SIEMENS-ALLIS

**Switchgear** 

# INSTRUCTIONS

TYPES CLF-3000 & CLF-4000
LOW VOLTAGE AC FUSE DRAW-OUTS
USED WITH TYPES LAF-3000A & LAF-4000A
LOW-VOLTAGE AC POWER CIRCUIT BREAKERS
AND

RENEWAL PARTS ORDERING GUIDE
FOR THE LOW VOLTAGE AC FUSE DRAW-OUTS

Supplement to 18x5689 and 18x5690

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#### **SCOPE**

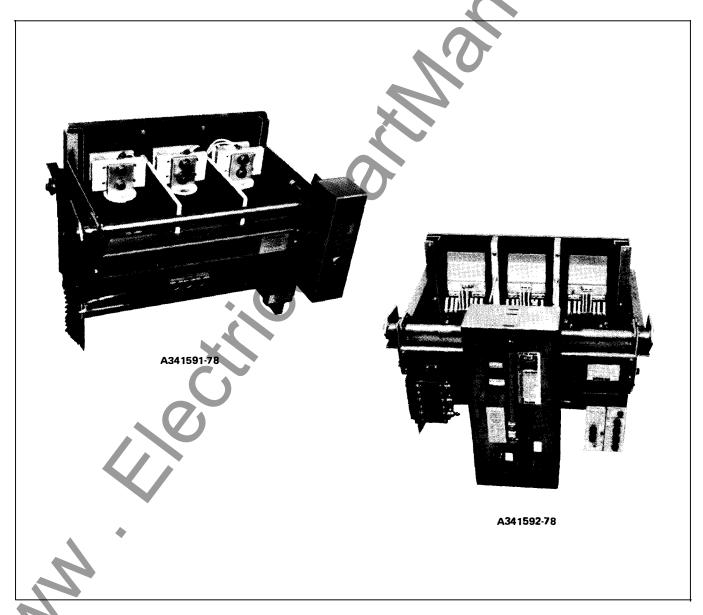
This bulletin describes the receiving, installation, operation and maintenance of the Siemens-Allis Types CLF-3000 and CLF-4000 fuse draw-outs used with Types LAF-3000A and LAF-4000A Low Voltage AC Power Circuit Breakers. Included is a Renewal Parts Ordering Guide for the Fuse Draw-outs.

Except for fuse draw-out/circuit breaker interlocking and open fuse trip attachments, the Types LAF-3000A and LAF-4000A are identical to Types LA-3000A and LA-4000A circuit breaker elements. Fuse draw-out/circuit breaker interlocking and open fuse trip attachments only are discussed

in this bulletin. The circuit breakers themselves are described in the following bulletins:

Instructions, Types LA-3000A and LA-4000A (Unfused) Low Voltage AC Power Circuit Breakers with Manual or Electrical Operators. 18X5689

Renewal Parts Ordering Guide, Types LA-3000A and LA-4000A Low Voltage AC Power Circuit Breakers with Manual or Electrical Operators. 18X5690



Type "LA" Breaker (right) and Fuse Draw-out

#### INSTALLATION AND INSPECTION

#### Introduction

Type CLF-3000 and CLF-4000 fuse draw-outs for use with type LAF-3000A and LAF-4000A circuit breakers may be furnished for mounting in one of two ways. They may be used in metal-enclosed switchgear of the draw-out type, or in individual enclosures (draw-out type). All fuse draw-outs are completely assembled, tested, and calibrated at the factory in a vertical position, and must be so installed to operate properly.

#### Receiving And Inspection For Damage

Immediately upon receipt of this equipment, carefully remove all packing traces. Examine parts; check them against the packing list and note any damages incurred in transit. If damaged, carrier inspection must be arranged for by consignee within 15 days of receipt of equipment. If equipment is shipped F.O.B. Shipping Point, consignee must file a claim with the carrier. If equipment is shipped F.O.B. Destination, the consignee must obtain the original of the carrier inspection report and notify Siemens-Allis immediately.

Two shipping methods are used with "LA" breakers:

- 1. Individually skidded with protective covering for domestic shipments.
- 2. Within a cubicle on export orders, when part of a switchgear lineup. Circuit breakers shipped in their cubicles are blocked to prevent accidental tripping during shipment. Note all caution tags, remove blocking bolts, and open aircuit breaker contacts before installation.

