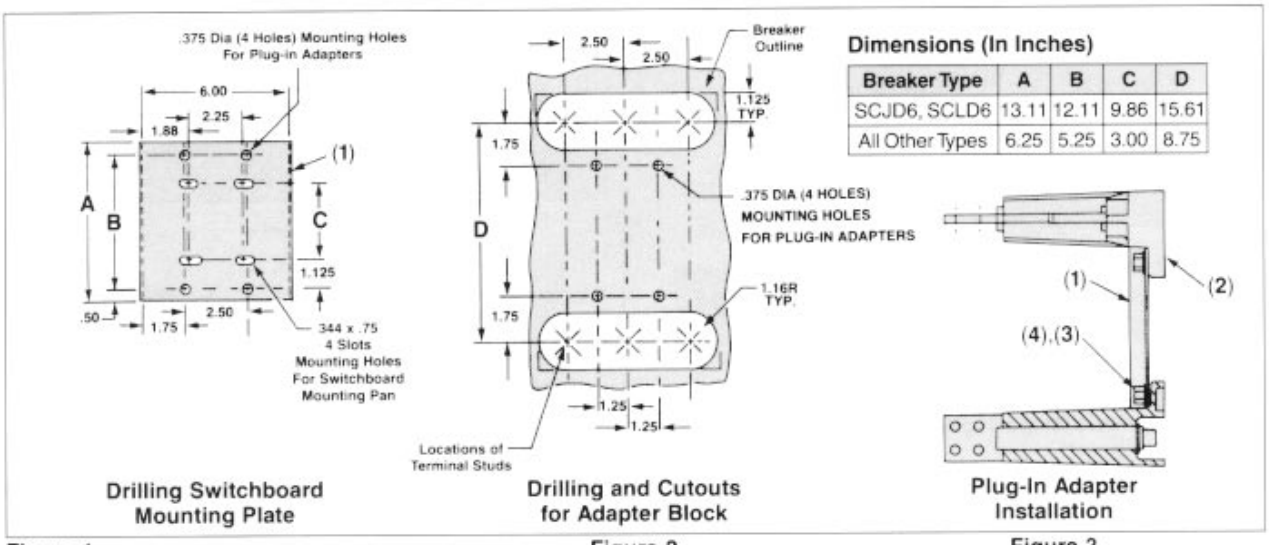
A. Make bus connections to flat bar connectors at rear of mounting blocks with customer supplied 5/16 in. hardware (see Figure 6 for hole pattern).

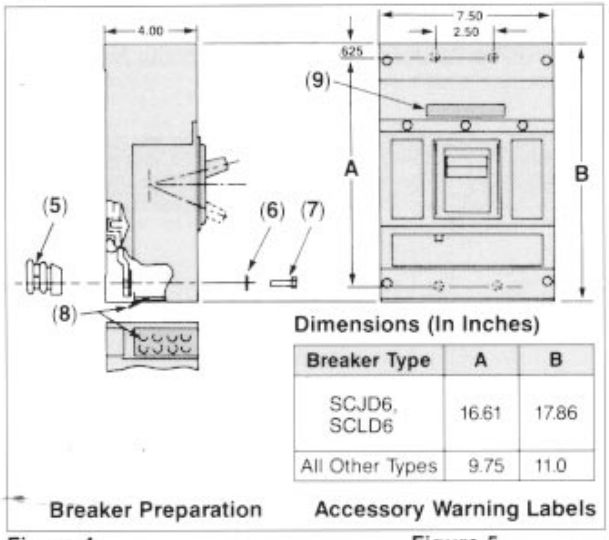
Caution: Make certain that breaker operating handle is in the OFF position before proceeding with the next step.

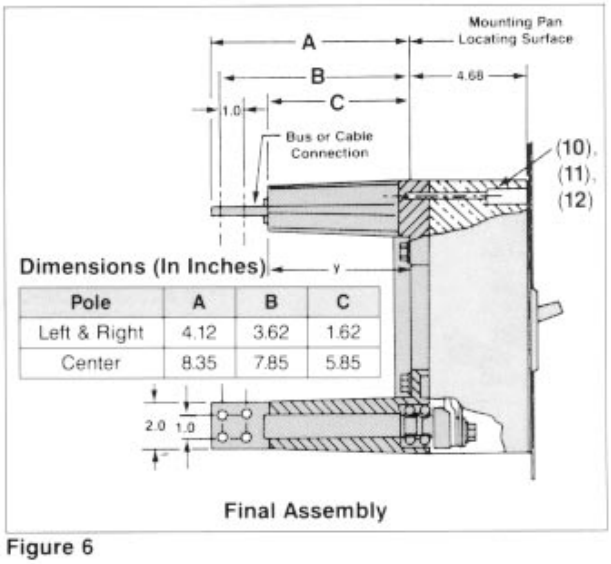
B. Align breaker with mounting blocks and force female tulip clips over male studs in mounting blocks until breaker base bottoms against mounting block. Secure breaker in place with '/4-20 x 3 in. mounting screws (10), lockwashers (11) and flatwashers (12) furnished.

C. If installation requires use of front panel trim, provide cutout for breaker escutcheon (Figure 7).

Installation Diagrams







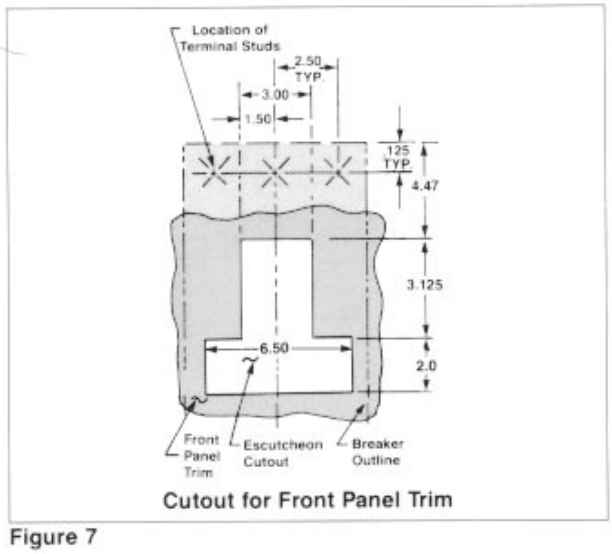
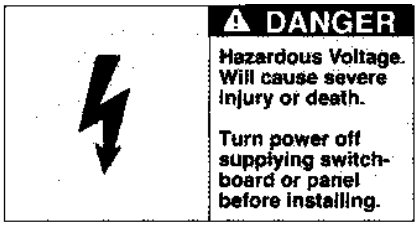


Figure 7

I-T-E Pressure Wire Connectors



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.

A. Tighten mounting screws (1) to securely attach connector. See table for torque values.

B. Tighten set screws (2) securely to prevent overheating of conductor and connector. See table for torque values.

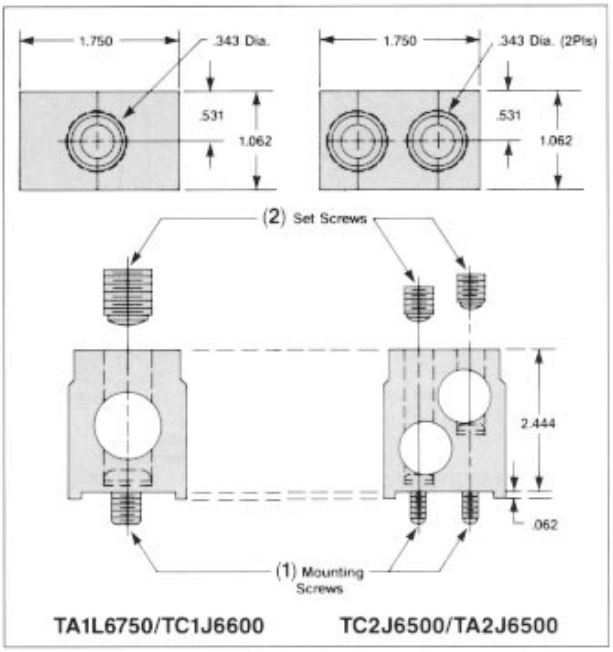
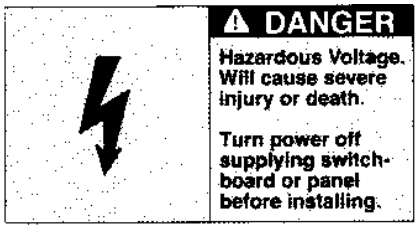


Figure 1

Connector(2) Catalog Numbers	Circuit Breaker Ampere Rating	Connector Wire Range	Set Screw Torque (in. lb.)	Mounting Screw Torque (in. lb.)	For Use With Type(s)
 TA2J6500	200-600	(1-2)#3/0-500 MCM(Cu) (1-2)#4/0-500 MCM (Al)	300	132	SJD6,SLD6, SHJD6,SHLD6, SCJD6,SCLD6
 TA1L6750	200-600	(1)#500-750 MCM (Al) 200-600(1)#500-600 MCM(Cu) or 2Pcs.of250 MCM (Al)	500	228	
 TC1J6600	200-600	(1)#3/0-600 MCM(Cu)	500	228	
 TC2J6500	200-600	(1-2)#3/0-500 MCM(Cu)	300	132	

I-T-E Compression Connectors (CCL600)



SAFETY INSTRUCTIONS

General

NOTE: This instruction sheet outlines the recommended installation procedure. Use of these lugs in some installations may result in less wire bending space than is specified in the National Electric Code.

Installation of Compression Connector

A. Turn off power supplying device before installation compression lugs.

B. Remove any existing wire connectors from circuit breaker.

C. Install circuit breaker.

D. Preform cables to final configuration and strip insulation back 11/,6 in. on each conductor. Use an appropriate insulation stripping tool to avoid damaging the conductor. (See Figure 1.)

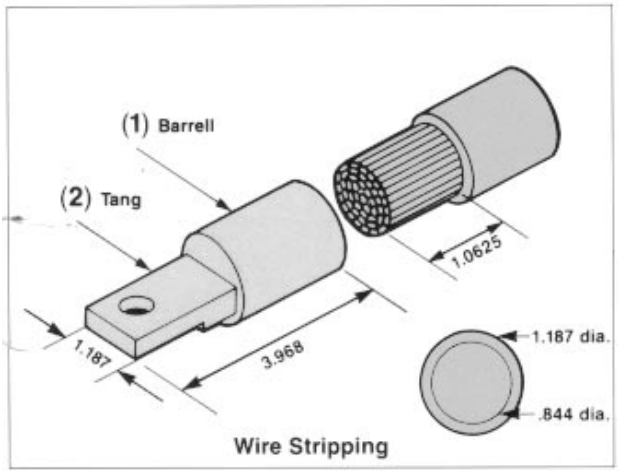


Figure 1

E. Clean aluminum conductor surfaces thoroughly with a wire brush or other suitable means, to remove oxides and other contaminants from the conductor.

NOTE: Copper wires and the compression connector should **not** be cleaned abrasively.

F. Remove cap from compression connector and insert cable fully into barrel (1) (Figure 1) of connector

G. Insure that connector tang(s) (2) (Figure 1) are in their proper orientation prior to crimping. This helps avoid twisting of cables during installation.

H. Select an appropriate tool and die combination from Table 1 and make the required number of crimps within the boundaries stamped on the connector barrel. Refer to Figure 2 for sequence of multiple crimps.

Table 1—Compression Tool and Die Chart For Copper and Aluminum Conductors

Wire Size	Tool Mfgr.	Tool No.	Die No.	No. of Crimps
500 MCM	Homac	UT-15	94, 96	2
500 MCM	Burndy	Y 35	655, 321, 316	3
500 MCM	Kearney	WH-2	1-1/8-2	2
1/0-500 MCM	Square D	VC-6	-	2

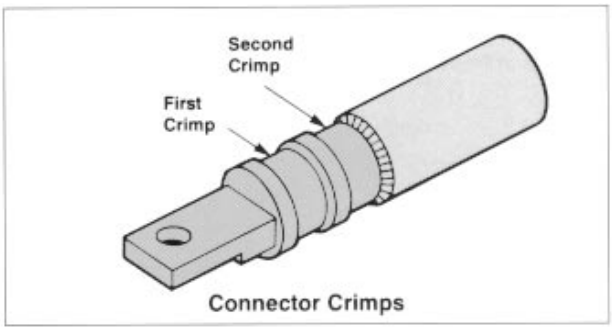


Figure 2

I. Remove any inhibitor compound expelled during the crimping operation from the connector body and the cable insulation .

J. Slip insulating cover over connector tang and then over connector barrel so that only the connector tang is exposed (Figure 3).

Warning: Short spacings will result if Step J is not followed.

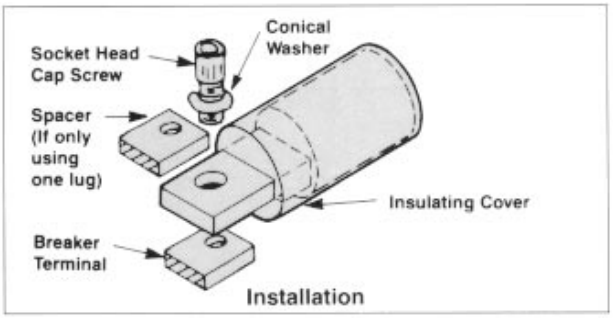


Figure 3

K. Position connector tang on top of the circuit breaker terminal pad and secure with 3/8-16 x 1 1/2 in. socket head cap screw and conical spring washer. Conical spring washer is to be installed with convex side of washer toward underside of screw head (Figure 3). Torque screw to 228 in-lb.

NOTE: If only using one lug for proper ampacity, insert spacer supplied with kit between spring washer and compression lug.

I-T-E Handle Locking Devices

ATTACHING I-T-E 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).

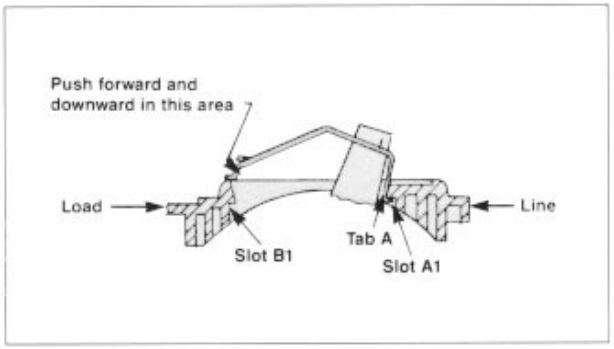


Figure 1

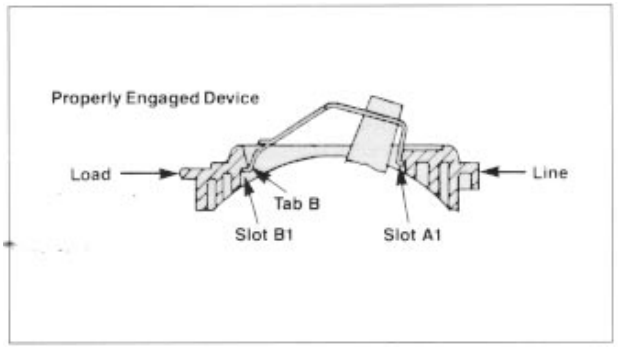


Figure 2

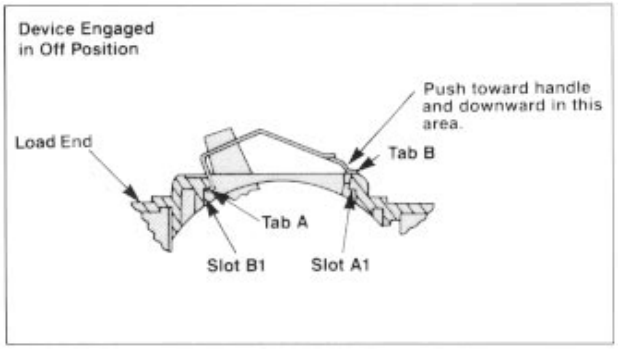


Figure 3

ATTACHING I-T-E PADLOCKING DEVICE (J6HPL)

With breaker in TRIPPED position, assemble padlocking device to breaker by positioning over handle as shown. 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 in. dia. holes line up, allowing padlock to be installed (Figure 5).

To Lock Handle ON

To padlock circuit breaker in ON position, enlarge 12 in. dia. hole of slider to .375 in. 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.