#### Storage

When circuit breakers and fuse draw-outs are not to be put into immediate use, they should be wrapped or covered with a non-absorbent material. This provides protection from plaster, concrete dust, or other foreign matter. Equipment should not be exposed to the action of corrosive gases or moisture. In areas of high humidity or temperature fluctuations, space heaters or the equivalent should be provided.

#### Installation

Before installation, note all caution tags, remove blocking bolts, and open circuit breaker contacts. Fuse carriages are completely adjusted, tested, and inspected before shipment, but a careful check should be made to be certain that shipment or storage has not resulted in damage or change in adjustment. Circuit breakers and fuse draw-outs should be installed in a clean, dry, well-ventilated area in which the atmosphere is free from destructive acid and alkali fumes. Before installing, make certain that the circuit breaker contacts are in the open position.

#### Installing The Circuit Breaker-Fuse Draw-out Combination

- 1. Take the key for the FUSE DRAW-OUT from its associated CIRCUIT BREAKER compartment.
- 2. Using the proper lifting equipment and rail extensions, insert the FUSE DRAW-OUT into its proper compartment. Observe labeling. Unlock the racking mechanism using the key from the circuit breaker compartment. Check that the racking clevis engages the pins in the compartment. Remove the rail extensions. Use the racking crank to rotate the racking screw in a counterclockwise direction until the fuse draw-out reaches its TEST position.
  - 3. Close the fuse compartment door.
- 4. Using lifting equipment and rail extensions, insert the circuit breaker into its compartment. Manually push the circuit breaker along the rails until it is stopped by the locking bar. Remove the rail extensions. Then unlock the locking bar with the key, and push the circuit breaker until the racking clevis engages the cubicle pins.
- 5. After the circuit breaker is racked to the "TEST" position, close it manually by the maintenance closing method. (See MAINTENANCE AND ADJUSTMENTS, 18X5690) to check proper functioning of the mechanism and contacts.

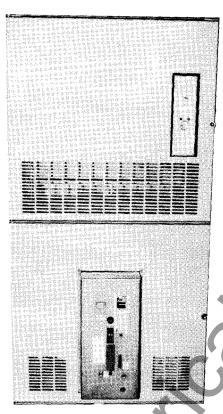
#### **CAUTION**

Make sure circuits are not energized.

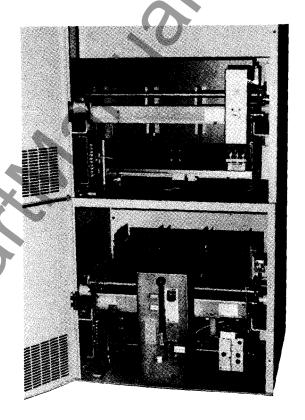
During the closing operation, observe that the contacts move freely without interference or rubbing between movable arcing contacts and parts of the arc chutes. Then refer to OPERATION, pages 3-5, for a detailed description of the circuit breaker operating characteristics before putting the circuit breaker in service.

6. Trip units and accessory devices should receive a thorough check prior to placing the circuit breaker in service to be certain that adjustments are correct and parts are not damaged. Refer to Static Trip II Instruction Book 18X4827-02 or LimiTrip Instruction Book 18X10107.

- 7. Cubicle-mounted circuit breakers of the drawout type are equipped with a drawout interlock to prevent movement of a closed circuit breaker into or out of the connected position. See DRAWOUT INTERLOCK, Bulletin 18X5689 for a description of the interlock. Its operation should be checked before the circuit breaker is energized. The fuse draw-outs are interlocked with a key and lock system to assure that the circuit breaker is withdrawn to its "fully disconnected" position (see Key Interlock System, Page 5) before the fuse draw-out can be racked in or out.
- 8. Upon completion of the installation inspection, the circuit breaker is ready to be energized after the control wiring, if any, is checked and the insulation tested. (Also see Open Fuse Tripping Attachment, Page 5).
- 9. Close the compartment door. Rack the circuit breaker into its connected position. Remove the racking crank, close the slide interlock, and check that the open fuse trip attachment is reset. The circuit breaker can now be operated in its normal manner.



Circuit Breaker and Fuse Draw-out with Compartment Doors Closed



Circuit Breaker and Fuse Draw-out with Cubicle Doors
Open

## REMOVING THE CIRCUIT BREAKER FUSE DRAW-OUT COMBINATION

- 1. Open the circuit breaker. Press the manual trip bar in, and open the slide interlock to expose the racking screw. Use the racking crank to rotate the screw clockwise to move the circuit breaker to its disconnected position. Remove the racking crank and open the compartment door. Manually pull the circuit breaker to its "fully disconnected" position to clear the locking bar. Rotate and remove the key from the lock.
- 2. Use the key to unlock the slide interlock on the fuse draw-out to expose its racking screw. Use the crank to

rotate the racking screw in a clockwise direction to move the fuse draw-out to its disconnected position.

#### Maintenance

Occasional checking and cleaning of the circuit breaker and fuse draw-out will promote long and trouble-free service. A periodic inspection and servicing at least every six months should be included in the maintenance routine.

If the circuit breaker is not operated during extended periods, the circuit breaker should not remain in either the closed or open position any longer than six months. Opening and closing operations should be made to ensure freedom of movement of all parts.

CAUTIONS TO BE OBSERVED IN THE INSTALLATION AND OPERATION OF "LA" CIRCUIT BREAKERS WITH FUSE DRAW-OUTS:

- 1. Read Instruction Book before installing or making any changes or adjustments.
- 2. As the closing springs on stored-energy breakers may be charged in either the circuit breaker open or closed position, extreme care should be taken to discharge all springs before working on the circuit breaker.
- 3. When closing manually operated circuit breakers, always grasp charging handle until it is returned to the normal vertical position.
- 4. Check current ratings, wiring diagram number, circuit breaker type and static trip type against the three

line diagram to assure that circuit breakers and fuses are located in the proper compartments within the switchgear.

#### NOTE

The separately mounted fuse draw-outs are made with a KEY interlock that requires that they be used in specific compartments. Refer to nameplate on fuse draw-out for compartment number.

- 5. Check the alignment of the secondary disconnect fingers to ensure against misalignment due to possible distortion of fingers during shipment and handling.
- 6. Close the compartment door and secure with knurled knob prior to racking to or from the "connected" position. Also close compartment door prior to closing this circuit breaker when in this connected position. Once the circuit breaker is closed, keep this door closed.
- 7. Once the circuit breaker and fuse draw-out are energized, they should not be touched, except for the exterior controls.

## **DESCRIPTION**

The basic LA-3000A unfused circuit breaker has a maximum continuous current rating of 3000 amperes, and an interruption rating of 65,000 amperes symmetrical at 254, 508 and 635 volts, when used without instantaneous trip. It has an interruption rating of 85,000 amperes symmetrical at 254 volts, and 65,000 amperes at 508 and 635 volts, when used with instantaneous trip.

The basic LA-4000A unfused circuit breaker has a continuous current rating of 4000 amperes, and an interruption rating of 85,000 amperes symmetrical at 254, 508 and 635 volts when used without instantaneous trip. The interruption rating is 130,000 amperes at 254 volts, and 85,000 amperes symmetrical at 508 and 635 volts, when used with instantaneous trip.

When used in conjunction with the separately mounted fuse draw-out, the circuit breaker designation becomes LAF-3000A or LAF-4000A. The LAF-3000A and LAF-4000A has an attachment that operates to open the circuit breaker when one or more of the current limiting fuses opens. The interruption rating of the combination of fuses and circuit breaker is increased to the interrupting rating of the fuses — 200,000 amperes symmetrical at 600 volts or less. The continuous current rating may be restricted by the fuse size used. When equipped with 6000 ampere fuses, the LAF-

4000A combination is rated at 4000 amperes continuous. The LAF-3000A combination is rated at 3000 amperes continuous when equipped with 5000 ampere fuses. Both circuit breaker continuous ratings are reduced when smaller rated fuses are used. (Refer to the catalog for application information.)

The fuse draw-outs are provided with open-fuse sensors connected to the open-fuse trip attachment which is mounted on the circuit breaker. This trip opens the circuit breaker when one or more of the current-limiting fuses open.

#### NOTE

The tripping depends on voltage being developed across the open fuse by the power source. NO TRIPPING WILL OCCUR IF THE POWER CIRCUIT IS DE-ENERGIZED.