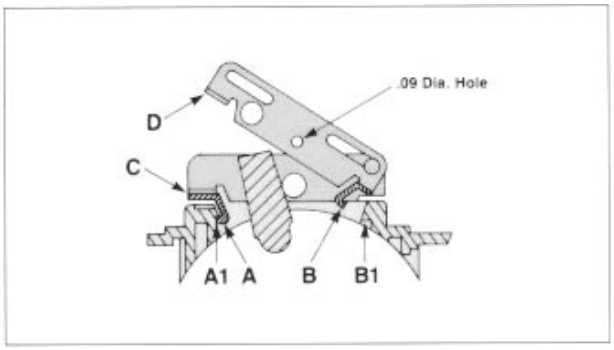


Figure 4

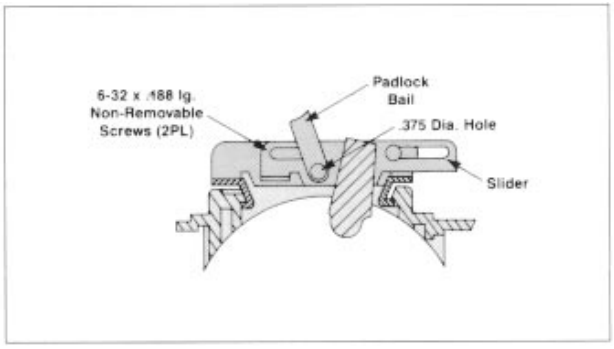
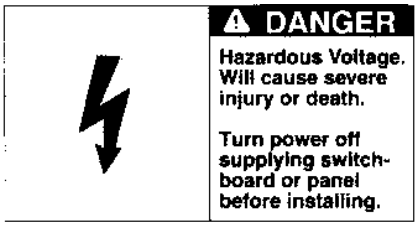


Figure 5

I-T-E Internal Accessories



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 right pole only of the circuit breaker.

Accessory Mounting Instructions

A. Feed accessory leads down and through 5/16 X 1/2 in. 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 transfer link slides into top opening of trip unit. Transfer link is in bottom opening of Bell Alarm switch and slides into bottom opening of the trip unit.

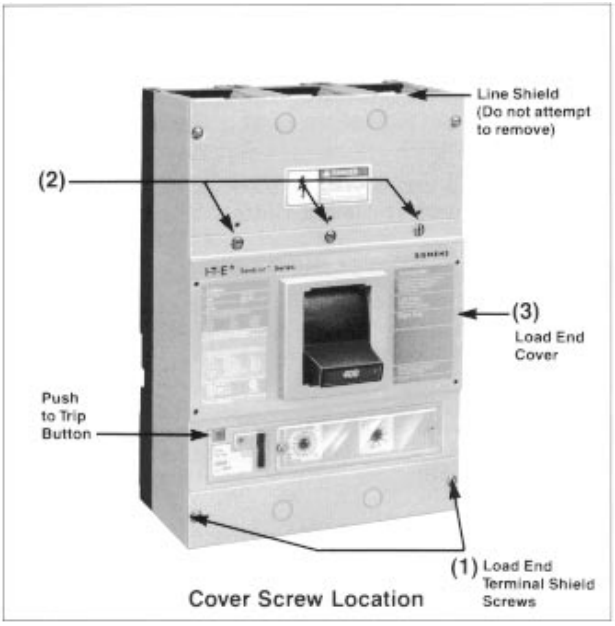


Figure 1

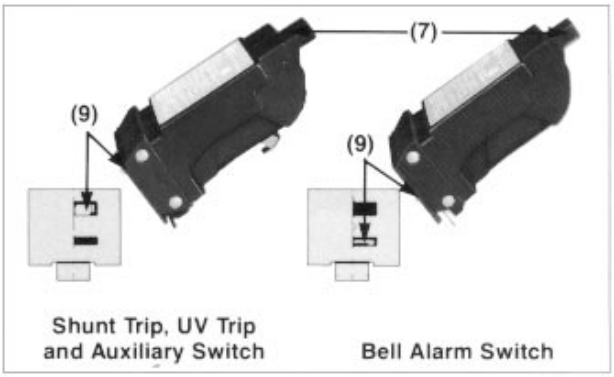


Figure 2

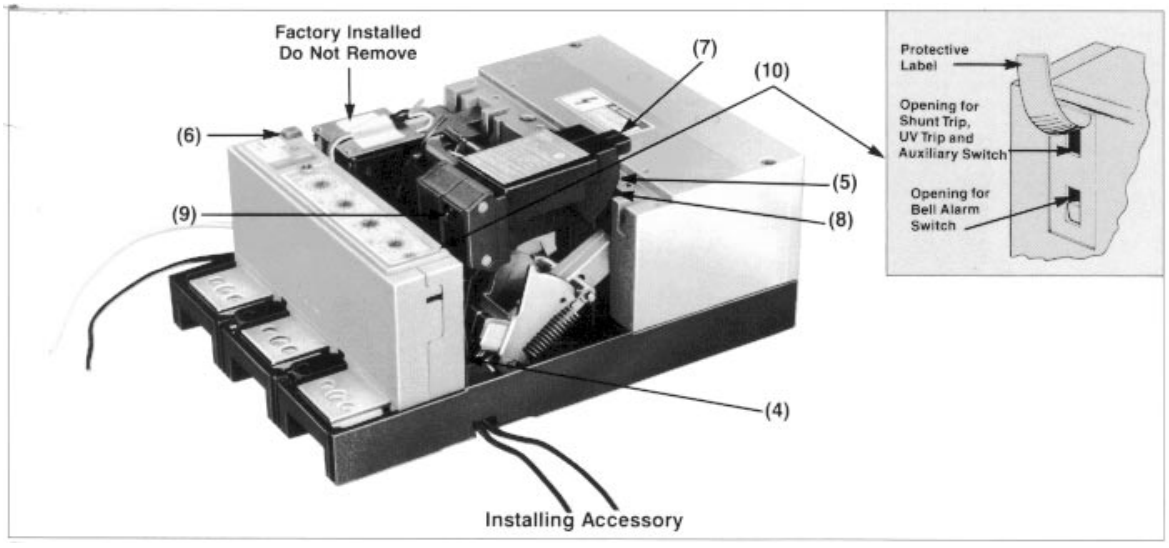


Figure 3

I-T-E Internal Accessories

Recommended Combinations

C. Slide accessory down to rest 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, pages 27 and 28.

Maximum Installable Accessory Combinations

Shunt Trip(1)	Undervoltag Trip	Auxiliary Switch	Bell Alarm Switch
1	0	1	0
0	1	2	0
0	0	2	0
0	0	2	1

(1) Shunt trip units include a coil clearing switch.

NOTE: See page 51 for catalog combinations.

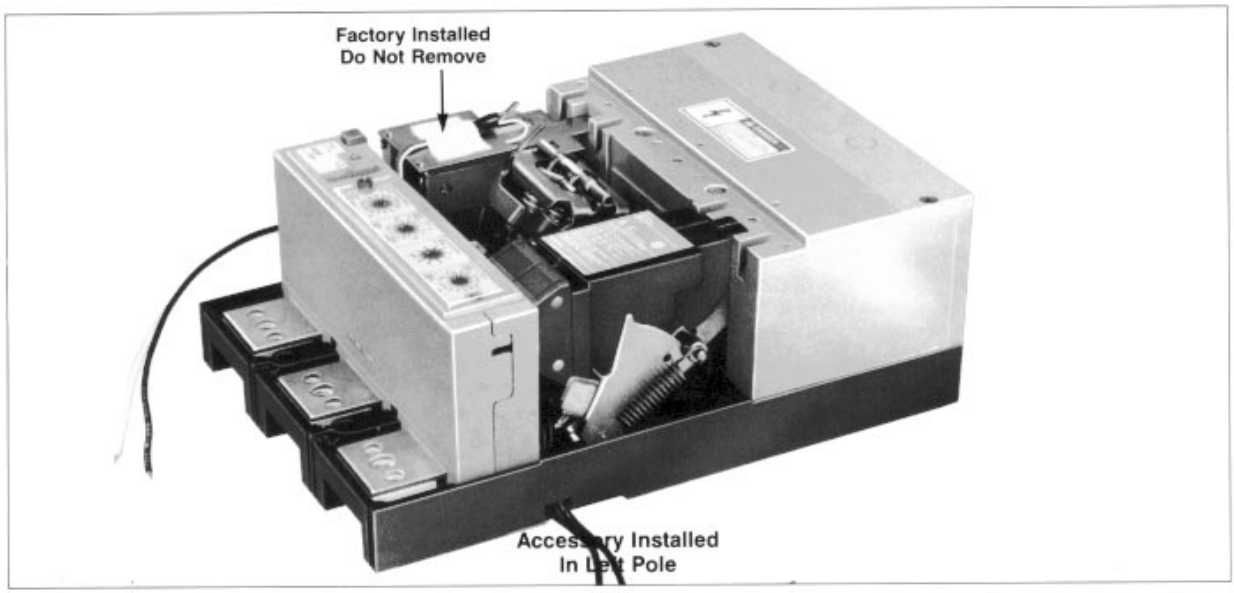


Figure 4

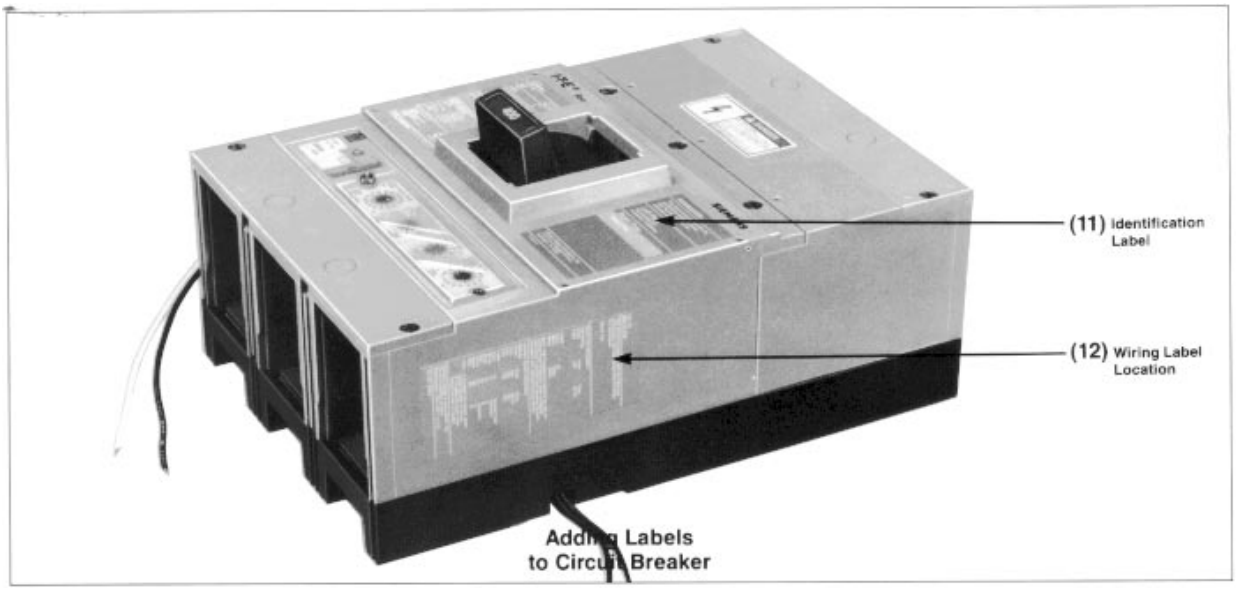


Figure 5

I-T-E Shunt Trip and Undervoltage Trip

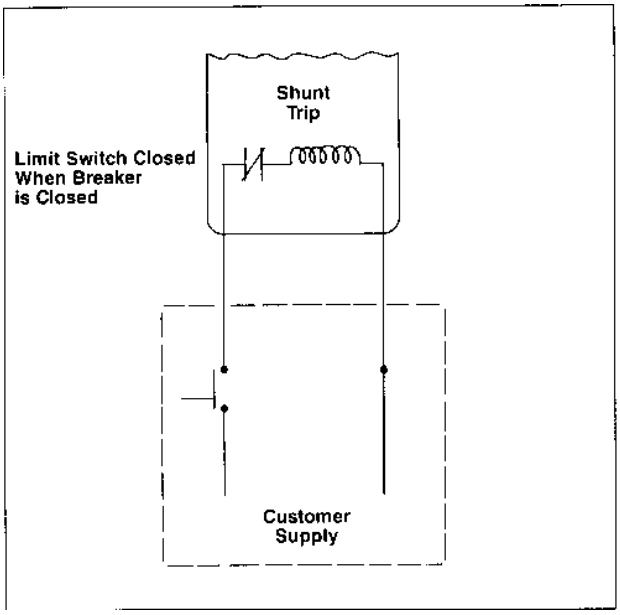
Electrical Check

Shunt Trip

A. Reset and turn circuit breaker ON.

B. 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.

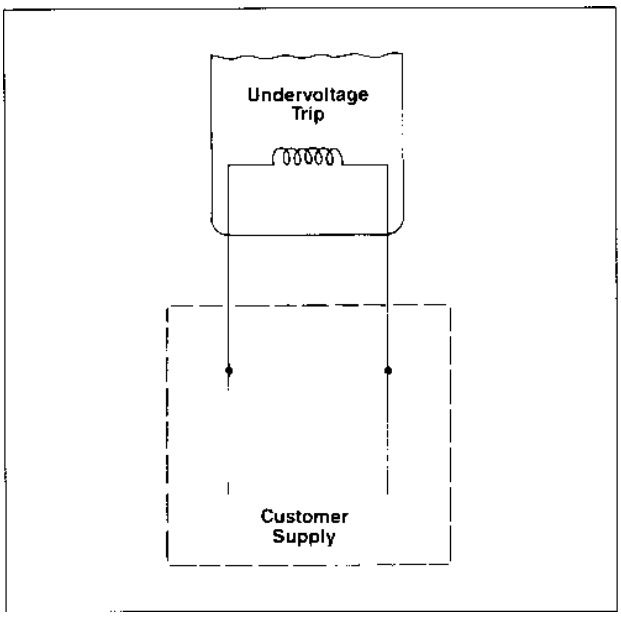
C. With breaker TRIPPED or OFF, check to make sure coil circuit has opened.



Undervoltage Trip

A. 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.

B. Reduce voltage to 35 percent of rated coil voltage. Circuit breaker must trip.



Electrical Data For Shunt Trip

Coil Voltage	Inrush Current Coil 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		
24	2.2	S07JLD6
48	1.2	S09JLD6
125	0.5	S11JLD6
250	0.35	S13JLD6

Electrical Data For Undervoltage (UV) Trip(1)(2)

Coil Voltage	Sealed-In Current Catalog Number 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

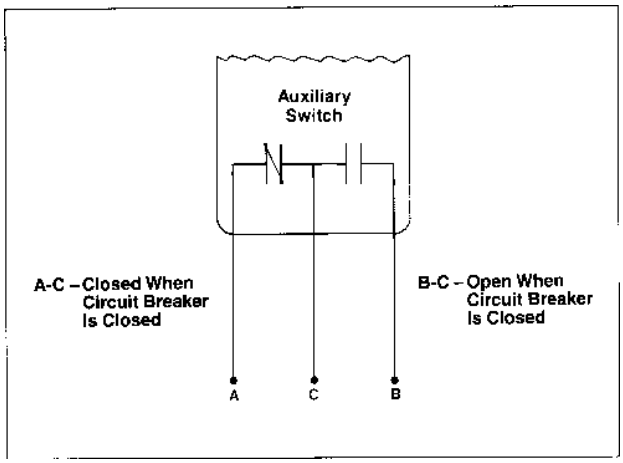
(1)Resistor to be mounted externally of circuit breaker and connected by installer.
(2)All auxiliary switch ratings are the same as auxiliary switch kit A01FD64.
(3)Kit includes a 30k ohm, 25 watt resistor (Clarostat Cat. No. VP-25-K or equivalent).
(4)Kit includes a 2.5k ohm, 25 watt resistor (Clarostat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

I-T-E 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



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	N.O. - Contact open when breaker is open, closed when breaker is closed.
B or B1	Red	N.C. - 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)

A. 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.

B. Move handle to OFF position. Indicator light or buzzer should turn off.

C. Attach test to leads B and C. Light or buzzer should turn on.

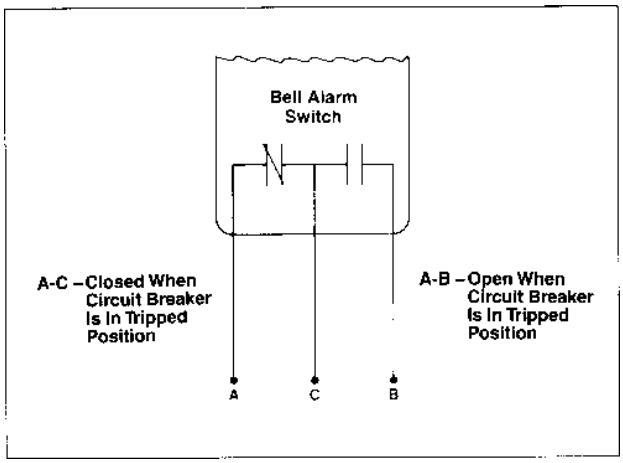
D. Repeat Steps A through C using leads A1, B1 and C1

E. 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 Switch Kits

Catalog Number	Number Of Auxiliary Switches	Ampere Rating of Switch				
		Volts AC			Volts DC	
		125	250	480	125	25
B01JLD64	0	10	10	10	0.5	.25
A01JLD64B	1	10	10	10	0.5	.25
A02JLD64B	2	10	10	10	0.5	.25



Bell Alarm Identification (All With Three Leads)

Wire Markings	Wire Color	Switch Terminals or Contacts
C	White	C - Common terminal
A	Yellow	N.C. - Normally closed contact (Closed when circuit breaker is tripped.)
B	Brown	N.O. - Normally Open contact (Open when circuit breaker is tripped.)