#### **Fuses**

Only Chase-Shawmut fuses modified per Siemens-Allis drawing number 71-142-200 can be used with the circuit breaker-fuse draw-out combination. Fuses of different manufacture will not mount on the fuse draw-out terminals.

Only fuses of the same current rating should be used for replacement of any open fuses.

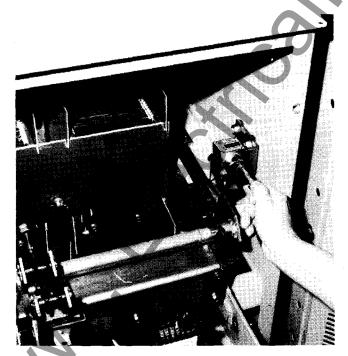
#### Trigger Fuses And Open Fuse Trip Attachment

The fuse draw-out has provisions for mounting three trigger fuses that are connected in parallel with the main power fuses. They are used to indicate which of the power fuses opened under a system fault. Operation of the openfuse trip attachment is indicated by increased projection of the reset rod through the front cover of the circuit breaker. The breaker-mounted open-fuse trip attachment holds the circuit breaker in its tripped position, and the circuit breaker cannot be reclosed until the open-fuse trip attachment is reset manually. The trigger fuses should also be replaced when replacing the main power fuses if open-phase indication is desired. The system will function normally if the trigger fuses are not replaced. However, phase indication will not be provided.

#### **CAUTION**

The trigger fuses connect directly to the main power fuses and will normally be energized at line voltage whenever the fuse draw-out is in its connected position. DO NOT REMOVE THE PROTECTIVE COVER OVER THE TRIGGER FUSES WHEN THE FUSE DRAW-OUT IS IN THE CONNECTED POSITION.

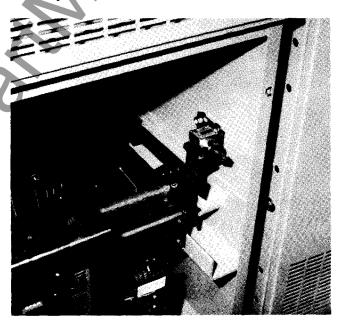
Use only Chase-Shawmut Type TI-600 trigger fuses in the indicator.



Key Interlock on Breaker with Circuit Breaker in the "Fully Disconnected" Position, and showing the Locking Bar behind the Racking Shaft and Key being withdrawn

#### **Key Interlock System**

Each fuse draw-out is equipped with an integral key-operated interlock for a particular cubicle location. Interlocks prevent racking the fuse draw-out in or out of the connected position if its associated circuit breaker is not in its "fully disconnected" position. The circuit breaker must be racked out as far as possible, the door of the cubicle opened, and the circuit breaker pulled out an additional small amount to allow the locking bar to clear the racking shaft. Once clear, the key can be rotated, lowering the locking bar to prevent inserting the circuit breaker into the cubicle. The key can then be removed from the circuit breaker lock and transferred to the lock on the fuse drawout. The fuse draw-out lock operates the slide interlock cover over the racking screw of the fuse draw-out. Once exposed, the fuse draw-out can be racked in or out using the racking handle. The key is retained in the lock when the fuse draw-out is between the TEST and CONNECTED positions. This prevents inserting or withdrawing the fuse draw-out unless the circuit breaker is in the "fully disconnected" position.

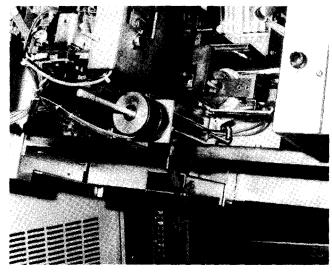


Key Interlock on Breaker Compartment with Circuit Breaker in Connected Position

#### **Testing Open Fuse Trip Attachment**

#### **CAUTION**

The trigger fuses connect directly to the main power fuses and will normally be energized at line voltage whenever the fuse draw-out is in its connected position. DO NOT REMOVE THE PROTECTIVE COVER OVER THE TRIGGER FUSES WHEN THE FUSE DRAW-OUT IS IN THE CONNECTED POSITION.