A. 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.

B. Reset breaker to OFF Indicator light or buzzer should turn off.

C. Move breaker handle to ON. Indicator light or buzzer should remain off.

I-T-E Slide Handle Operator (D11JLU, D11JL4U, D11JRU, D11JR4U)(1)

Types 1, 4, 12

A. Cut slot and holes in enclosure flange for operating handle (1), provide mounting holes for circuit breaker (2) and support member (3) as shown.

B. Weld interlock latch (4) to inside of cover. Additional cover securing means also required.

C. Loosen four cover screws (5) and remove terminal shields (14). Insert four 1/4-20 x 23/4 in. screws (6) with lockwasher (7) and flatwasher (8) through mounting holes of circuit breaker (2) and tighten securely to mounting surface. Make terminal connections and reassemble the circuit breaker terminal shields.

D. Mount support member (3) by means of four 1/4-20 in. slotted pan head screws (9).

E. The operating handle (1) and interlock assembly (10) are supplied preassembled. Before disassembling note the position of the levers on the interlock assembly with respect to the operator. Care must be taken to insure this relationship is maintained when the device is reassembled.

F. Assemble operating handle (1) with gasket (11) from outside of the enclosure and interlock assembly (10) from inside of the enclosure by means of two 3/8-16 in. hex nuts (12). When correctly assembled the operating handle cannot be moved from the OFF position to the ON position while the cover is open.

G. Pick up actuating member assembly (13) at hex head screw and assemble to support member (3). NOTE: Be sure the nylon rollers engage circuit breaker handle, U-slot engages operator and actuating member engages slot in support member. Tighten hex head screw securely.

Operation

The handle cannot be operated from the OFF position to the ON position with cover open unless the interlock mechanism is deliberately voided. This involves turning the screw in the handle housing counterclockwise before moving the handle. For inspection with power on, rotate same screw clockwise to open the cover.

(1)D11JLU, D11JL4U designate left-side handle operators; D11JRU, D11JR4U designate right-side handle operators; D11JL4U, D11JRU are for use with 4-4x applications.

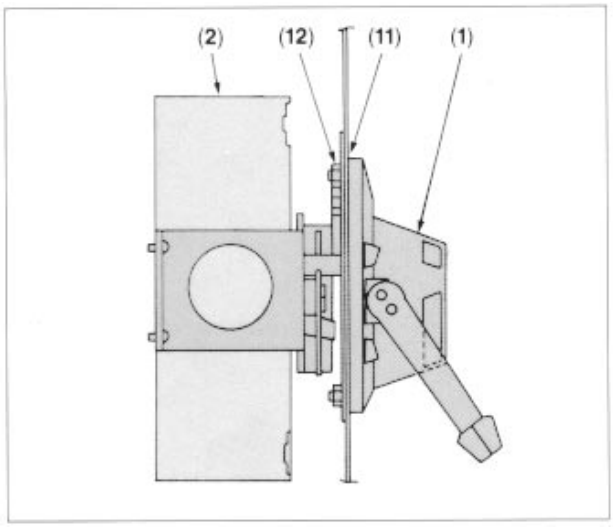


Figure 1

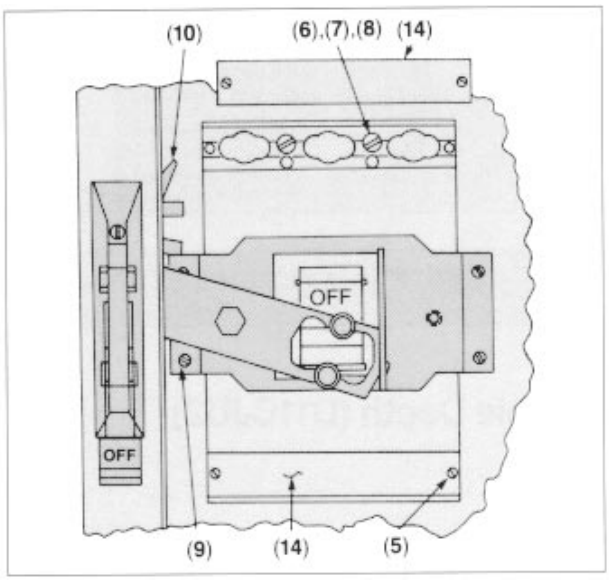


Figure 2

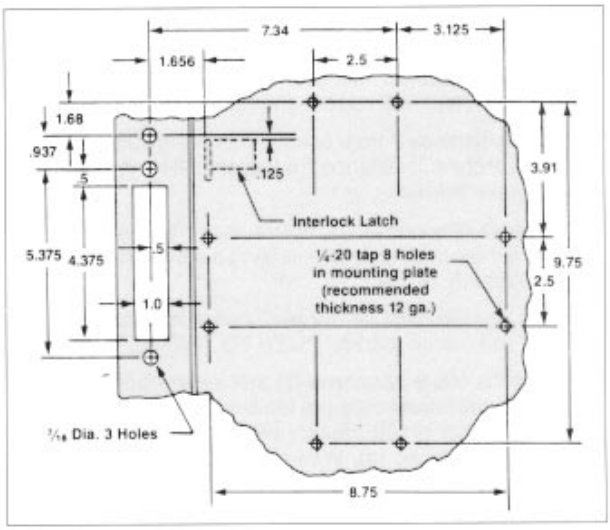


Figure 3

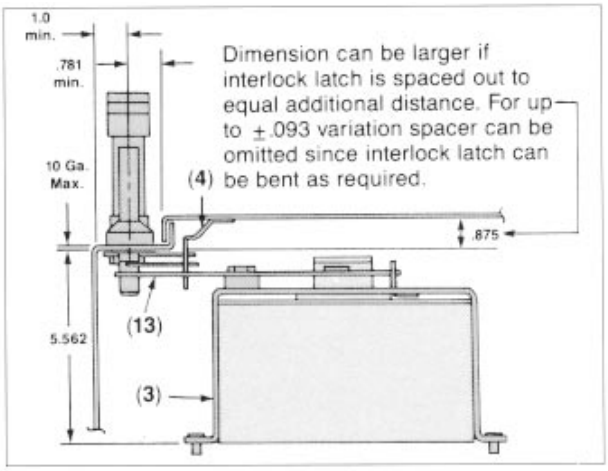
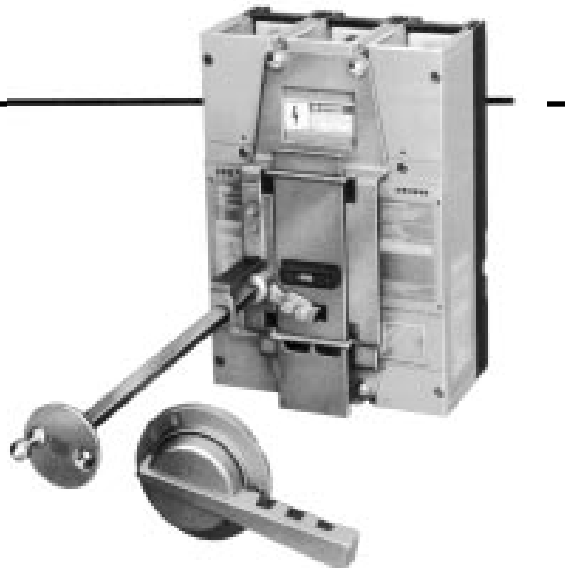
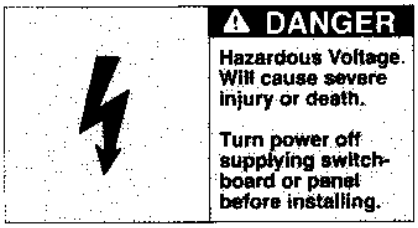


Figure 4

I-T-E Rotary Handle Enclosure Mechanism



Types 1, 12



SAFETY INSTRUCTIONS

Variable Depth (D11CJU2)

General

Handle with permit locking the disconnect device in the OFF position using up to three locks having shackles up to 3/8 in. in dia. Provision for locking in ON position is provided/ but the handle plate must have the material covering the locking notch removed. This can be done with a hacksaw or file. The handle has a voidable interlock. Voiding the interlock requires inserting a small screwdriver into the rectangular opening in the handle plate, which will release the handle.

A. Measure distance F from breaker mounting surface to top surface of cover. If distance F is less than 8 in. then remove shaft guide bracket.

B. Find length G by subtracting 5.50 in. from F dimension. Mark length G from underside of operating plate on shaft and cut shaft squarely at mark.

NOTE: Breaker must be "tripped" during installation. Push red button marked PUSH TO TRIP (1).

C. Loosen the two 8-32 screws (2) that secure both terminal shields to the breaker, remove the two .28 in. dia. knockouts (3) and fasten circuit breaker with four 3.56 total length fastening members (4). Wire circuit breaker and replace terminal shields. Using 1/4-20 x 11/2 in. R.H. screws together with lockwasher and washer supplied with kit, attach mechanism plate assembly on breaker as shown.

D. Insert end of operating shaft into square socket in cast operating arm so that top of shaft has proper relationship to handle as illustrated in photograph on front of instruction sheet. (Breaker or handle may be rotated in 90 increments so long as relationship of handle and top of operating shaft is held.) Tighten set screw in side of cast operating arm (recommended torque—75 in. lb.).

Handle Mounting

Holes in cover to be as shown in Figure 2. Mount handle with cork gasket on cover and handle mounting plate on inside of cover. Fasten together loosely through cover with the two short screws provided. The two .31 in. dia. mounting holes must be rotated in the same 90ø increments to maintain the handle and operating shaft relationship. Close cover, adjust handle with actuator to be free of binding. Tighten handle mounting screws and operate handle ON and OFF to see that circuit breaker operates satisfactorily.

Installation Diagrams

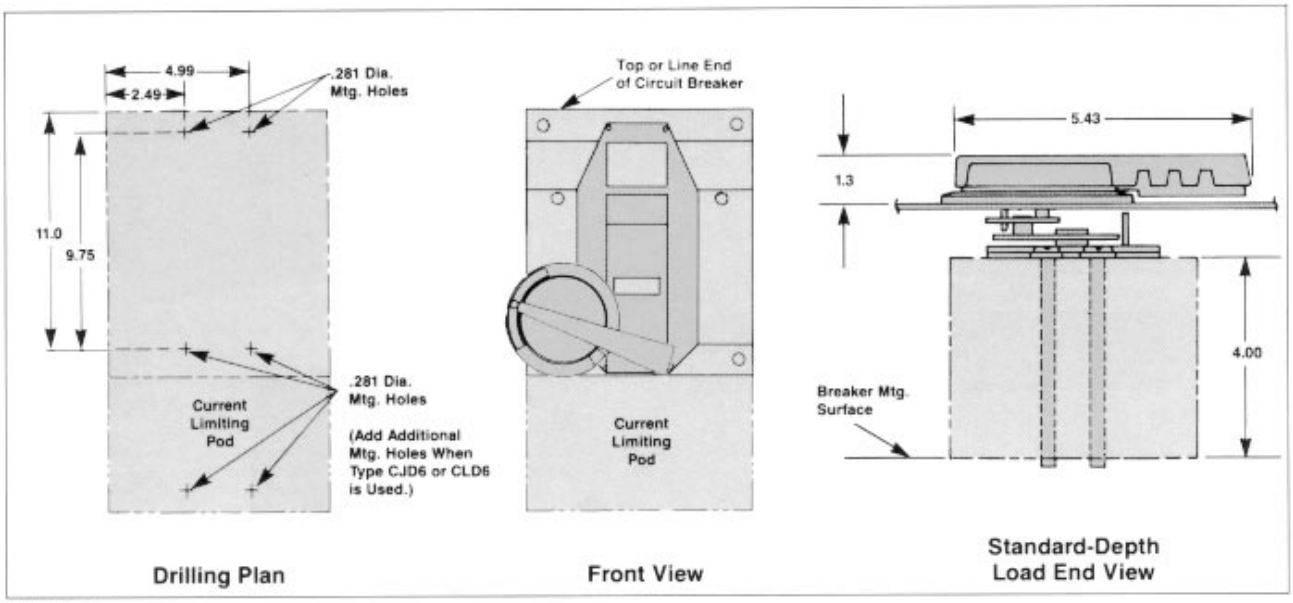


Figure 1

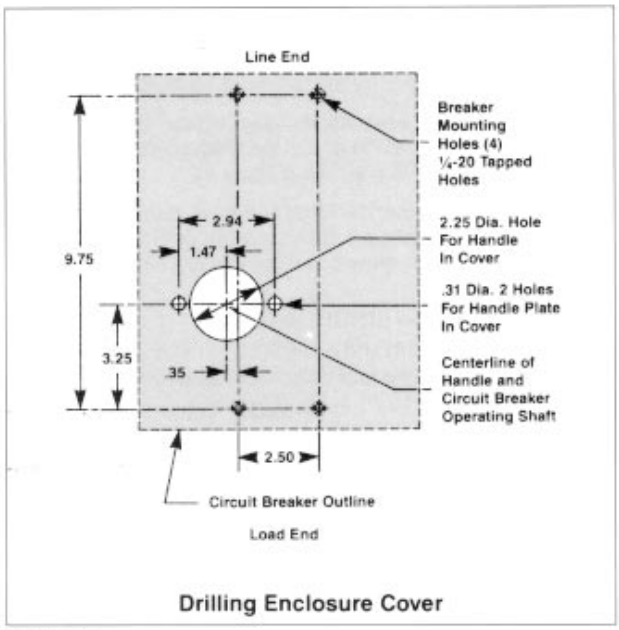


Figure 2

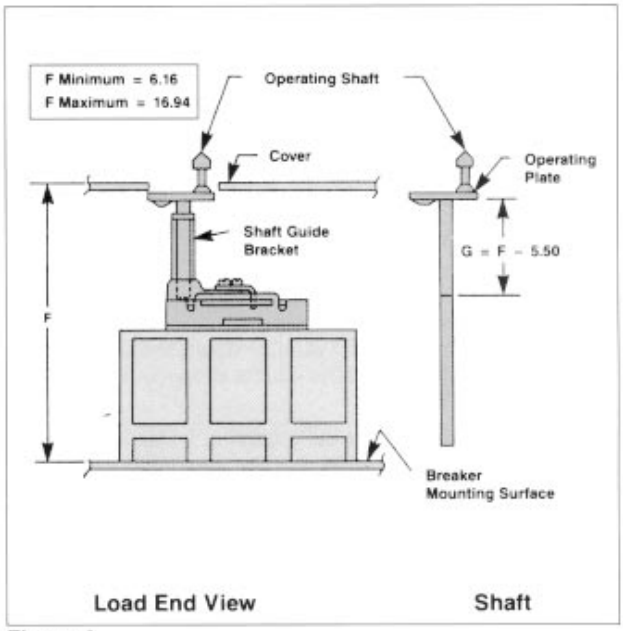
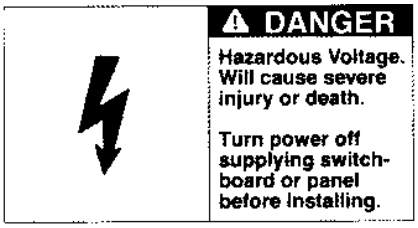


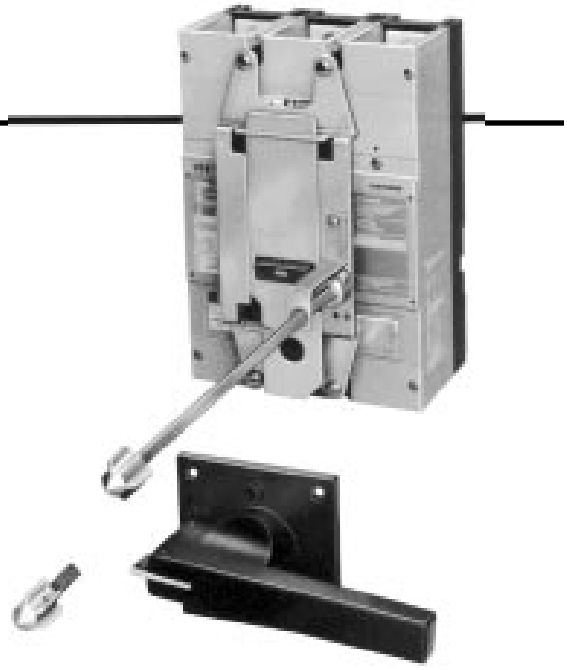
Figure 3

I-T-E Rotary Handle Enclosure Mechanism

Types 1, 3, 3R, 4, 4x, 12



SAFETY INSTRUCTIONS



Standard Depth (RHOJSD) Variable Depth (RHOJVD)

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 in. 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 4.