Circuit Breaker-mounted Open-fuse Trip Attachment with Cover removed from Circuit Breaker

The open fuse trip attachment is operated by the voltage developed across the open fuse. This voltage is applied to a transformer and rectifier combination. The output of the rectifier is connected to the coil of the trip attachment on the circuit breaker through the secondary disconnects of the two devices. For testing, voltage is applied to the input of the transformers. To do this, the fuses must be open, or the transformer disconnected from the fuse. Otherwise, the fuse will short out the test source. For safety, the following procedure is recommended:

1. Open the circuit breaker and rack it to its disconnected position. Open the circuit breaker compartment door, pull the circuit breaker clear of the locking bar. Then remove the key from the interlock.

- 2. Use the key to unlock the fuse draw-out racking mechanism. Rack the fuse draw-out to its TEST position. At this point, the main disconnects are clear of the power circuit, while the secondary disconnects are still engaged. The key can now be rotated and removed from the fuse draw-out racking mechanism lock.
- 3. Unlock the circuit breaker locking bar, re-insert the circuit breaker. Rack it into its TEST position.
- 4. Remove the safety barriers of the fuse draw-out to allow access to the main power fuses. Disconnect the two small (No. 14 AWG) wires from the top terminals of the power fuses. Connect the two small wires of each phase together. Keep them insulated from the top of the fuse. Remove the trigger fuse cover and remove the trigger fuses.
- 5. Close the circuit breaker. Apply voltage to the terminals in the trigger fuse block, preferably from a variable transformer with a voltmeter, although 120 VAC can be used. The voltage is applied between the terminals where the trigger fuses were mounted, one phase at a time. The circuit breaker must trip at 120 VAC or less. Remove the voltage, reset the open fuse trip device on the circuit breaker and reclose the circuit breaker for the next test. Repeat the test for each of the three phases.
- 6. Replace the trigger fuses. Reconnect the two wires to the top of each fuse terminal, and replace the safety barriers and covers, before racking the units back to the connected position. The circuit breaker must first be racked out to the "fully disconnected" position to obtain the key so the fuse draw-out can be moved.

## HOW TO USE THE RENEWAL PARTS ORDERING SECTION

- 1. Locate the part or parts to be replaced in one of the drawings in this manual.
- 2. Identify each part by item number, description and part number. Give drawing figure number in which part is shown.
- 3. Include breaker type, rating and breaker serial number with your order.
- 4. Place order with your Siemens-Allis representative.
- 5. When ordering relays or other electrical parts, include control voltage (see recommended spare parts list for part numbers.)

#### **ORDERING EXAMPLE**

Type LA-3000A Rated Amps. 3000 Serial Number H-86679A-4

Mode of Operation: Electrical Manual

Renewal Parts Ordering Guide 18X5690

Fig.	Item	Description	Part Number	Quantity
1	6	Barrier	71-142-324-001	1
3	24	Spring	71-141-666-001	1
2	28	Base	71-340-240-001	1

If required part is not identified in this manual -

- 1. Make a copy of the drawing figure in which the part would appear.
- 2. Indicate with arrows or other markings location of part.
- 3. Describe or sketch required part.
- 4. Include breaker type, rating and breaker serial number with your order.
- 5. Place order with your Siemens-Allis representative.

## **ITEM DESCRIPTION FOR FIGURES 1 & 2**

ITEM	DESCRIPTION	3000A	4000A
1	Primary Contact	18-657-511 578	657-511 579
7	Screw	00-615-663 373	
12	Key Interlock	00-675-535 311	
14	Interlock Assy.	18-657-846 514	
15 16	.25-20 x .5 Hex. Soc. Hd. Screw Rivet (.188 x .50)	15-171-738 003 18-657-824 128	
21	Panel-Fuse 3K	18-395-712 001	18-395-035 001_
22	Contact Assy.	18-395-711 502	18-395-711 501
26	Lk. Washer .312	00-655-017 030	10 333 711 301
27	Washer .312	00-651-027 170	
28	Angle	18-657-822 183	18-657-854 123
29	Angle Glastic	18-657-870 198	
32	Cap Screw	00-611-315 426	
44	Cover	18-395-713 001	
45	Spec Screw	18-657-855 247	
46	Screw No. 10 (-5)	15-171-399 010	
47	Nut (.375-16)	00-631-059 106	
48	Lk. Washer .375	00-655-017 032	4
49	Label (Racking Position)	18-657-823 348	
53 54	Shelf Screw .25-20 (.62)	18-727-741 001 00-615-663 373	
55	Ground Bar	18-657-781 278	
56	Box Interlock	18-657-855 245	
57	Rack Shaft Support	18-657-855 242	•
58	Roll Pin .188 x .5	00-671-171 309	
59	Guide Nut	18-657-838 282	
60	Wheel	18-657-822 355	
61	Bearing 0.50 ID x 1.00	15-171-399 033	
62	Washer 0.5	00-651-007 285	
63	Cap Scr. Hex. Hd5-13 x 2.0	00-611-315 552	
64	Bearing 0.50 ID x 1.25	15-171-399 034	10 700 077 504
69	Rack Shaft Assy.	18-729-877 502	18-729-877 501
71 72	Retainer Racking Block	18-657-822 197 18-657-823 359	
73	Racking Scr. Assy.	18-727-842 502	
74	Collar	72-140-028 002	
75	Roll Pin	00-671-185 901	
76	Link	18-657-823 340	
77	Rack. Shaft Support	18-729-878 001	
78	Screw Brace	18-657-855 244	
79	Barrel Nut	18-657-823 346	
80	L Link	18-657-823 341	
81	Spacer (.5)	18-724-503 004	
82 83	Spacer (.310)	18-724-503 005 18-724-503 003	
84	Spacer (.19) Spacer (.46)	18-724-503 003	
85	Pin .375 x (1.94)	18-724-501 012	
86	Pin .375 x (2.75)	18-724-501 013	
87	X Washer	00-659-055 250	
88	Nut ,5-13	00-631-171 108	
89	Lk. Washer .5	00-655-017 036	
90	Brace	18-657-855 248	
91	Roll Pin .188 x 1.25	00-671-176 319	19 720 970 001
92 <b>93</b>	Barrier Label (Racking)	18-729-879 002 18-657-870 195	18-729-879 001
94	Cover Strip (cut to suit)	18-657-463 031	
95	Open Fuse Sensor	18-395-829 501	
96	Open Fuse Indicator	18-395-039 501	
97	Barrier	18-657-901 014	
_ 98	Screw, Self Tap, No. 10-16	00-615-199 218	
101	Fuse 2000A	71-142-000 007	
102	Fuse 2500A	71-142-000 008	
103	Fuse 3000A	71-142-000 009	
104	Fuse 4000A	71-142-000 010	
105	Fuse 5000A Fuse 6000A	71-142-000 011 71-142-000 012	
106 107	Screw 2000A only	00-611-315 548	
107	Screw, All Others	00-611-315 550	
109	Rd. Washer	00-651-007 300	

### **ITEM DESCRIPTION FOR FIGURE 3**

ITEM	DESCRIPTION	3000A	
1	Support	<b>18</b> -7 <b>30-064</b>	001
2	Circuit Breaker Assembly	18-730-037	501
3	Transformer	18-657-855	365
4	Resistor (200 OHM 25 W)	00-875-401	201
5	Insulator	00-871-311	109
6	Washer (Centering)	14-105-442	001
7	Screw No. 6-32 x 2.566	00-615-471	142
8	Nut No. 6-32	00-631-109	106
9	Lk. Washer No. 6	00-655-067	060
10	Screw No. 10-32 x .5	00-615-485	218
11	Nut No. 10-32	00-631-109	210
12	Lk. Washer No. 10	00-655-067	100
13	Lk. Washer .25	00-655-067	140
14	Stud .25-20 x 4.25 Lg.	14-135-915	003
15	Nut .25-20	00-631-059	104
16	Screw .25-20 x 0.5	00-611-315	371
17	Insulation	00413-615	182
18	Terminal Red Faston	00-851-470	901
19	Terminal Blue No. 10 Ring	00-851-062	019
20	Terminal Blue No. 6 Ring	00-851-062	017
21	No. 14 SIS Wire	00-557-286	341
22	Nameplate		
23	Tyrap	00-857-271	230
24	Tyrap Mtg. Plate	00-857-271	750
25	Mach. Scr., Slotted Hex. Hd., No. 10-32 x .38 Sems	00-611-445	216