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 (RHOJBO)

A. Remove the two terminal shields (3) from the circuit breaker and punch or drill out the two .53 in. 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. lb.

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 in. mounting screws (7) and 1/4 in. lockwashers (8) as shown. Tighten to 75 in. lb.

Installation of Shaft (RHOSSD, RHOSVD)

A. Shaft length for Variable Depth Operators L = K - 3.61 in. 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 (Figure 4).

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

Installation of Handle (RHOH, RHOH4)

A. Attach the handle (13) and gasket (14) to the enclosure door (2) and secure with the four bolts, lockwashers and nuts supplied (15). Tighten to 75 in. lb. (Figure 5).

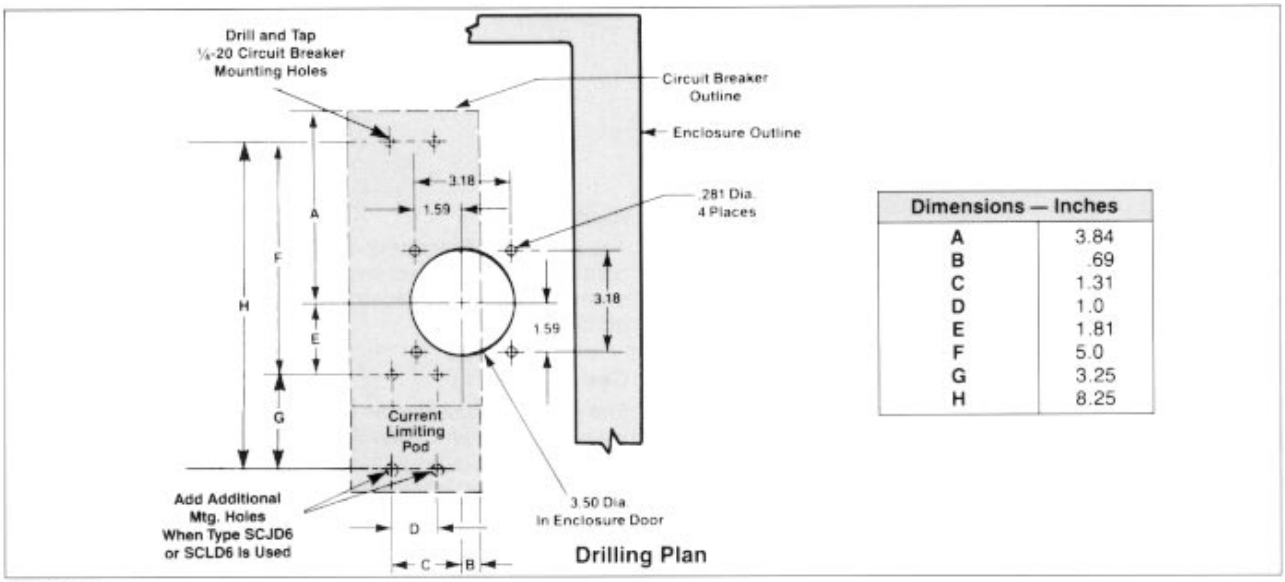
B. Make sure that when the enclosure door is closed, the handle interlocks with the shaft in all handle positions except RESET/OPEN. To open the enclosure door when the breaker is in the ON position, rotate the screw slot on the handle plate counterclockwise. This procedure will defeat the interlock.

C. To lock the handle in the OFF position, pull the lock plate (16) from the handle into the grooves on the handle plate (17) located at the interlock defeater screw and insert the padlocks.

D. The unit can be modified to lock in the ON position by cutting slots in the boss located beneath the letters ON.

NOTE: The score lines on the inside diameter below the letters ON indicate the slot locations.

Installation Diagrams



Dimensions — Inches	
A	3.84
B	.69
C	1.31
D	1.0
E	1.81
F	5.0
G	3.25
H	8.25

Figure 1

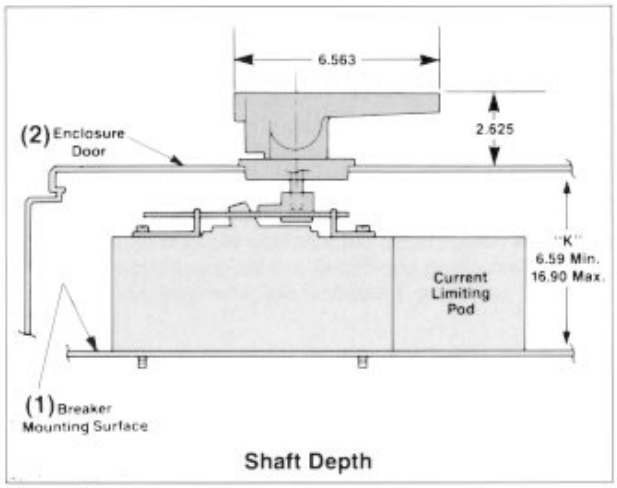


Figure 2

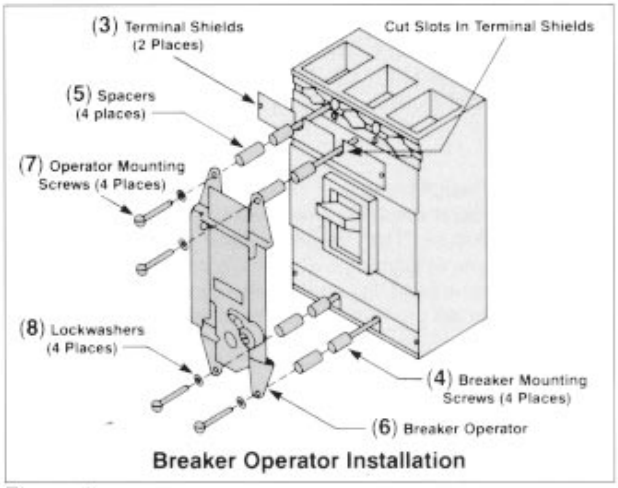


Figure 3

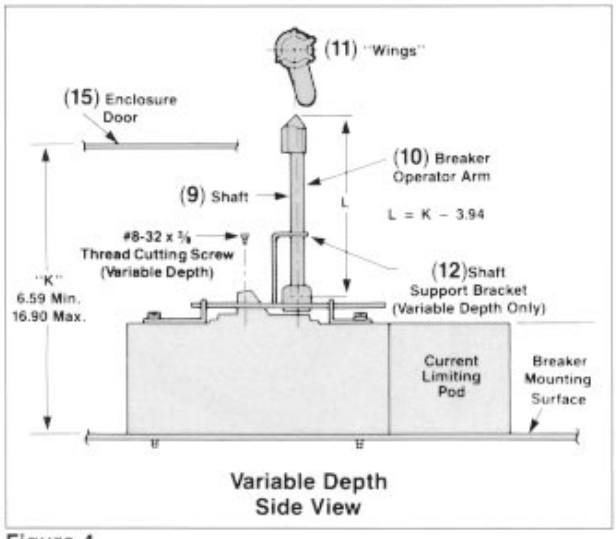


Figure 4

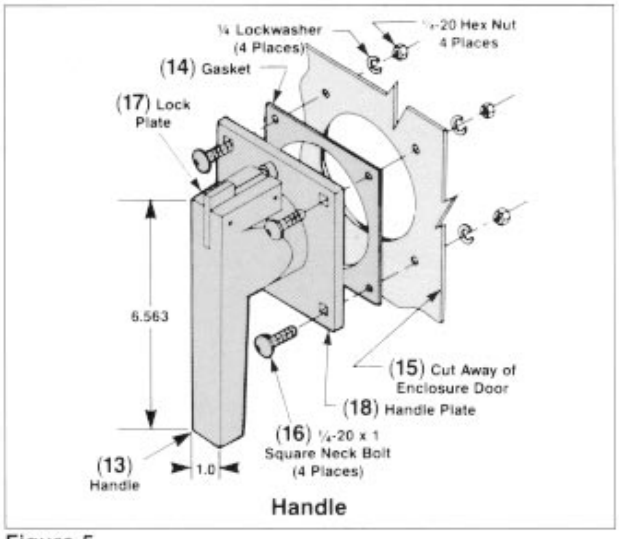
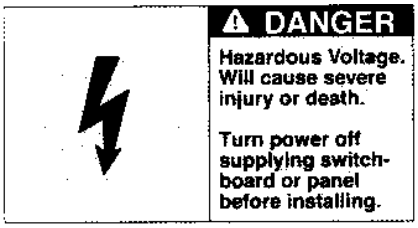


Figure 5

I-T-E Max-Flex™ Flange-Mount Handle Operator

Types 1, 3, 3R, 4, 4x, 12



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 circuit breakers having current ratings through 600A. The Max-Flex unit meets all the industrial criteria such as UL and Automotive Industry Standards.

Design

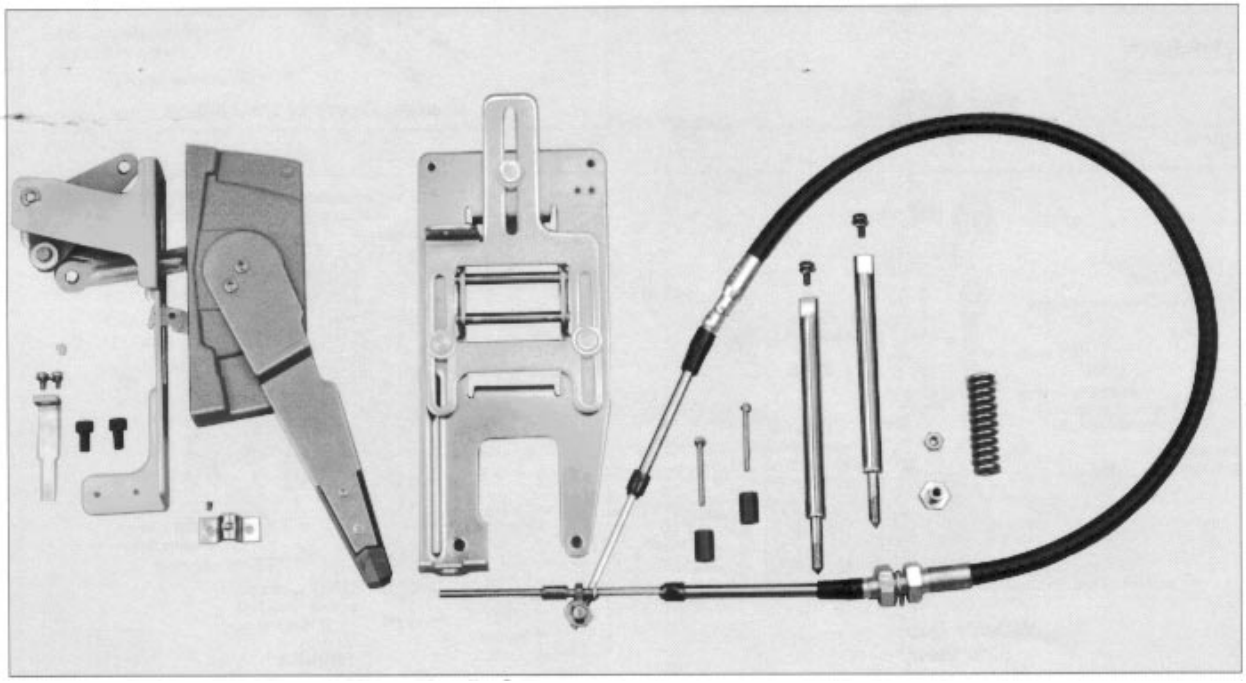
The new Max-Flex Handle Operator provides maximum flexibility in design and assembly of electrical equipment. Since there are no linkages to assemble, the Max-Flex system can save time during installation.

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 ft. lengths. However, specific lengths can be special ordered up to 20 ft.

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-FlexTM Flange-Mount Handle Operator

I-T-E Max-Flex™ Flange-Mount Handle Operator

Types 1, 3, 3R, 4, 4x, 12

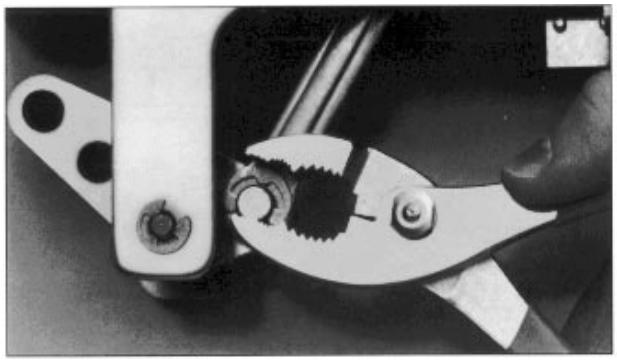
INSTALLATION

Mounting Max-FlexTM Handle Operator to Enclosure Frame Assembly

A. 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.

B. Push the rubber gasket (1) down in the groove of the handle assembly (2) (Figure 3).

C. The handle and the interlock mechanism are supplied preassembled 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 in. socket head cap screws and lockwashers. Tighten cap screws from within the enclosure (Figure 3).



Secure E-Ring Connection

A. 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).

B. Mount the interlock lever extension (12) to the interlock lever (3) using #8-32 x 3/8 in. 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.

C. 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.

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

INSTALLATION DIAGRAMS

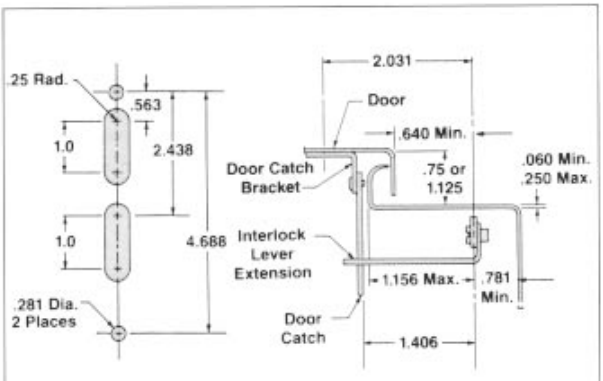


Figure 1

Figure 2

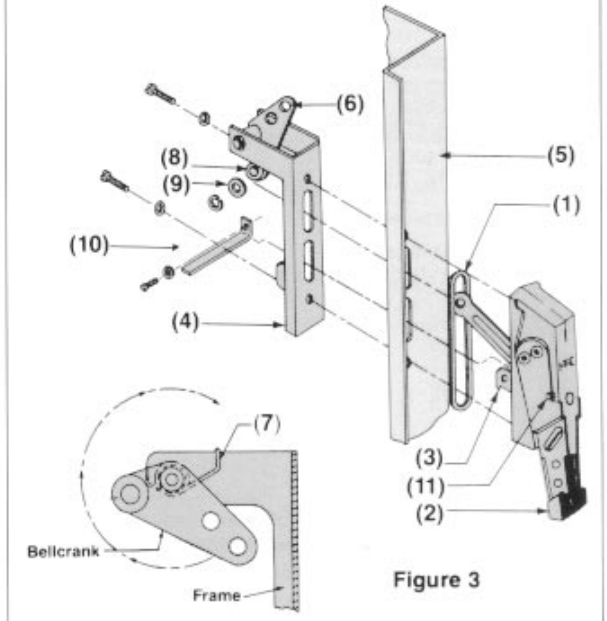


Figure 3

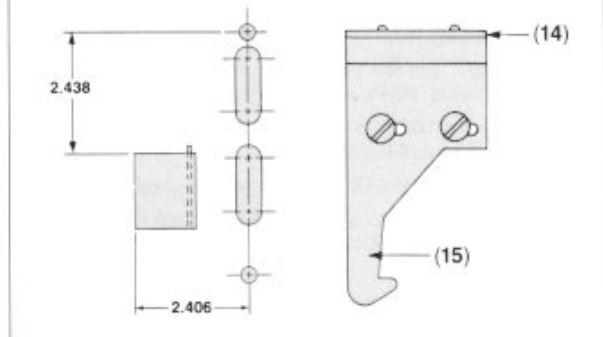


Figure 4

I-T-E Max-Flex™ Flange-Mount Handle Operator

Types 1, 3, 3R, 4, 4x, 12

Adjusting Door Catch Mechanism

A. 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.
B. 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 in. enclosures.