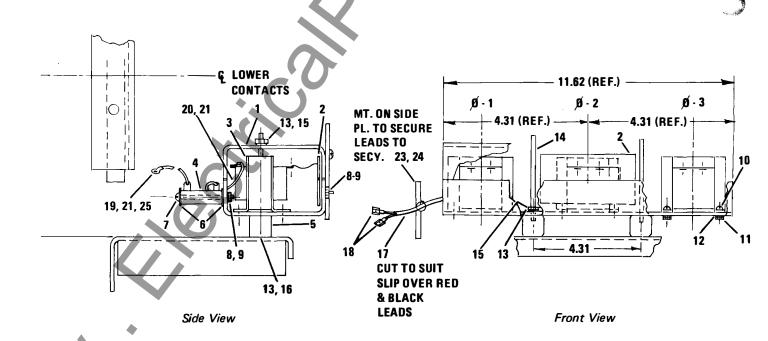
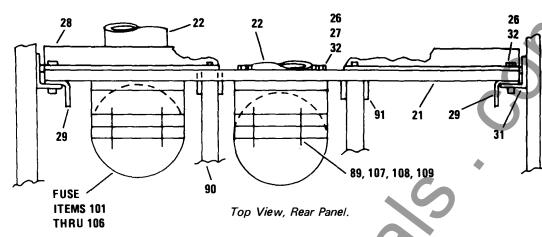
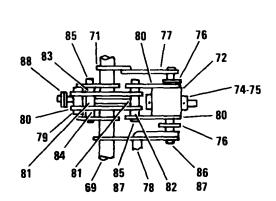


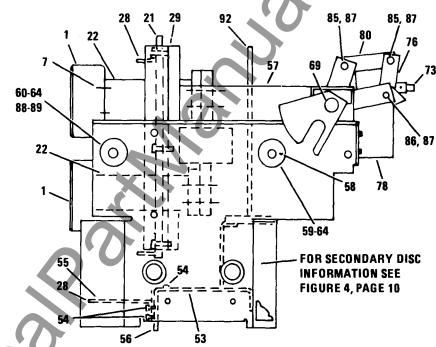
Figure 3. Open Fuse Sensor



FOR WIRING DIAGRAM OF FUSE DRAW-OUT SEE 18-731-230-401



Plan View of Racking Screw.



Left-hand Side View of Fuse Draw-out

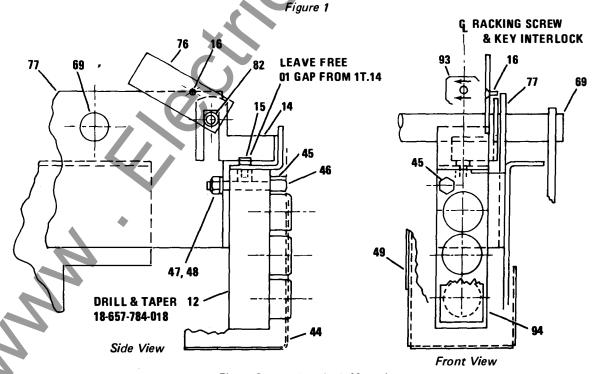
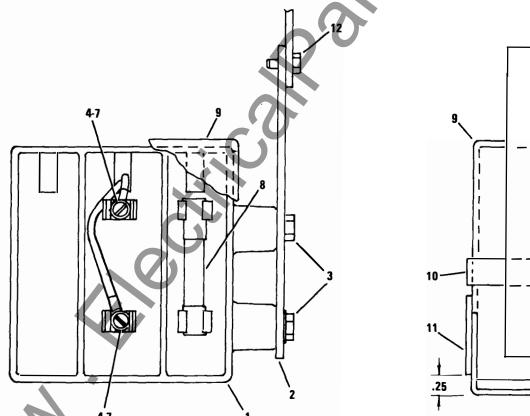


Figure 2. Key Interlock Mounting

Man Alectical Pathlandia Confi

## **ITEM DESCRIPTION FOR FIGURE 4**

ITEM	DESCRIPTION	3000A	
1	Fuse Housing	71-240-600	001
2	Plate	18-657-854	182
3	Sems Screw	00-611-435	371
4	Fuse Clip	00-871-262	103
5	Sems Screw	00-615-641	304
6	Terminal	00-851-011	046
7	Wire No. 14 (SIS)	00-557-286	341
8	Actuator Fuse	72-140-317	001
9	Cover	71-240-599	001
10	Clip	71-142-192	001
11	Label	15-171-185	001
12	Screws .25-20 (.62)	00-615-663	373
13	Mach. Scr., Slotted Hex Hd. Sems No. 10-32 x .38	00-611-445	216
14	Terminal No. 10 Ring	00-851-962	019



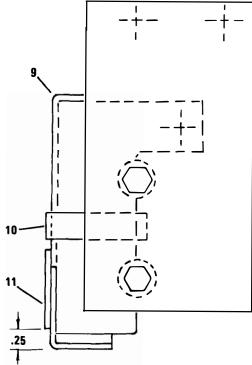


Figure 4. Open Fuse Indicator

## **ITEM DESCRIPTION FOR FIGURE 5**

ITEM	DESCRIPTION	3000A	<b>\</b>
1	Actuator Assy.	18-387-921	505
2	Support Bracket	18-657-855	361
3	Rod	18-657-855	363
4	Guide	18-657-803	018
5	Cap Closure	00-953-383	800
6	Rod End Clip	15-171-399	004
7	Slide Interlock	18-657-781	269
8	No . 10-32 x .5 Lg. Screw	15-171-399	010
9	Insulation (Over Actuator Leads)	00-413-615	182
10	Terminal	00-851-470	901
11	.25-28 Jam Nut	00-631-143	204
12	No. 10-32 x .625 Lg. Rd. Hd. Mach. Screw	00-615-513	220
13	No. 10 Ext. Tooth Lockwasher	00-655-067	100
14	Nut (.25-28)	18-657-855	364
15	.25-20 x .625 Lg. Self Tap. Screw	00-615-663	373
16	Label (Open Fuse Reset)	18-657-765	224

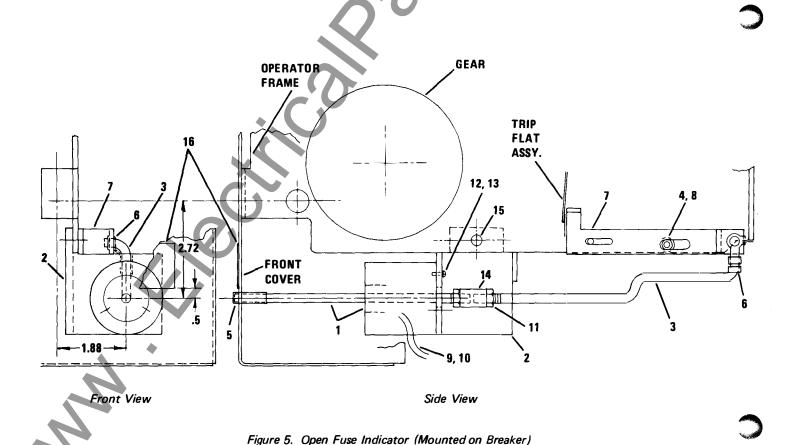


Figure 5. Open Fuse Indicator (Mounted on Breaker)

## SIEMENS-ALLIS

## INSTRUCTION BOOK REFERENCES

Low Voltage Metal — Enclosed Switchgear Type ME and OMG
LimiTrip Static Trip Device Instructions
LA-3000A and LA-4000A (unfused) Circuit Breaker 18X5689
Renewal Parts Operating Guide for LA-3000A and LA-4000A
Types CLF-3000 and CLF-4000 Low-Voltage AC Fuse Draw-outs used with Types
LAF-3000A and LAF-4000A Low-Voltage AC Power Circuit Breakers
Static Trip II Instructions         18X4827
Description of Operation - Static Trip II
Types LA-600A, LA-800A and LA-1600A (unfused) (M.O. or E.O.) Circuit Breaker and
Types LAF-600A, LAF-800A and LAF-1600A (fused) (M.O. or E.O.) Circuit Breaker
Renewal Parts for LA-600A, LA-800A and LA-1600A, LAF-600A, LAF-800A and LAF-1600A 18X5215-02
Portable Test Set Type PTS-2 For Static Trip II
Portable Test Set Type PTS-3 For Static Trip I, II and LimiTrip

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