Table 1—Circuit Breaker Mounting Dimensions

Breaker Type	A	B	C	D	G	Tap Size
SCJD6, SCLD6	2.5	9.75	.625	17.23	6.86	1/4-20
All Other Types	2.5	9.75	0.62	10.625	-	1/4-20

Table 2—Maximum E Dimensions(1)

[illegible]	[illegible]							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

(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	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 in. This minimum wire bending requirement must be met to insure operating safety. The mounting procedure is as follows:

A. Determine the desired circuit breaker mounting location using Tables 1, 2 and Figure 5.
B. Drill and tap four mounting holes (17) in the enclosure back panel using dimensions A and B from Table 1.
C. Remove the four terminal shield screws (18) and two terminal shields (19).
D. Punch or drill out the two .531 in. dia. knockouts in the terminal shields. REPLACE THE SHIELDS.
E. Fasten circuit breaker to prepared mounting surface using four breaker mounting screws (20).
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 13/4 in. 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 bellcrank (6). Secure the connection with an E Ring (Figure 7).

INSTALLATION DIAGRAMS

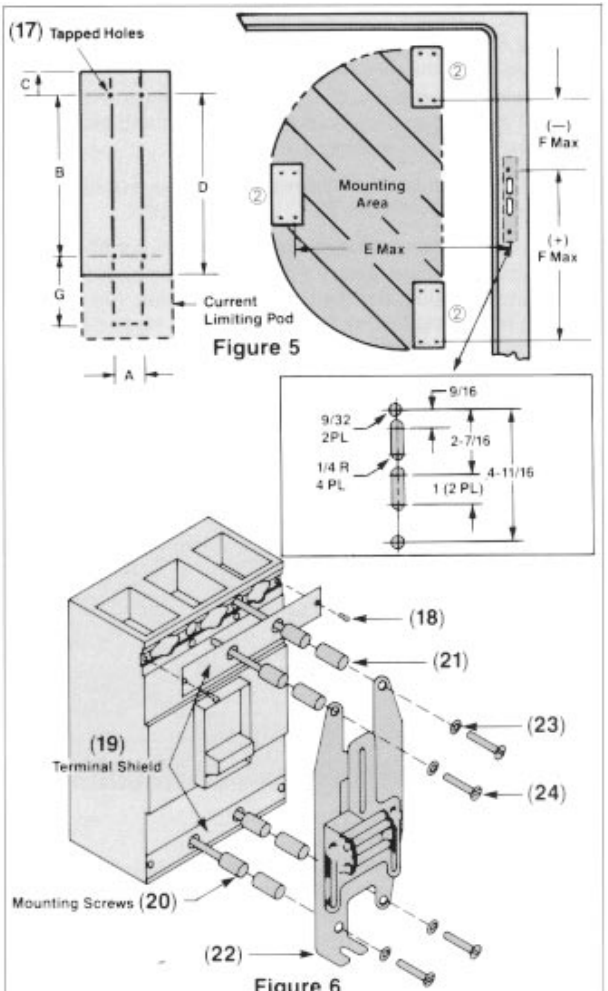


Figure 5

Figure 6

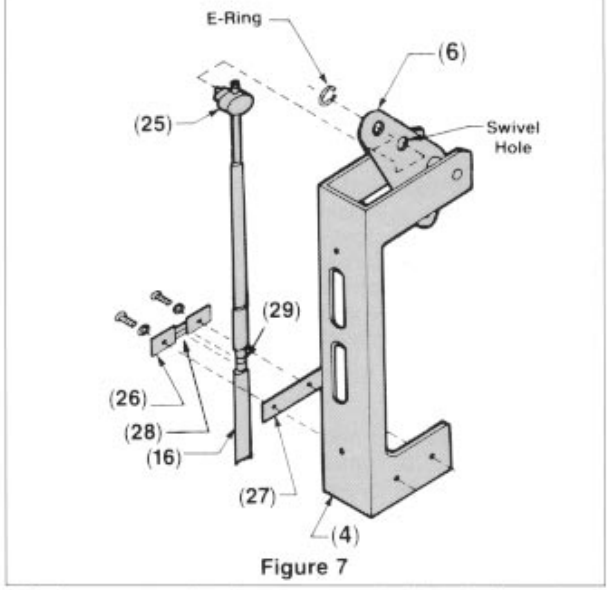
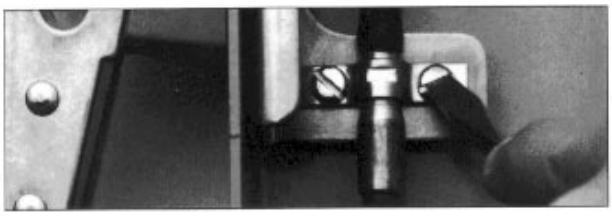


Figure 7

② Outlines represent breaker operator, not circuit breaker footprint.

I-T-E Max-Flex™ Flange-Mount Handle Operator

Types 1, 3, 3R, 4, 4x, 12



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 in. 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.

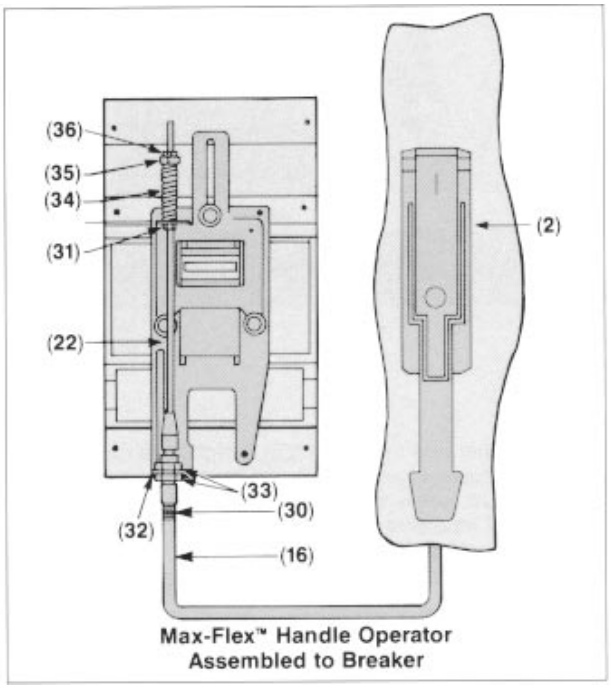
Making Cable Adjustments

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.

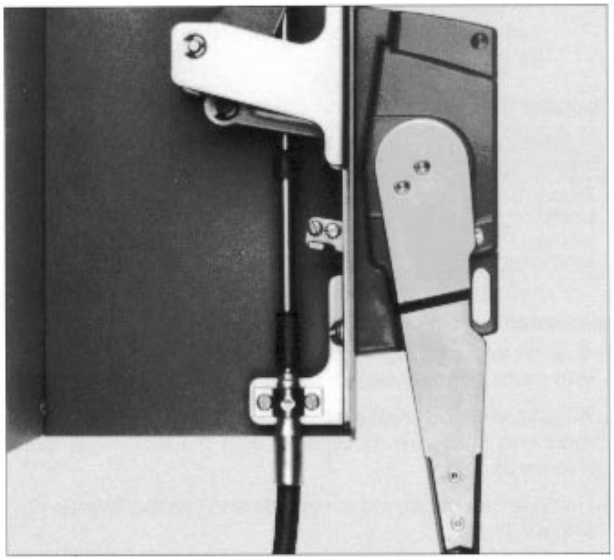
C. Check that circuit breaker resets by moving the operating handle (2) from ON to OFF and back to ON. If the breaker resets, tighten the spring adjuster (31) one additional turn. Attach the lockwasher and #10-32 locknut (32) to the end of the cable rod, and tighten the locknut.

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).

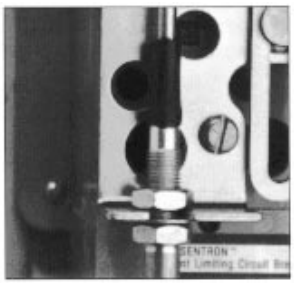


Max-Flex™ Handle Operator Assembled to Breaker

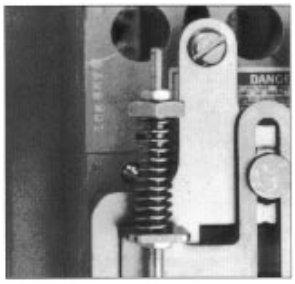
fIGURE 8



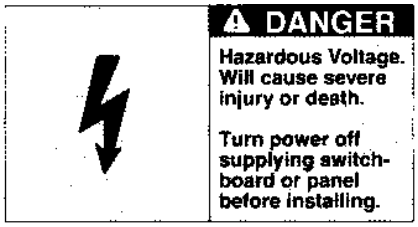
Side View of Max-Flex Handle Operator



Fixed Plate Adjustment



Spring Adjustment



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 40) for a typical control connection.

The motor operator is hinged for opening 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 40 for more details.

Operator Selection

Motor Operator	Frame	For Use With I-T-E Circuit Breakers
MOJ6120 MOJ6120L MOJ6240 MOJ6240L	JD,LD	SJD6, SLD6, SHJD6, SHLD6, SCJD6, SCLD6

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).

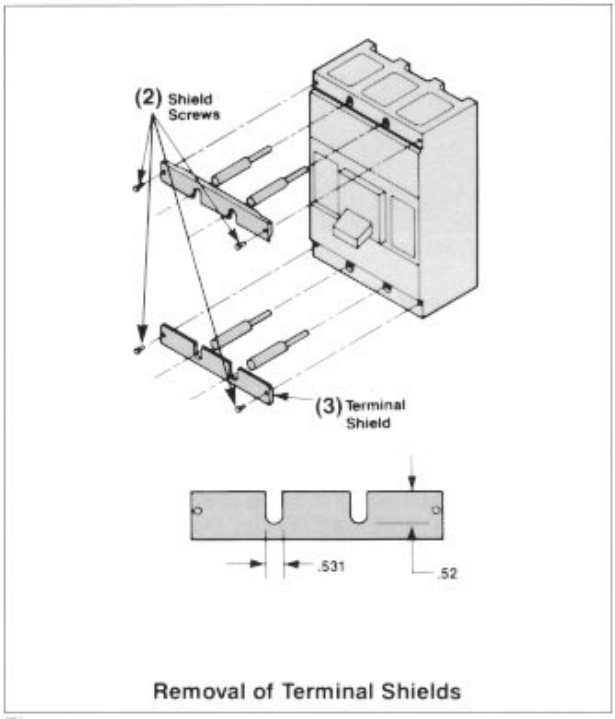


Figure 2

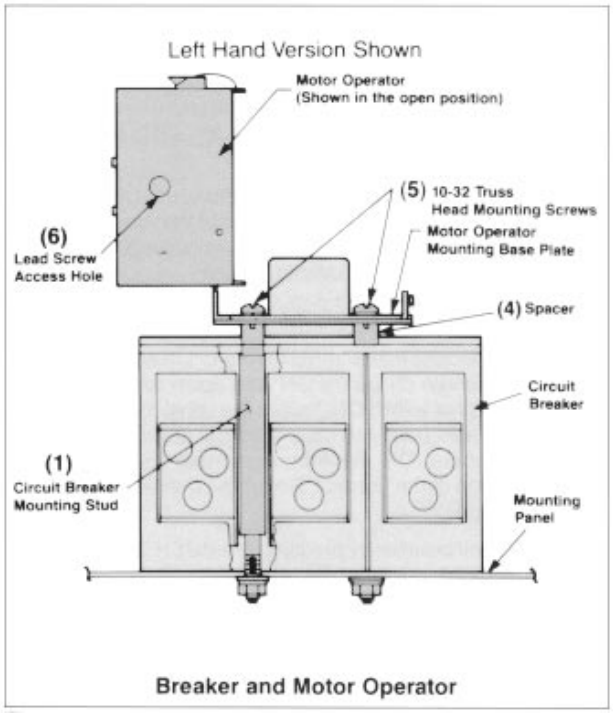


Figure 2

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
MOJ6120 MOJ6120L	120	10.0 Amperes Inrush 6.0 Amperes Running
MOJ6240 MOJ6240L	240	5.8 Amperes Inrush 2.8 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.

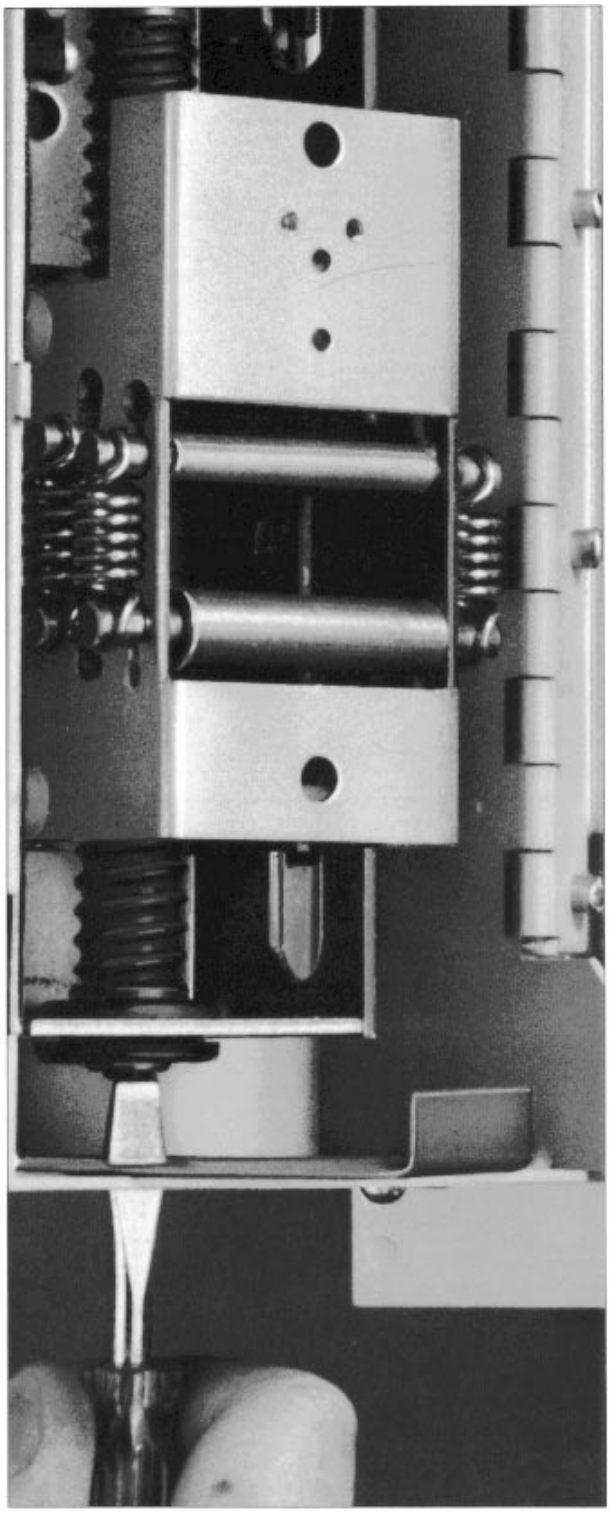
Automatic Reset

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.

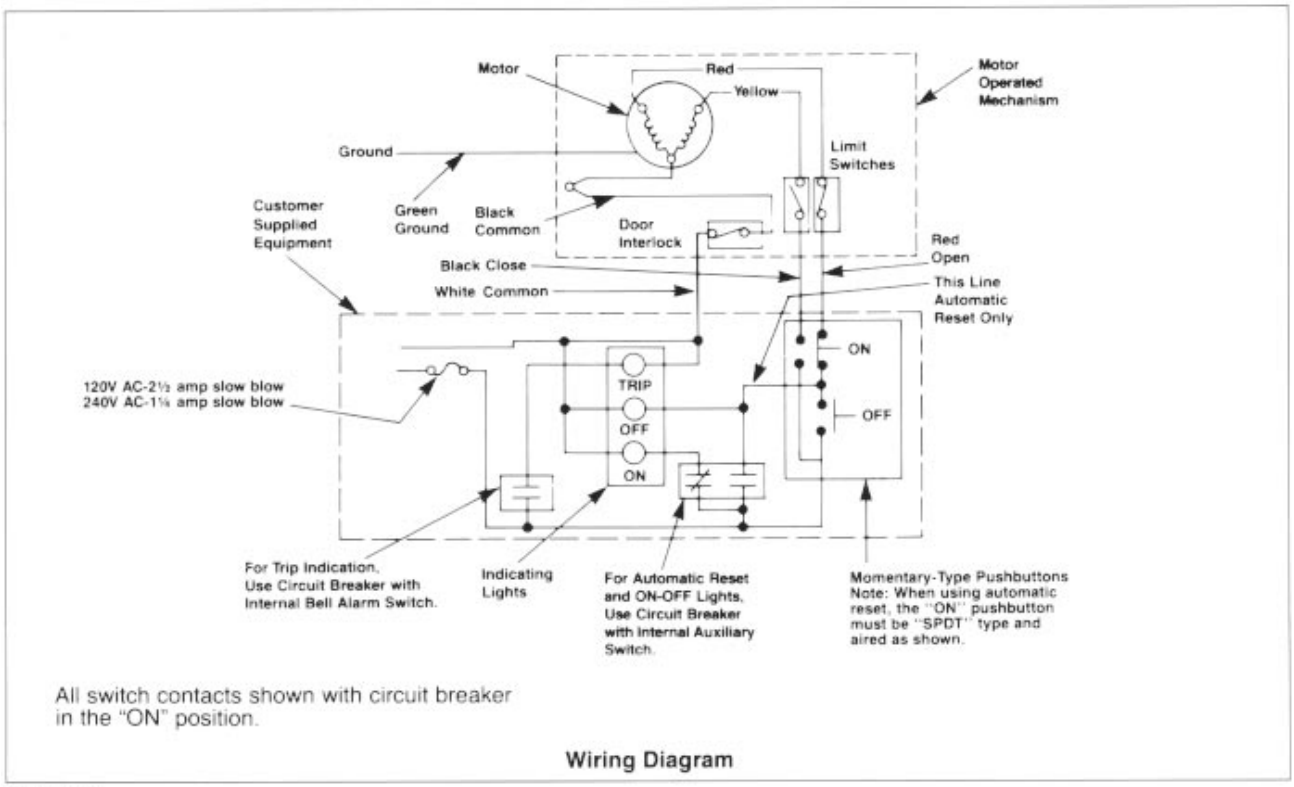
Manual Operation

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 27 deleting Steps B through E. After operation checks are complete, restore to normal operation.



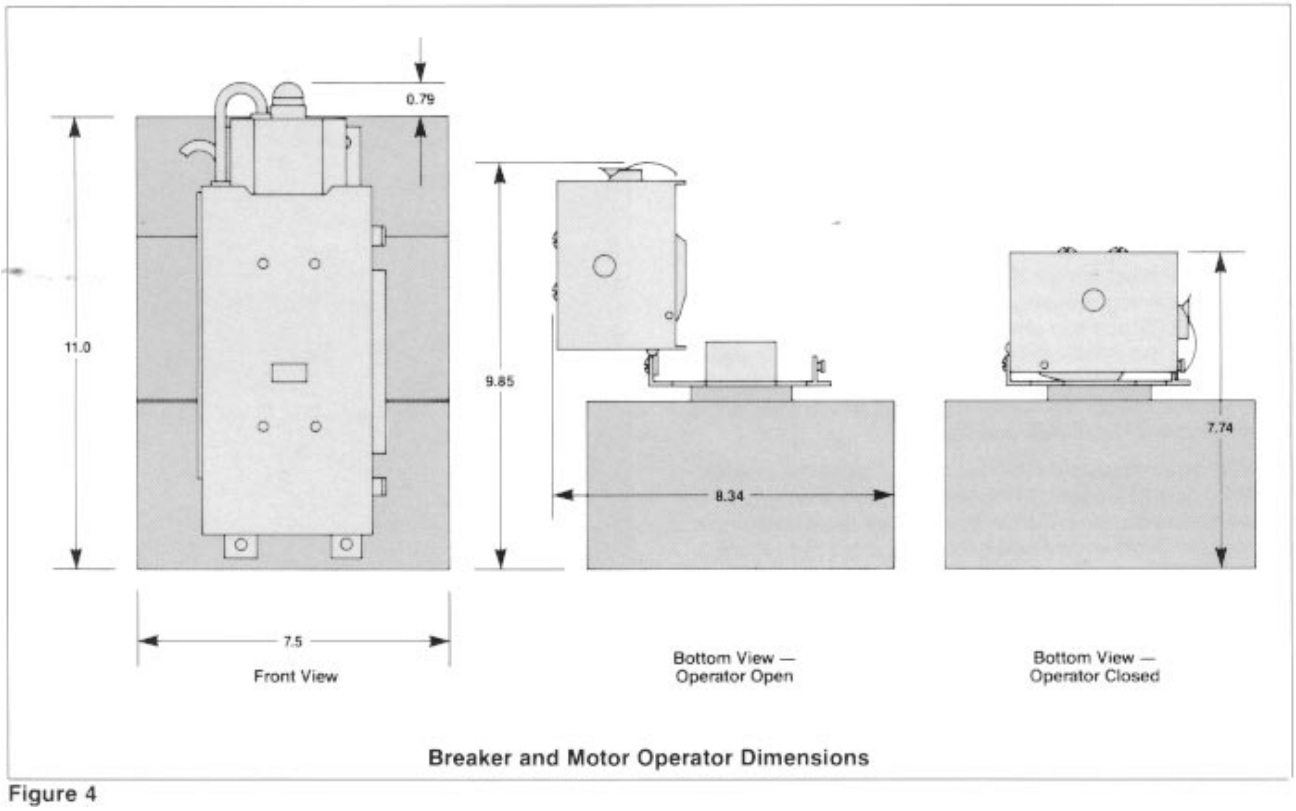
Align Rollers and Handle

Installation Diagrams



Wiring Diagram

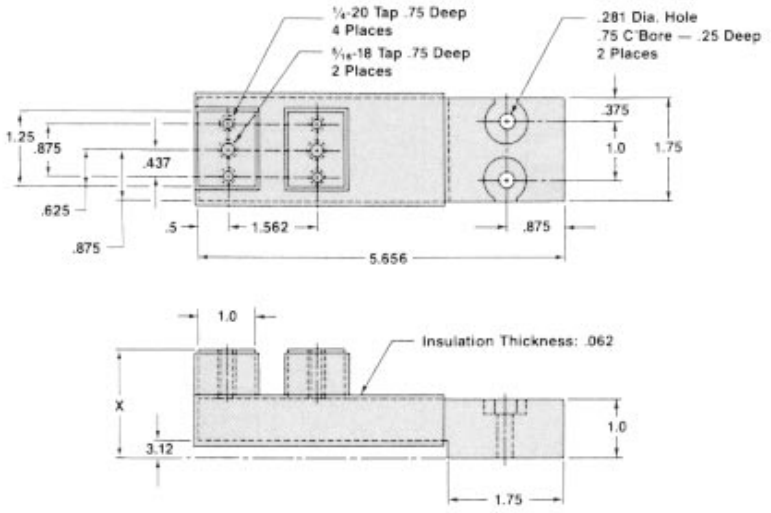
Figure 3



Breaker and Motor Operator Dimensions

Figure 4

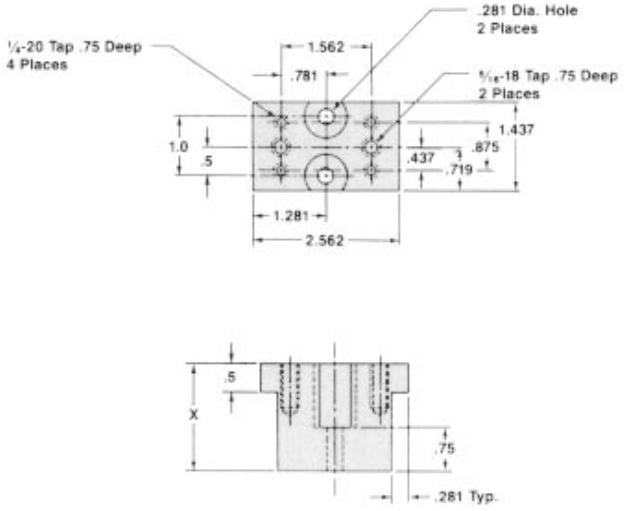
I-T-E Panelboard Connector Straps(1)



Outside Connector Strap

JD-Frame Catalog Number	LD-Frame Catalog Number	X
CS3620R	CS3624R	1.832
CS3622R	CS3626R	3.394

①These straps are not used in series 6 or 7 panelboards.



Center Connector Strap

JD-Frame Catalog Number	LD-Frame Catalog Number	X
CS3621R	CS3625R	1.832
CS3623R	CS3627R	3.394

①These straps are not used in series 6 or 7 panelboards.

I-T-E Enclosures

Types 1, 3, 4x, 12

Type 1—J6N1, L6N1

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

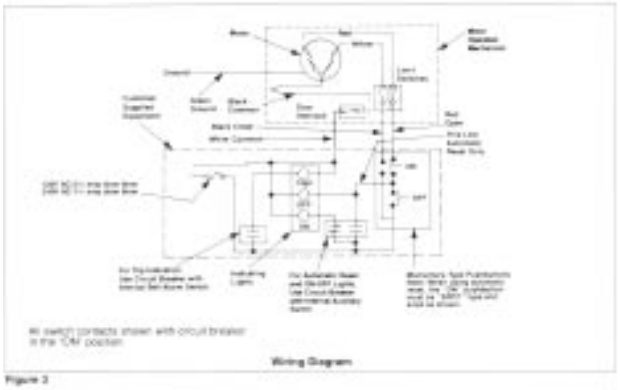


Figure 3

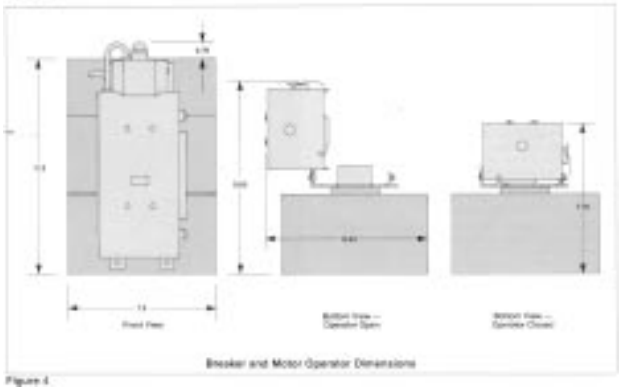
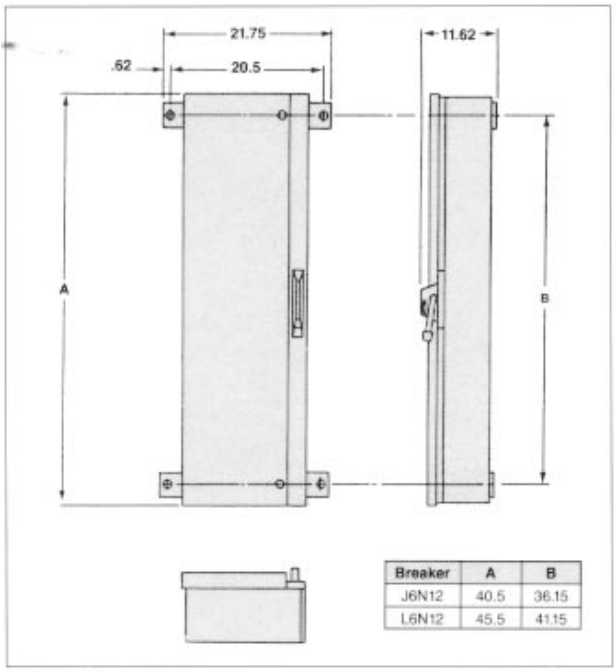


Figure 4

Type 12—J6N12, L6N12

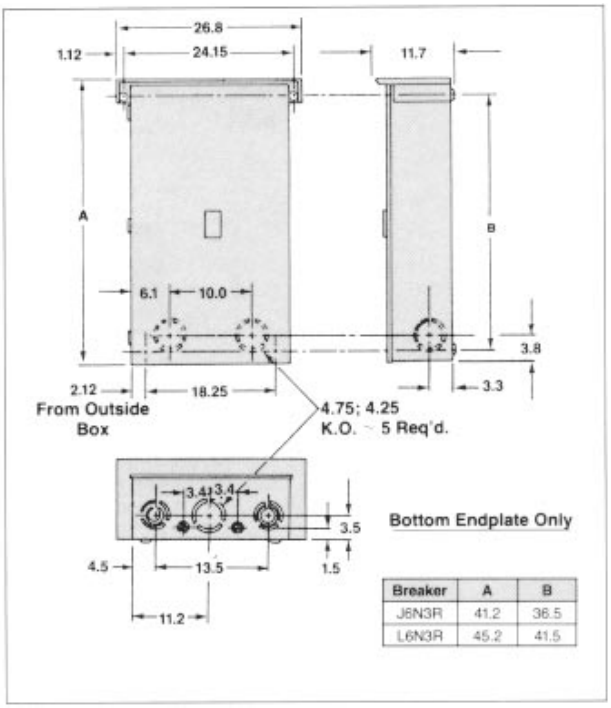
A special-industry, sheet-steel enclosure for indoor use in atmosphere containing particles of lint, dirt, sawdust and other foreign matter.



Breaker	A	B
J6N12	40.5	36.15
L6N12	45.5	41.15

Type 3R—J6N3R, L6N3R

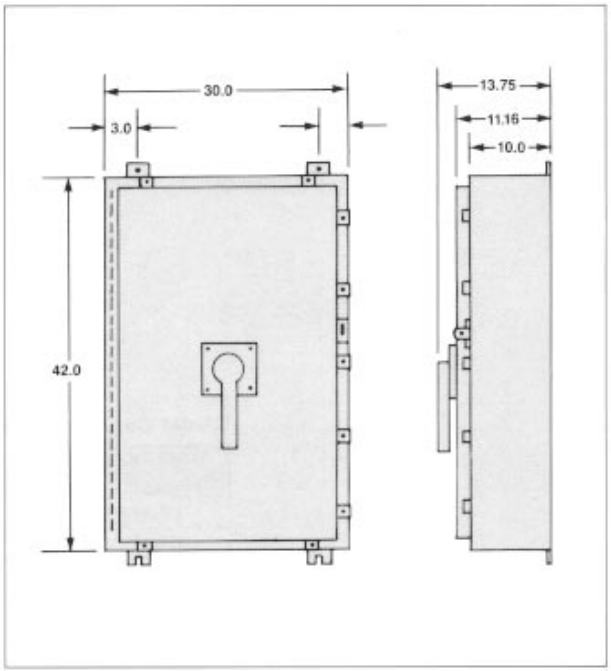
An outdoor, sheet-steel enclosure providing protection against driving rain, sleet or snow. Listed as service-entrance equipment.



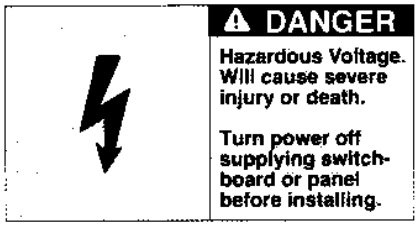
Breaker	A	B
J6N3R	41.2	36.5
L6N3R	45.2	41.5

Type 4—LD6SS4

Stainless steel indoor or outdoor enclosure designed for use in areas where serious corrosion problems exist. Meets NEMA Type 3, 4, 4X, 12 and 13 requirements and UL 508 Type 4 and 4X requirements.



I-T-E Door Latch Mechanism (DKR2, DKR3, DKL2, DKL3)[1]



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 7/4 in. x 1/2 in. steel latch bar Enclosures with an overall height less than 40 in. require the two-point door latch mechanism. When the overall height is greater than 40 in., 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 "clockwise" 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.

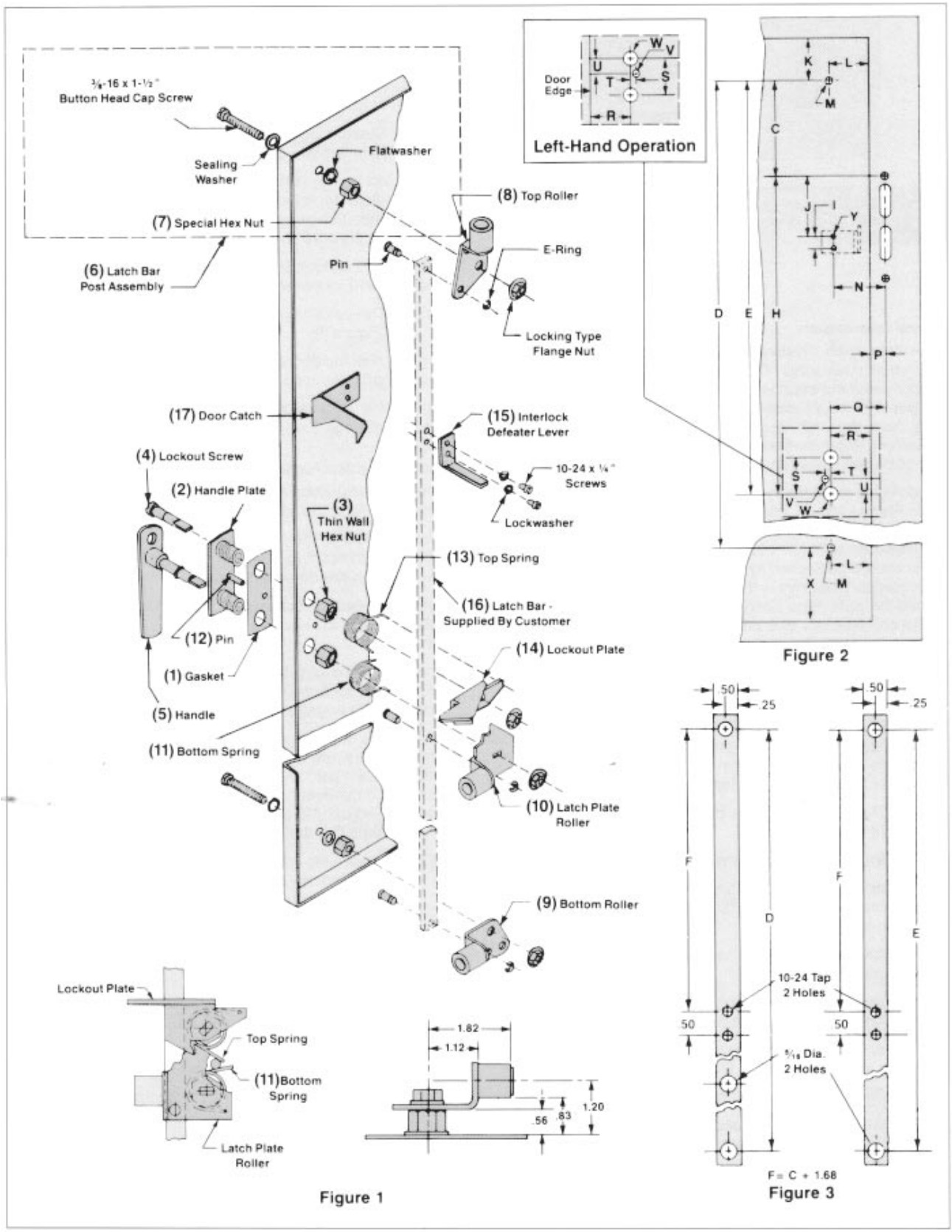
NOTE: To open the door when the handle is in the ON position, turn the latch defeater screw located on the side of the operating handle.

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.

Installation Diagrams



I-T-E JD and LD-Frame
Neutral Sensing Transformer

⚠ DANGER

Hazardous Voltage. Will cause severe injury or death.

Turn power off supplying switchboard or panel before installing.

⚠ SAFETY INSTRUCTIONS

General

A. Turn off power feeding this device before starting the installation.

B. Also turn off any line power within the immediate vicinity to prevent the incidental or accidental contact of tools by the installer.

NOTE: This instruction sheet outlines the recommended installation procedure for the following Neutral Sensing Transformers:

Transformer Cat. No.	Ampere Rating	Color
NO2SJD	200 Amps	Green
NO3SJD	300 Amps	Green
NO4SJD	400 Amps	Green
NO5SLD	500 Amps	Green
NO6SLD	600 Amps	Green

Caution: Incorrect usage of the neutral sensor transformer could cause nuisance tripping or improper operation of the ground fault function. Use only the above series of neutral sensors.

Introduction

This neutral sensing transformer is designed to be mounted on one 3.00" x .50" bus bar or, two 500 MCM cables, maximum.

Mounting Procedure

A. Position the neutral sensor within easy wiring range of the associated circuit breaker and fabricate two .312 diameter holes 2.25 inches apart in bus or panel, as shown in Figure 1. Orient L-Mounting brackets as necessary for the mounting configuration being used and secure to the neutral sensor with the hardware provided.

B. Mount the neutral sensor to bus or panel with 1/4-20 hardware (not provided).

NOTE: The SJD and SLD series of electronic trip circuit breakers equipped with ground fault protection may be used in the residual or ground return modes. When used in the residual mode the orientation of the neutral sensing transformer is important for proper operation. See Figures 2 and 3 for proper orientation of the neutral sensor for residual mode ground fault. Orientation of the neutral sensor is not required when used in the ground return mode of ground fault. See Figure 4 for installation of neutral sensor.

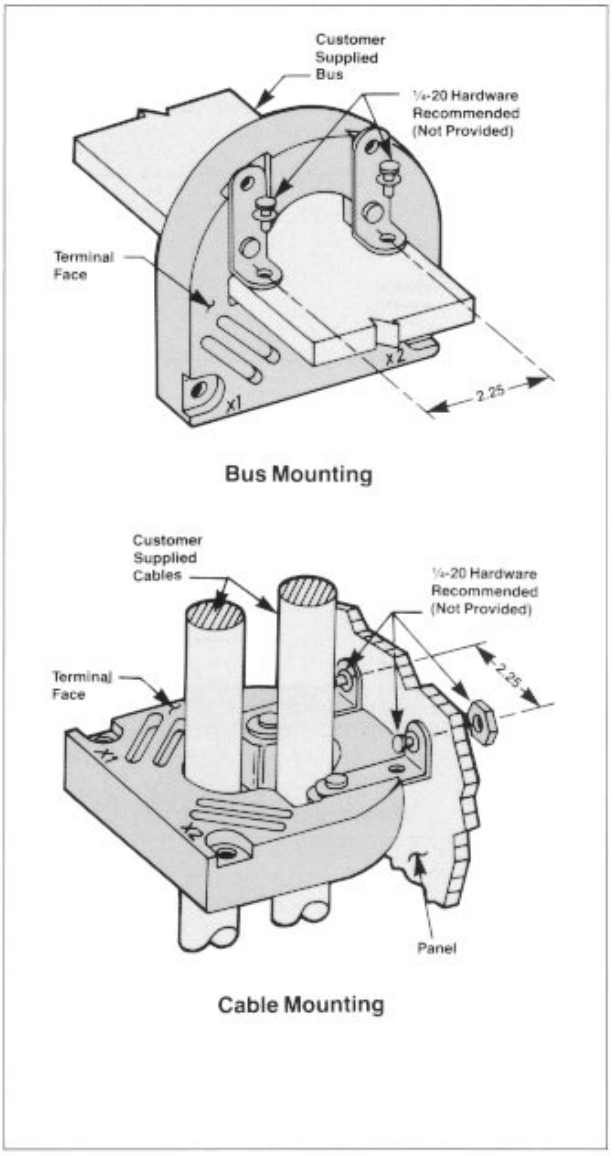


Figure 1

I-T-E JD and LD-Frame Neutral Sensing Transformer

Terminal Connections

A. After properly orienting and mounting the neutral sensing transformer, maintain the correct polarity by attaching the white lead from the circuit breaker to terminal x 1 of the neutral sensor, and the black lead to terminal x 2.

Hardware List	Quantity
10-32 Terminal Screw	2
Cupped Washer	2
L Mounting Bracket	2
1/4-20 x 5/8" machine screw	2
1/4" lockwasher	2
Breaker Label	1

Breaker Label (Figure 5)

A. This label is to be attached to the associated circuit breaker at installation.

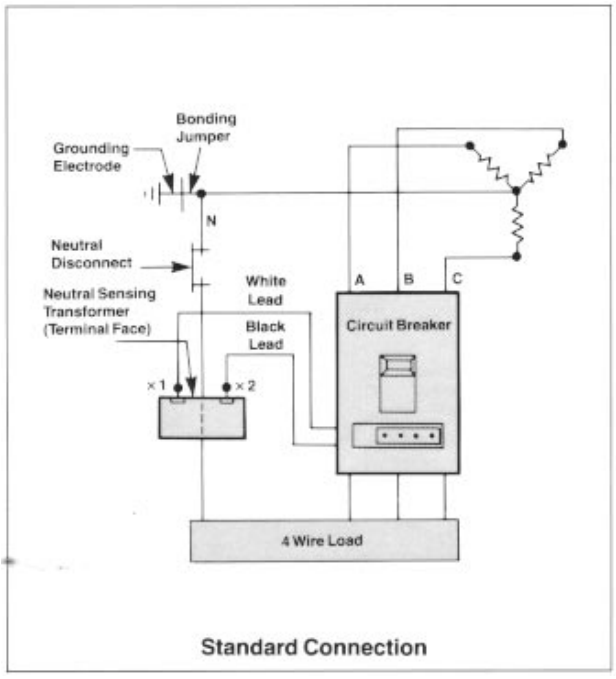


Figure 2

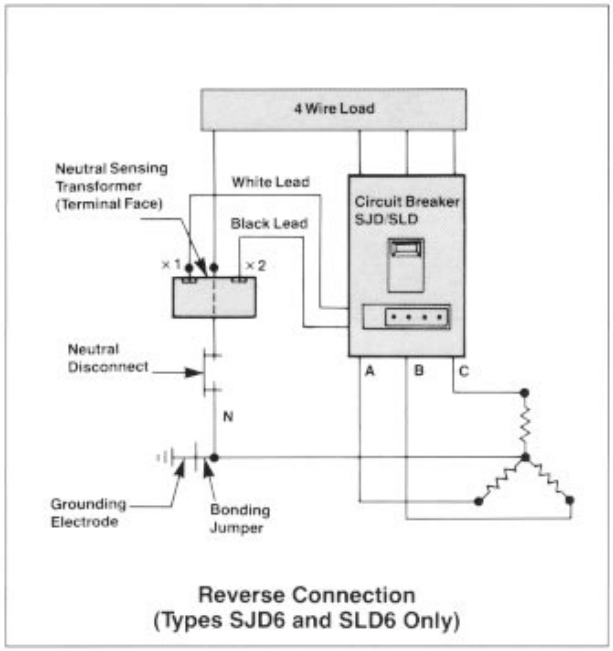


Figure 3

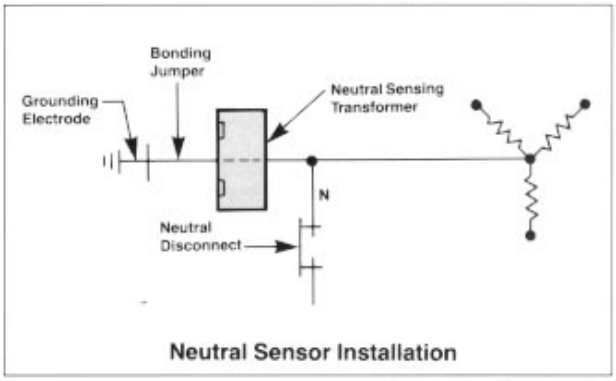


Figure 4

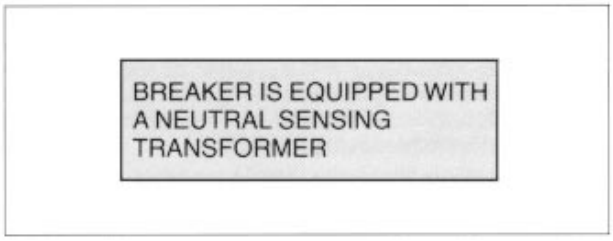
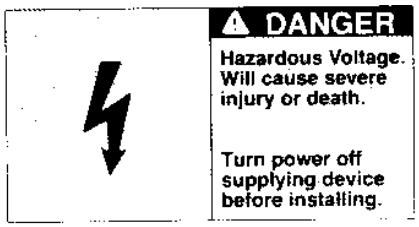


Figure 5

I-T-E Universal Test Kit (TS-31)



SAFETY INSTRUCTIONS

Universal Test Kit

Caution: Remove electrical loads from the circuit breaker to be tested prior to performing tests. Failure to do so can produce erroneous results and possible electrical systems malfunction.

Operating Instructions

A. Remove electrical loads from circuit breaker.

B. Plug the TS-31 test set into a grounded 120 VAC receptacle and turn it on. You will be greeted by the identifying turn-on message:

Siemens Energy & Automation, Inc. TS-31 Test Set. Press ENTER to continue

C. Select the appropriate ribbon cable assembly and connect it between the TS-31 and the circuit breaker, making sure of alignment and polarity. After pressing ENTER, the TS-31 will prompt:

Enter Catalog Number

D. Type in the catalog number and then press the ENTER key. The catalog number can be found on the nameplate of the circuit breaker. The TS-31 will respond with:

Searching Catalog . . . Searching Family/Series . . .

If an invalid catalog number has been entered, the TS-31 will respond with:

Catalog Number xxxxxx Not Found. Press Enter to Continue

and you will be asked to enter another catalog number.
E. If valid catalog number has been entered, the TS-31 will prompt for the Breaker switch settings. The TS-31 will respond with:

Enter continuous current setting in %
Enter instantaneous pickup setting.
Enter long time delay in seconds.

For breakers with short time functions you may be asked one of the following:

Enter short time pickup.
Select Short Time Delay: 1 -Fixed 2-12t
Enter short time delay in seconds.
Enter I2t delay in seconds.

For breakers with ground fault you will be asked:

Enter ground fault pickup setting in %
Enter ground fault delay in seconds

In each case, enter your breaker's switch settings. For example if your breaker is set for a continuous current of 70%, type 70 and then press enter. Entry of erroneous data in the above steps will result in false tests and results.

F. After entering the breaker switch setting you must select the test you wish to perform. The TS-31 will request:

Enter test to perform; see instructions.

Type in one of the following letters depending upon the test you wish to perform:

"L" - Long time or overload test,
"S" - Short time test,
"I" - Instantaneous test,
"G" - Ground fault test,
"C" - Current transformer continuity test,

G. The TS-31 will report the type of test you selected and give you a chance to abort the test. For example, if "I" was pressed above. The TS-31 will display:

Instantaneous Test Press ENTER to continue or A to abort

If you pressed the letter "A" to abort, you will be asked to again:

Enter Test to perform

H. If you press ENTER, you will be prompted for the phase to test: The TS-31 will display:

Enter phase to test.

Enter one of the following letters:
"A" - Phase A or left pole.
"B" - Phase B or center pole.
"C" - Phase C or right pole.

I. Press Enter again to start the test. Press any other key to STOP the test. Once a test has been started, the TS-31 will respond with:

Testing . . .

Be careful at this time. Any key press will abort the test.

Caution: Handling of the test cable, the breaker, or the trip unit at this time can cause electric shock which may result in injury and/or death.

J. The test may take anywhere from a fraction of a second to minutes to complete, depending on which procedure was run. If the test passes, the display will show the following, depending on whether the breaker tripped or not.

Passed Test xxx.xx seconds
Press ENTER to continue,

If the circuit breaker tripped during the test, RESET the circuit breaker before continuing.

K. The TS-31 will prompt for the next instructions. The display will show:

Change: 1 - Test 2 - Catalog 3 - Settings

Enter one of the following numbers:
"1" - Select a new test
"2" - Enter a new catalog number
"3" - Enter new switch settings

If you enter "1" you will be sent to step F Choosing a "2" will send the program back to step C and entering a "3" will route program control back to step E. Entering "3" which sends you back to step E, will be slightly different the second time through. On the second line after the prompt for the setting, a number or text in angle brackets will appear This will indicate the last setting you entered. If you DON'T wish to change a setting, just press ENTER. If you DO wish to change a setting, type in the new setting and press ENTER.

L. If you pressed "C" when asked,

Enter test to perform; see instructions,

you will first be prompted by,

Current Transformer Test Press
ENTER to continue or A to abort,

and then by the phase to test. One of the following messages will then appear depending on the test results:

CT Resistance Test. Phase X Passed
Press ENTER to exit test and continue

CT Resistance Test. Phase X Failed
Press ENTER to exit test and continue

CT Resistance Test. Phase X Open
Press ENTER to exit test and continue

CT Resistance Test. Phase X Short
Press ENTER to exit test and continue

The "Phase X Failed" message indicates that the CT resistance is neither open nor shorted. but is not within design tolerance .

M. There are additional ERROR messages which may appear on the display during this operation which were not covered previously:

Test Not Running! Check test cable connection.
Press ENTER to continue.

The test set has sensed that current is not flowing properly in the breaker under test and that there is either an open or short circuit between the TS-31 and the breaker trip unit.

Function Not Available
Press ENTER to continue.

You will get this error message if you enter a choice that is not available, such as entering "G" in step F for ground fault test on a catalog number that does not have ground fault.

Inconclusive Test, check settings
Press ENTER to continue or A to abort

NOTE: This warning will appear if you attempt to run a short time test with the instantaneous pickup set equal to or below the short time pickup. It would also appear if you tried to run a long time test with short time pickup set to 2. This is only a warning; the test can still be run. However, passing or failing the test may not be conclusive .

Invalid Input
Press Enter to continue

NOTE: This message will appear if you enter a setting value that does not exist. For example, a SMD69700NGT has continuous current settings of 20, 30, 35, 40, 50, 65, 70, 80, 90, and 100 percent. If you were to enter any other value that those listed, the above message would appear.

Test exceeds capability of TS-31
Press ENTER to continue

NOTE: This message is not likely to occur. If it does, it means that a test requires more current to run than the TS-31 can produce.

Unit too hot, please wait

NOTE: Running many successive high-current long time tests may over-heat the test set. It will protect itself from damage by preventing further tests until it has had a chance to cool down. The display will indicate when testing can resume.

Ordering Information

Circuit Breaker Catalog Numbers

SJD6
3-Pole, 600V AC

Catalog Number	Max. Cont. Current Rating	Cont. Current Setting	Long Time Delay	Instantaneous Setting	Short Time Pick Up	Short Time Delay	Short Time I²t Pick Up	Ground Fault Pick Up	Ground Fault Delay	UL Interrupting Ratings (kA) RMS Symmetrical Amperes) Volts AC 120	120/24	240	277	480	600
SJD69200	200	✓	✓	✓								65		35	25
SJD69300	300	✓	✓	✓								65		35	25
SJD69400	400	✓	✓	✓								65		35	25
SJD69200G	200	✓	✓	✓				✓	✓			65		35	25
SJD69300G	300	✓	✓	✓				✓	✓			65		35	25
SJD69400G	400	✓	✓	✓				✓	✓			65		35	25
SJD69200NT	200	✓	✓	✓	✓	✓	✓					65		35	25
SJD69300NT	300	✓	✓	✓	✓	✓	✓					65		35	25
SJD69400NT	400	✓	✓	✓	✓	✓	✓					65		35	25
SJD69200NGT	200	✓	✓	✓	✓	✓	✓	✓	✓			65		35	25
SJD69300NGT	300	✓	✓	✓	✓	✓	✓	✓	✓			65		35	25
SJD69400NGT	400	✓	✓	✓	✓	✓	✓	✓	✓			65		35	25

SHJD6
3-Pole, 600V AC

SHJD69200	200	✓	✓	✓								100		65	35
SHJD69300	300	✓	✓	✓								100		65	35
SHJD69400	400	✓	✓	✓								100		65	35
SHJD69200G	200	✓	✓	✓				✓	✓			100		65	35
SHJD69300G	300	✓	✓	✓				✓	✓			100		65	35
SHJD69400G	400	✓	✓	✓				✓	✓			100		65	35
SHJD69200NT	200	✓	✓	✓	✓	✓	✓					100		65	35
SHJD69300NT	300	✓	✓	✓	✓	✓	✓					100		65	35
SHJD69400NT	400	✓	✓	✓	✓	✓	✓					100		65	35
SHJD69200NGT	200	✓	✓	✓	✓	✓	✓	✓	✓			100		65	35
SHJD69300NGT	300	✓	✓	✓	✓	✓	✓	✓	✓			100		65	35
SHJD69400NGT	400	✓	✓	✓	✓	✓	✓	✓	✓			100		65	35

SCJD6
3-Pole, 600V AC

SCJD69200	200	✓	✓	✓								200		150	100
SCJD69300	300	✓	✓	✓								200		150	100
SCJD69400	400	✓	✓	✓								200		150	100
SCJD69200G	200	✓	✓	✓				✓	✓			200		150	100
SCJD69300G	300	✓	✓	✓				✓	✓			200		150	100
SCJD69400G	400	✓	✓	✓				✓	✓			200		150	100
SCJD69200NT	200	✓	✓	✓	✓	✓	✓					200		150	100
SCJD69300NT	300	✓	✓	✓	✓	✓	✓					200		150	100
SCJD69400NT	400	✓	✓	✓	✓	✓	✓					200		150	100
SCJD69200NGT	200	✓	✓	✓	✓	✓	✓	✓	✓			200		150	100
SCJD69300NGT	300	✓	✓	✓	✓	✓	✓	✓	✓			200		150	100
SCJD69400NGT	400	✓	✓	✓	✓	✓	✓	✓	✓			200		150	100

Note: "G" suffix in catalog number denotes circuit breaker for 3 phase, 3 wire circuits. For 3 phase, 4 wire, order correct 4th wire (neutral) transformer as separate and additional item. For 100% rated breakers, an "H" is added at the end of the normal catalog number, i.e. SHJD69400NGTH.

Neutral Transformers

Ampere Rating	Catalog Number
200	NO2SJD
300	NO3SJD
400	NO4SJD

Ordering Information

Circuit Breaker Catalog Numbers

SLD6
3-Pole, 600V AC

Catalog Number	Max. Cont. Current Rating	Cont. Current Setting	Long Time Delay	Instantaneous Setting	Short Time Pick Up	Short Time Delay	Short Time I²t Pick Up	Ground Fault Pick Up	Ground Fault Delay	UL Interrupting Ratings (kA) RMS Symmetrical Amperes) Volts AC 120	120/24	240	277	480	600
SLD69300	300	✓	✓	✓								65		35	25
SLD69400	400	✓	✓	✓								65		35	25
SLD69500	500	✓	✓	✓								65		35	25
SLD69600	600	✓	✓	✓								65		35	25
SLD69300G	300	✓	✓	✓				✓	✓			65		35	25
SLD69400G	400	✓	✓	✓				✓	✓			65		35	25
SLD69500G	500	✓	✓	✓				✓	✓			65		35	25
SLD69600G	600	✓	✓	✓				✓	✓			65		35	25
SLD69300NT	300	✓	✓	✓	✓	✓	✓					65		35	25
SLD69400NT	400	✓	✓	✓	✓	✓	✓					65		35	25
SLD69500NT	500	✓	✓	✓	✓	✓	✓					65		35	25
SLD69600NT	600	✓	✓	✓	✓	✓	✓					65		35	25
SLD69300NGT	300	✓	✓	✓	✓	✓	✓	✓	✓			65		35	25
SLD69400NGT	400	✓	✓	✓	✓	✓	✓	✓	✓			65		35	25
SLD69500NGT	500	✓	✓	✓	✓	✓	✓	✓	✓			65		35	25
SLD69600NGT	600	✓	✓	✓	✓	✓	✓	✓	✓			65		35	25

SHLD6
3-Pole, 600V AC

SHLD69300	300	✓	✓	✓								100		65	35
SHLD69400	400	✓	✓	✓								100		65	35
SHLD69500	500	✓	✓	✓								100		65	35
SHLD69600	600	✓	✓	✓								100		65	35
SHLD69300G	300	✓	✓	✓				✓	✓			100		65	35
SHLD69400G	400	✓	✓	✓				✓	✓			100		65	35
SHLD69500G	500	✓	✓	✓				✓	✓			100		65	35
SHLD69600G	600	✓	✓	✓				✓	✓			100		65	35
SHLD69300NT	300	✓	✓	✓	✓	✓	✓					100		65	35
SHLD69400NT	400	✓	✓	✓	✓	✓	✓					100		65	35
SHLD69500NT	500	✓	✓	✓	✓	✓	✓					100		65	35
SHLD69600NT	600	✓	✓	✓	✓	✓	✓					100		65	35
SLD69300NGT	300	✓	✓	✓	✓	✓	✓	✓	✓			100		65	35
SLD69400NGT	400	✓	✓	✓	✓	✓	✓	✓	✓			100		65	35
SLD69500NGT	500	✓	✓	✓	✓	✓	✓	✓	✓			100		65	35
SLD69600NGT	600	✓	✓	✓	✓	✓	✓	✓	✓			100		65	35

SCLD6
3-Pole, 600V AC

SCLD69300	300	✓	✓	✓								200		150	100
SCLD69400	400	✓	✓	✓								200		150	100
SCLD69500	500	✓	✓	✓								200		150	100
SCLD69600	600	✓	✓	✓								200		150	100
SCLD69300G	300	✓	✓	✓				✓	✓			200		150	100
SCLD69400G	400	✓	✓	✓				✓	✓			200		150	100
SCLD69500G	500	✓	✓	✓				✓	✓			200		150	100
SCLD69600G	600	✓	✓	✓				✓	✓			200		150	100
SCLD69300NT	300	✓	✓	✓	✓	✓	✓					200		150	100
SCLD69400NT	400	✓	✓	✓	✓	✓	✓					200		150	100
SCLD69500NT	500	✓	✓	✓	✓	✓	✓					200		150	100
SCLD69600NT	600	✓	✓	✓	✓	✓	✓					200		150	100
SCLD69300NGT	300	✓	✓	✓	✓	✓	✓	✓	✓			200		150	100
SCLD69400NGT	400	✓	✓	✓	✓	✓	✓	✓	✓			200		150	100
SCLD69500NGT	500	✓	✓	✓	✓	✓	✓	✓	✓			200		150	100
SCLD69600NGT	600	✓	✓	✓	✓	✓	✓	✓	✓			200		150	100

Neutral Transformers (Not to be used on Sensitrip II)

Ampere Rating	Catalog Number
300	NO3SJD
400	NO4SJD
500	NO5SLD
600	NO6SLD

Note: "G" suffix in catalog number denotes circuit breaker for 3 phase, 3 wire circuits. For 3 phase, 4 wire, order correct 4th wire (neutral) transformer as separate and additional item.
For 100% rated breakers, an "H" is added at the end of the normal catalog number, i.e. SHLD69600NGTH.
Use copper only terminal connectors for LD frame solid state 100% rated circuit breakers .

Ordering Information

Internal Accessory Combination

Shunt Trip

Control Voltage		1 Shunt Trip	1Shunt 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

Ordering Information

Additional Accessories

Item	Catalog No.
PressureWire Connectors	
(1-2) #3/0-500 MCM (Cu) (1 -2) #4/0-500 MCM (Al)	TA2J6500
(1) 500-750 MCM (Al) (1) 500-600 MCM (Cu) (2) 250 MCM (Al)	TA1 L6750
(1) #3/0-600 MCM (Cu)	TC1J6600
(1-2) #3/0-500 MCM (Cu)	TC2J6500
Compression Connector	CCL600
Handle Blocking Device	J6HBL
Padlocking Device	J6HPL
Rear Connecting Studs	
JD-Frame Long—11 13/64 Length	RS5773
Short_5 27/32 Length	RS5774
LD-Frame Long—11 13/64 Length	RS5783
Short—5 27/32 Length	RS5784
Plug-ln Adaptors	
JD-Frame (2-Pole)	PC5777
(3-Pole)	PC5778
LD-Frame (2-Pole)	PC5660
(3-Pole)	PC5661
Switchboard Mounting Plates	
SCJD6/SCLD6 BreakerTypes	PL5297
All OtherTypes	PL5796
Rotary Handle Operator	
Variable Depth	D11CJU2
Rotary Handle Operators	
Complete Mechanism Standard Depth	RHOJSD
Variable Depth	RHOJVD
Handle	RHOH(1)
Breaker Operator	RHOJBO
Shaft Standard Depth	RHOSSD
Variable Depth	RHOSVD
Flange Mount Handle Operator	
Complete Mechanism	FHOJ036
Handle -	FHOH(1)
Breaker Operator	FHOJBO
Standard Cable (36 in.)	FHOJC036
Optional Cable (48 in.)	FHOJC048
Door Latch Mechanisms	
Left Side	DKL2,DKL3
Right Side	DKR2, DKR3

(1) For 4-4x application, order RHOH4 instead of RHOH.

(2) For 4-4x application, order FHOH4 instead ot FHOH.

Item	Catalog No.
Side Handle Operators	
Left Side	D11JLU, D11JL4U
Right Side	D11JRU, D11JR4U
Motor Operators	
120VAC (Hinged to the right)	MOJ6120
120VAC (Hinged to the left)	MOJ6120L
240VAC (Hinged to the right)	MOJ6240
240VAC (Hinged to the left)	MOJ6240L
Linear Drive Operator	OHJS1
Connector Straps Outside Strap	
JD-Frame	CS3620R CS3622R
LD-Frame	CS3624R CS3626R
Center Strap	
JD-Frame	CS3621R CS3623R
LD-Frame	CS3625R CS3627R
Mounting Screw Kits	MSJ6(2)
Enclosures	
JD-Frame	
Type 1	J6N1
Type 3R	J6N3R
Type 4	LD6SS4
Type 12	J6N12
Neutral	W60992
LD-Frame	
Type 1	L6N1
Type 3R	L6N3R
Type 4	LD6SS4
Type 12	L6N12
Neutral	W60993
NOTE: Except for LD6 Enclosures, LD6SS4 Enclosure Neutral is N600	
Time Current Curves	
JD-Frame -	
Types JXD2, JXD6, JD6, HJD6	TD-7104
Type CJD6	TD-7105
LD-Frame	
Types LXD6, LD6, HLD6	TD-7106
Type LCD6	TD-7107
Let-Thru Curves	
JD-Frame	
Peak Current (Ip)	TD-7105-A
I^2t	TD-7105-B
LD-Frame	
Peak Current (Ip)	TD-7107-A
I^2t	TD-7107-B

(4) Consists of 4 screws and assorted washers and/or nuts.

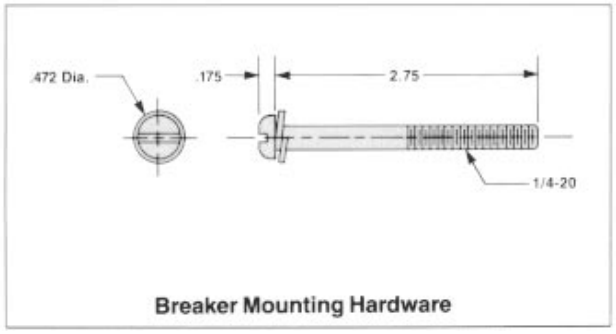
UL Listings and File Numbers

Industry Specifications

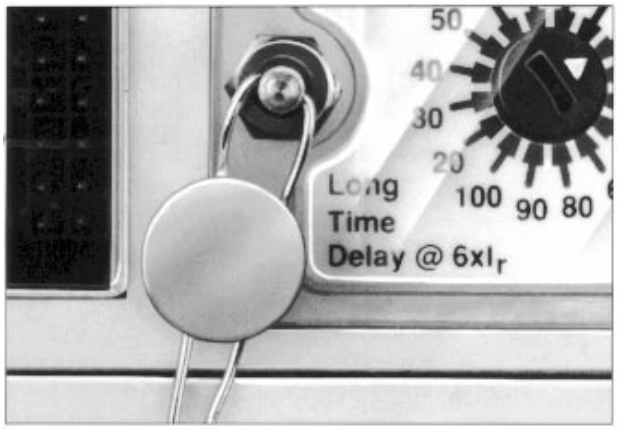
I-T-E	UL-489 File Number	CSA Report Number
Breakers	E10848	LR13077
Terminal Connectors	E23615 (SP)(1)	
Plug-In Connectors	E23615	
Rear Studs	E23615	
Handle Operators	E57501	
Motor Operators	E57501	
Internal Accessories	E69455	LKR13077
Shunt Trip		
Undervoltage Trip		
Aux. Switch		
Bell Alarm Switch		
Enclosures	E10848	

(1) For CSA application use TC2J6500 or TC1 J6600 connectors.

National Fire Protection Assoc. (National Electrical Code4).
Federal Specification W-C-375B/GEN.
Underwriters Laboratories, Inc. (UL 489).
Canadian Standards Association (C22.2 No. 5).

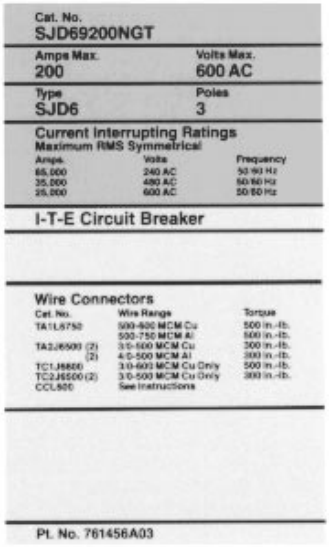


Breaker Mounting Hardware

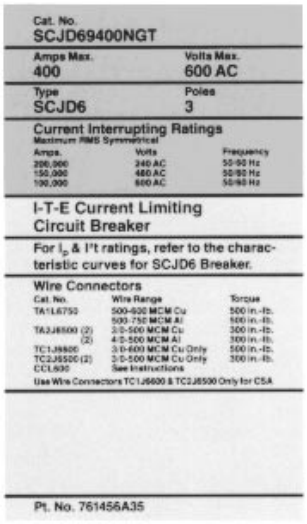


Lockable Cover Shield

(Customer Supplied Locking Device)



Blue Label



Red Label

Siemens Energy
& Automation, Inc.
3333 State Bridge Rd.
Alpharetta, GA 30202